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(54) Title: HERBICIDAL TRIAZOLECARBOXAMIDES

(57) Abstract

Herbicidal triazolecarboxamides are useful as agricultural chemicals. In particular the compounds are useful as herbicides, both general and selective, both post-emergent and pre-emergent. Examples of selective activity include excellent control of blackgrass and wild oats with outstanding wheat tolerance, and control of crabgrass, giant foxtail, barnyardgrass and blackgrass with outstanding tolerance to corn, soybeans, rice, cotton, wheat, sugarbeets and rape.

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TITLE

HERBICIDAL TRIAZOLECARBOXAMIDES

CROSS-REFERENCE TO RELATED APPLICATION

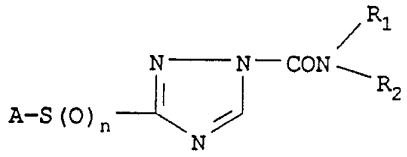
This application is a continuation-in-part of copending U.S. Patent Application Serial No. 07/784,343, filed October 29, 1991.

BACKGROUND OF THE INVENTION

This invention relates to certain substituted triazolecarboxamides which are useful as herbicides and their agriculturally suitable compositions as well as methods for their use as general or selective preemergent or postemergent herbicides or as plant growth regulants.

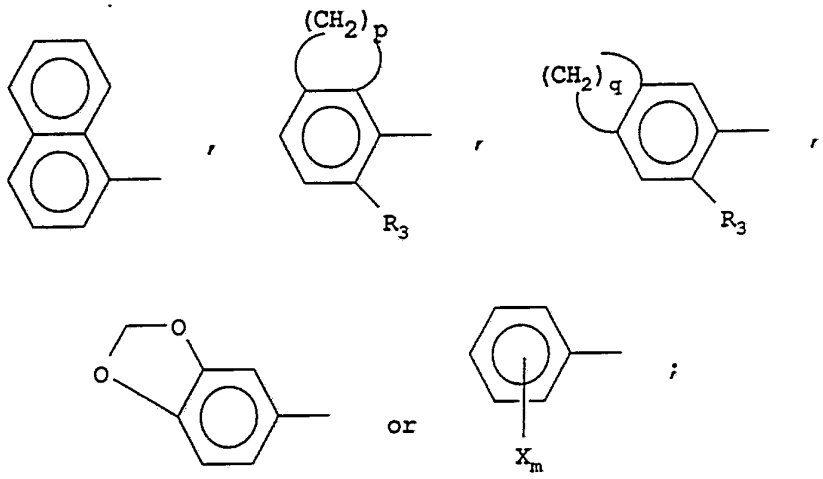
New compounds effective for controlling the growth of undesired vegetation are in constant demand. In the most common situation, such compounds are sought to selectively control the growth of weeds in useful crops such as cotton, rice, corn, wheat and soybeans, to name a few. Unchecked weed growth in such crops can cause significant losses, reducing profit to the farmer and increasing costs to the consumer. In other situations, herbicides are desired which will control all plant growth. Examples of areas in which complete control of all vegetation is desired are areas around railroad tracks, storage tanks and industrial storage areas. There are many products commercially available for these purposes, but the search continues for products which are more effective, less costly and environmentally safe.

EP-A-332,133 discloses triazole compounds of the formula:

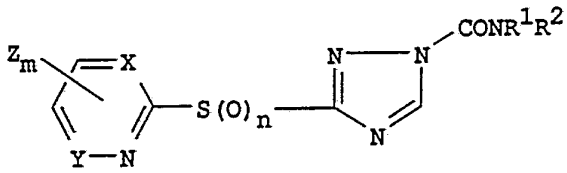


wherein

A is



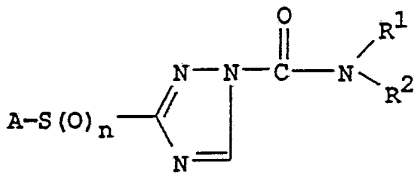
JP 1-106,883 discloses herbicides of the formula



wherein, *inter alia*, X and Y are independently CH or N.

SUMMARY OF THE INVENTION

This invention comprises novel compounds of Formula I, agriculturally suitable compositions containing them, and their method-of-use as preemergent and/or postemergent herbicides or plant growth regulants.



I

wherein

A is a 5-membered heterocyclic ring containing 1 to 3 heteroatoms selected from the group 0-3 nitrogens, 0-1 oxygen and 0-1 sulfur, and is substituted with 1 to 4 substituents selected from R^3, R^4, R^5 and R^6;

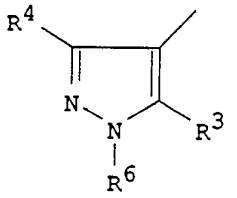
R^1 is H; C_1-C_6 alkyl optionally substituted with C_1-C_3 alkoxy or 1 to 5 halogens; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl optionally substituted with 1 to 3 halogens; C_3-C_6 alkynyl; or C_1-C_3 alkoxy;

R^2 is C_1-C_6 alkyl optionally substituted with C_1-C_3 alkoxy or 1 to 5 halogens; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl optionally substituted with 1 to 3 halogens; or C_3-C_6 alkynyl;

R^1 and R^2 may be taken together to form $-(CH_2)_3-$, $-(CH_2)_4-$, $-(CH_2)_5-$ or $-(CH_2)_6-$, each ring optionally substituted with 1 to 3 substituents selected from halogen and C_1-C_3 alkyl;

R^3, R^4 and R^5 are independently H; halogen; C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl; C_2-C_6 haloalkenyl; C_2-C_6 alkynyl; C_1-C_6 alkoxy; CN; CO_2R^{11}; $S(O)_pR^{12}$; $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; $C(O)R^{19}$, $C(OR^{20})(OR^{21})R^{22}$; $CR^{23}=NOR^{24}$; NO_2; $NR^{25}R^{26}$; or phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^6 is H; C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_2-C_6 alkenyl; C_2-C_6 haloalkenyl; C_2-C_6 alkynyl; CN; CO_2R^{11}; SO_2R^{12}; $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; or pyridine, pyrimidine, thiazole, thiophene or pyrazole, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; and when A is



then R^3 and R^6 may be taken together as $-(CH_2)_3-$ or $-(CH_2)_4-$;

R^7 and R^{11} are independently H, C_1-C_3 alkyl or allyl;

R^8 and R^{12} are independently C_1-C_3 alkyl;

R^9, R^{10}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17} and R^{18} are independently H or C_1-C_3 alkyl; R^9 and R^{10} may be taken together to form a 5- or 6-membered ring; R^{13} and R^{14} may be taken together to form a 5- or 6-membered ring; R^{15} and R^{16} may be taken together to form a 5- or 6-membered ring; and R^{17} and R^{18} may be taken together to form a 5- or 6-membered ring;

R^{19}, R^{22} and R^{23} are independently H or C_1-C_3 alkyl;

R^{20} and R^{21} are independently C_1-C_3 alkyl or may be taken together to form a 5- or 6-membered ring;

R^{24} is H or C_1-C_3 alkyl;

R^{25} and R^{26} are independently H, C_1-C_3 alkyl or may be taken together to form a 5- or 6-membered ring;

m, n and p are independently 0, 1 or 2;

provided that

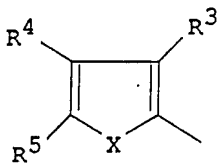
a) R^3, R^4 and R^5 are independently bonded to carbon, and R^6 is bonded to nitrogen; and

b) when $S(O)_n$ is bonded to nitrogen then n is 2.

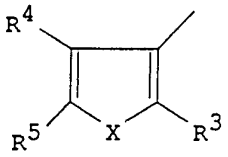
In the above definitions, the term "alkyl" includes straight chain or branched alkyl, e.g., methyl, ethyl, *n*-propyl, isopropyl or the different butyl isomers. Alkoxy includes methoxy, ethoxy, n-propyloxy, isopropyloxy, etc. Alkenyl includes straight chain or branched alkenes, e.g., 1-propenyl, 2-propenyl, 3-propenyl and the different butenyl isomers. Cycloalkyl includes cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl. The term "halogen", either alone or in compound words such as "haloalkenyl", means fluorine, chlorine, bromine or iodine. Further, when used in compound words said alkyl or alkenyl may be partially or fully substituted with halogen atoms, which may be the same or different.

Preferred for reasons including ease of synthesis and/or greater herbicidal efficacy are:

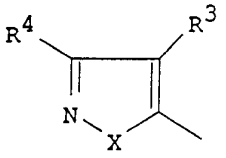
1. A compound of Formula I wherein n is 1 or 2.
2. A compound of Preferred 1 wherein A is



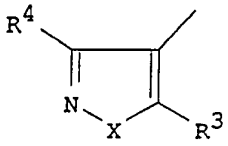
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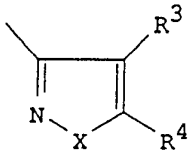
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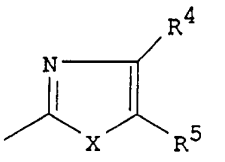
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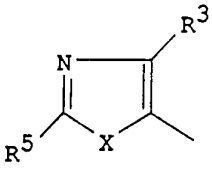
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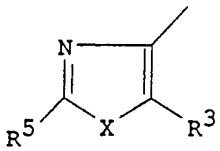
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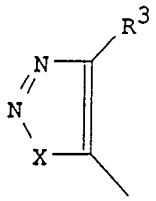
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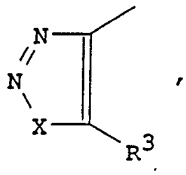
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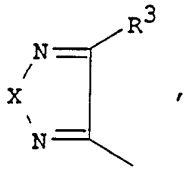
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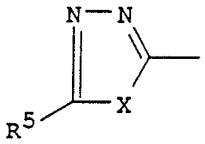
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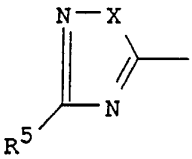
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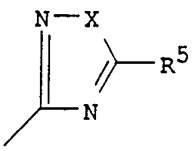
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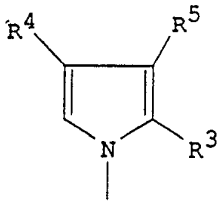
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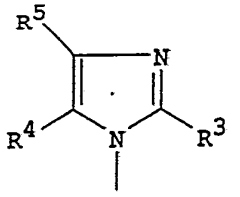
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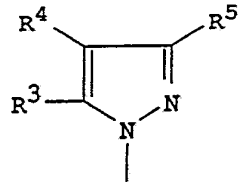
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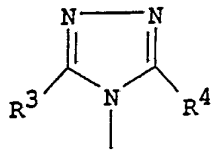
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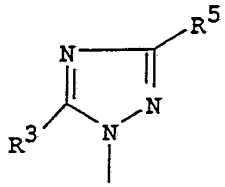
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A-17

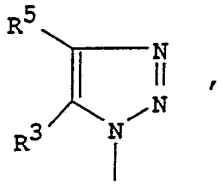


A-18



A-19

or



A-20

wherein

X is NR^6, O or S.

3. A compound of Preferred 2 wherein n is 2 and R^1 and R^2 are independently C_1-C_3 alkyl or C_2-C_3 alkenyl.
4. A compound of Preferred 3 wherein A is selected from A-3, A-4, A-5 and A-17, and X is NR^6.
5. A compound of Preferred 4 wherein

R^3, R^4 and R^5 are independently H; F; Cl; Br; C_1-C_3 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy; cyclopropyl; C_2-C_3 alkenyl; C_2-C_3 haloalkenyl; C_2-C_3 alkynyl; C_1-C_3 alkoxy; CN; $CO_2(C_1$-C_2 alkyl), $S(O)_p(C_1$-C_2 alkyl); $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; $C(O)R^{19}$; $C(OR^{20})(OR^{21})R^{22}$; CR^{23}=NOR^{24}; NO_2; $NR^{25}R^{26}$; or phenyl optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^6 is H, C_1-C_4 alkyl optionally substituted with one or more F, Cl, Br, C_1-C_3 alkoxy, CN, $CO_2(C_1$-C_2 alkyl), $S(O)_m(C_1$-C_2 alkyl), $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_2-C_4 alkenyl; C_2-C_4 haloalkenyl; C_2-C_4 alkynyl; CO_2R^{11}; $SO_2(C_1$-C_2 alkyl); $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from

halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; or pyridine, pyrimidine or thiazole, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^9, R^{10}, R^{13} and R^{14} are independently C_1-C_2 alkyl;

R^{11} is C_1-C_2 alkyl or allyl;

R^{15}, R^{16}, R^{17}, R^{18}, R^{25} and R^{26} are independently C_1-C_3 alkyl; and

R^{19}, R^{22} and R^{23} are independently H or C_1-C_2 alkyl.

6. A compound of Preferred 5 wherein

R^1 and R^2 are independently ethyl or allyl; and

R^5 is H, cyclopropyl, Cl, CH_3, C_2H_5 or CF_3.

7. A compound of Preferred 6 wherein

R^3 and R^4 are independently H, Cl, C_1-C_3 alkyl, CF_3, C_1-C_2 alkoxy or C_2-C_3 alkenyl; and

R^6 is C_1-C_3 alkyl optionally substituted with 1 to 3 F, Cl, Br, C_1-C_2 alkoxy, CN, $CO_2(C_1$-C_2 alkyl) or $C(O)NR^9R^{10}$; allyl; propargyl; $C(O)NR^{15}R^{16}$; phenyl; pyridine; pyrimidine; or thiazole.

8. A compound of Preferred 7 selected from:

3-[(5-chloro-1-ethyl-3-methyl-1H-pyrazol-4-yl)sulfonyl]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide;

3-[(3,5-diethyl-1-methyl-1H-pyrazol-4-yl)sulfonyl]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide; and

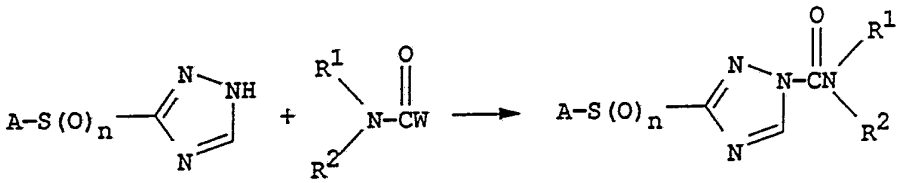
3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4-yl]sulfonyl]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide.

DETAILED DESCRIPTION OF THE INVENTION

Compounds of General Formula I can be readily prepared by one skilled in the art by using the reactions and techniques described in Scheme 1 to Scheme 29 below. In cases where the substituent of a starting material is not compatible with the reaction conditions described for any of the reaction schemes, it can be assumed that the substituent is converted to a protected form prior to the described reaction scheme and then deprotected after the reaction using commonly accepted protecting/ deprotecting techniques (as an example, see T. W. Greene and P. G. M. Wuts, "Protective Groups in Organic Synthesis", 2nd Edition, John Wiley and Sons, Inc., New York, 1991). Otherwise alternative approaches known to one skilled in the art are available.

Scheme 1 illustrates the preparation of compounds of General Formula I (where n, A, R^1 and R^2 are defined as above) whereby the triazole derivative of General Formula II (where n and A are defined as above) is allowed to react with the carbamoyl halide of General Formula III (where R^1 and R^2 are defined as above; W is a halogen atom).

SCHEME 1



II III I

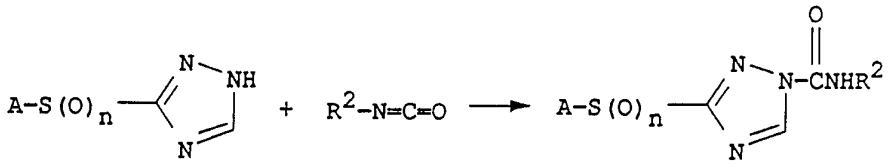
This reaction is performed in an inert solvent such as acetonitrile, acetone, *N,N*-dimethylformamide, benzene, toluene, xylene, chloroform, dichloroethane, dioxane, tetrahydrofuran or methylethylketone and in the presence of a hydrogen halide removing agent such as triethylamine, pyridine, sodium carbonate, potassium carbonate, sodium ethoxide, potassium t-butoxide or sodium hydride with the reaction temperature being between 0 and 140°C and the reaction time being between 10 minutes and 100 hours.

One to 5 equivalents of hydrogen halide removing agent and 1 to 4 equivalents of carbamoyl halide of General Formula III are usually used per one equivalent of the triazole derivative of Formula II.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure and water is added to the residue. The aqueous layer is then extracted with organic solvent. The organic extract is then dried and concentrated. The crude product can be further purified by means of flash column chromatography, recrystallization, or a similar operation if needed.

Scheme 2 illustrates the preparation of compounds of General Formula Ia (which are compounds of General Formula I where R^1 is H; A, n and R^2 are defined as above) whereby the triazole derivative of General Formula II (wherein A and n are defined as above) is allowed to react with an isocyanate of General Formula IV (wherein R^2 is defined as above).

SCHEME 2



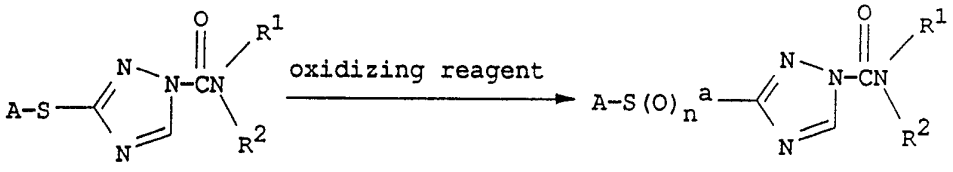
II IV Ia

This reaction is performed in an inert solvent such as acetonitrile, *N,N*-dimethylformamide, benzene, toluene, xylene, chloroform, dichloroethane, dioxane, tetrahydrofuran or methylethylketone with or without a catalyst such as triethylamine, pyridine, potassium t-butoxide or 1,8-diazabicyclo[5.4.0]-undec-7-ene (DBU). The reaction temperature ranges from 0 to 140°C and the reaction time is between 10 minutes and 100 hours.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. Water is then added to the residue and the aqueous layer is extracted with organic solvent. The organic extract is dried and concentrated to give the crude product. This crude product can be further purified by flash column chromatography if needed.

Compounds of General Formula Ib (which are compounds of General Formula I where n is 1 or 2; A, R^1 and R^2 are defined as above; m is the same as n if applicable) can also be prepared by oxidizing the compounds of General Formula Ic (which are compounds of General Formula I where n is 0; A, R^1 and R^2 are defined as above) as illustrated in Scheme 3.

SCHEME 3



Ic Ib

wherein

n^a is 1 or 2

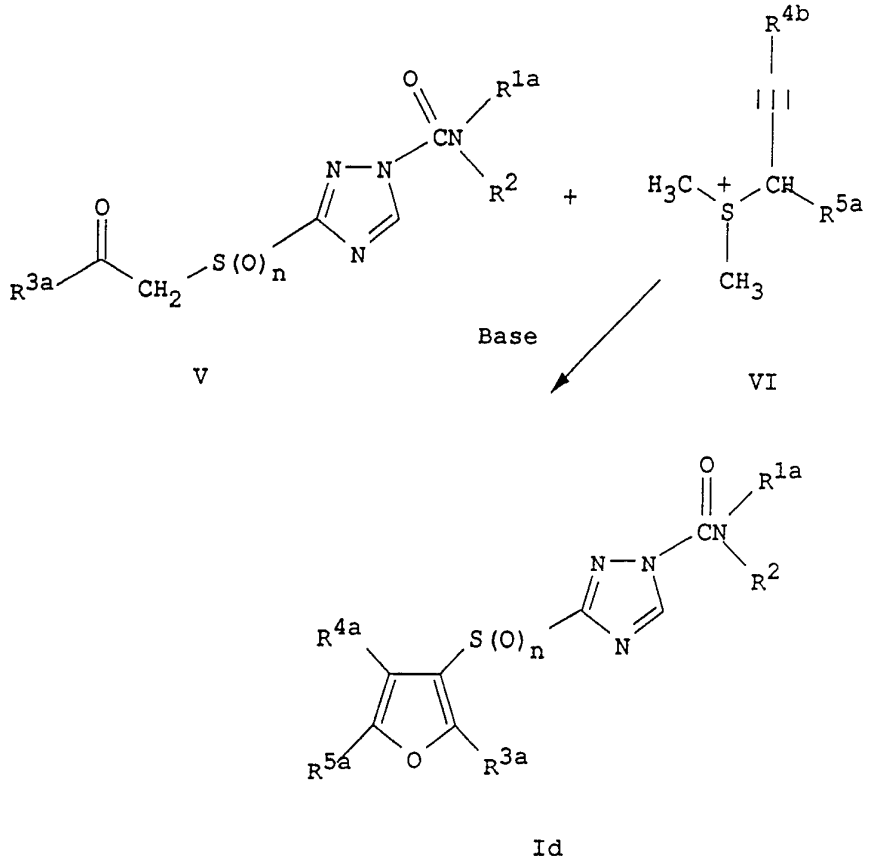
The oxidizing reagents that can be used in the process of Scheme 3 include 3-chloroperoxybenzoic acid, peracetic acid, trifluoroperacetic acid and hydrogen peroxide. This oxidation is normally performed in a solvent and the solvents that can be used will vary depending on the type of oxidizing reagent used. For example, if the oxidizing reagent is 3-chloroperoxybenzoic acid, benzene, methylene chloride, chloroform or other halogenated hydrocarbons can be used as solvent. If peracetic acid or trifluoroperacetic acid is used as the oxidizing reagent, halogenated hydrocarbons or the corresponding acid can be used as solvent. If the oxidant is hydrogen peroxide, water, acetone, acetic acid or the like can be used.

The reaction temperature range is normally 0 to 80°C while the reaction time ranges from 10 minutes to 100 hours. In general, 0.9 to 1.2 equivalents of the oxidizing reagent are used for the preparation of compounds of General Formula Ib where n is 1. Two to five equivalents of oxidant are used for preparing compounds of General Formula Ib where n is 2. When substituent(s) on A contains sulfur atom(s), additional amounts of oxidant will be needed for the oxidation of the additional sulfur atom(s) on the substituent(s) to the desired oxidation state.

Upon completion of the reaction, methylsulfide or other reducing agents are added to destroy the unreacted oxidant. Water is then added followed by organic solvent extraction. If 3-chloroperoxybenzoic acid is used as the oxidant, the organic extract is washed with dilute basic aqueous solution such as sodium bicarbonate aqueous solution. The organic extract is then dried and concentrated to give the crude product. Flash column chromatography, recrystallization or a similar operation may be performed to further purify the crude product if needed.

Scheme 4 illustrates the preparation of compounds of General Formula Id (which are compounds of General Formula I where A is A-2; X is O; n is defined as above; R^1 is defined as above, other than H; R^2 is defined as above; R^3 is H, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 alkoxy or C_1-C_6 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy; R^4 is C_1-C_6 alkyl; R^5 is H or C_1-C_6 alkyl) whereby a triazolecarboxamide derivative of General Formula V is allowed to react with an acetylenic sulphonium salt of General Formula VI in the presence of a base.

SCHEME 4



Id

wherein

R^{1a} is R^1 except H;

R^{3a} is H, C_3-C_6 cycloalkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 alkoxy or C_1-C_6 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy;

R^{4a} is C_1-C_6 alkyl;

R^{5a} is H or C_1-C_6 alkyl;

R^{4b} is H or C_1-C_5 alkyl.

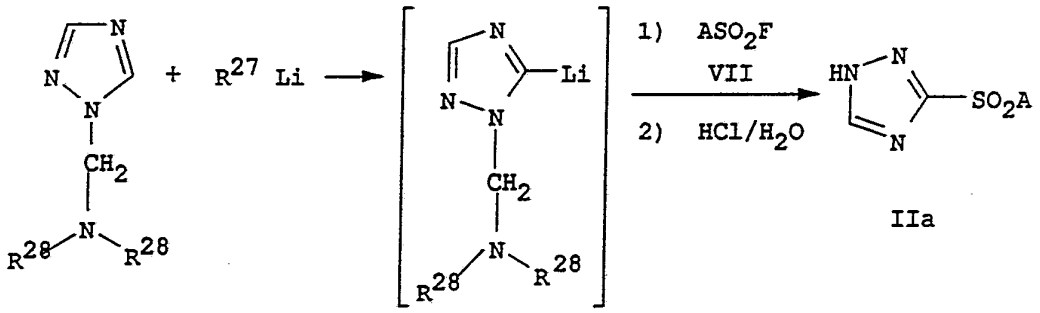
This reaction is carried out in a solvent such as acetonitrile, methylene chloride, *N,N*-dimethylformamide, dioxane, tetrahydrofuran, ethyl alcohol or t-butyl alcohol with reaction temperature ranging from 0 to 120°C and reaction time being between 10 minutes and 100 hours.

One to two equivalents of base such as 1,8-diazabicyclo[5.4.0]-undec-7-ene (DBU), triethylamine, diisopropyl-ethylamine, sodium ethoxide or potassium t-butoxide and 1 to 1.2 equivalents of the acetylenic sulphonium salt of General Formula VI are used per equivalent of the triazolecarboxamide derivative of General Formula V.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. The desired product is isolated from the residue by flash column chromatography.

Compounds of General Formula IIa (which are compounds of General Formula II where n is 2; A is defined as above) can be prepared by reacting the sulfonyl fluoride of General Formula VII with the lithium salt generated in situ from compounds of General Formula VIII (where R^{28} is C_1-C_4 alkyl and the two R^{28} groups may be taken together to form -$(CH_2)_3$-, -$(CH_2)_4$-, -$(CH_2)_5$- or -$(CH_2)_6$)- as illustrated in Scheme 5.

SCHEME 5



wherein

R^{27} is n-butyl, 2-butyl or t-butyl;

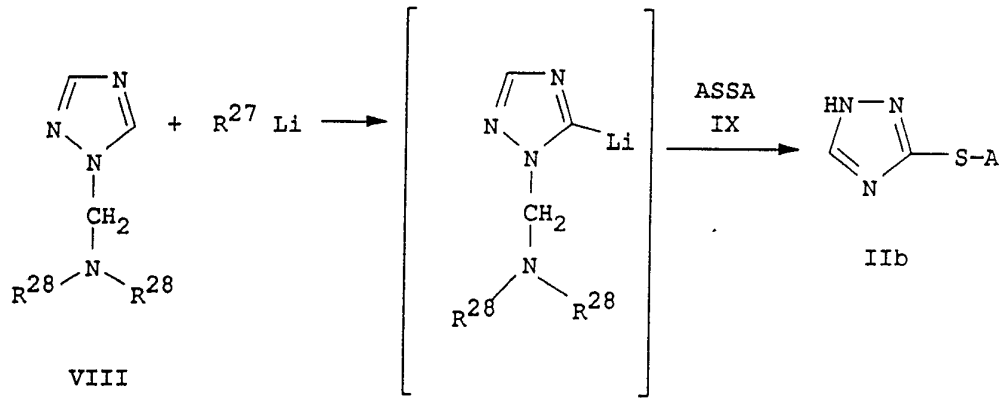
A is defined as above.

In this reaction, the compound of General Formula VIII in an inert solvent such as diethylether, dimethoxyethane or tetrahydrofuran is cooled under N_2 to -60°C to -100°C and the solution of an alkyl lithium such as n-butyllithium or t-butyllithium in an inert solvent such as hexane is slowly added dropwise to it. The resulting mixture is kept at -50 to -100°C for a period of time ranging from 10 minutes to 2 hours. The sulfonyl fluoride of General Formula VII in an inert solvent such as diethylether or dimethoxyethane or tetrahydrofuran is then added while the reaction

temperature is kept at -50 to -100°C. After the addition, the reaction mixture is allowed to warm up to room temperature and stirred at that temperature for 10 minutes to 5 hours. Aqueous hydrochloric acid is then added. The resulting mixture is allowed to stir for 10 minutes to 2 hours. Aqueous $NaHCO_3$ solution is then added to this mixture until a pH between 4 and 7 is reached. Organic solvent such as methylene chloride is then added. The mixture is then shaken in a separatory funnel. The organic layer is separated, dried over sodium sulfate or magnesium sulfate and concentrated to give the crude product. This crude product can be further purified through flash column chromatography, recrystallization or other similar operations. Alternatively, the reaction procedures taught by A. R. Katritzky et al., *Tetrahedron* 46(2), 641 (1990), or slight modifications thereof, can also be used for the reaction of Scheme 5. Compounds IIa can also be prepared from compounds I through alkaline hydrolysis by one skilled in the art.

Compounds of General Formula IIb (which are compounds of General Formula II where n is 0, A is defined as above) can be prepared by reacting the disulfide of General Formula IX (where A is defined as above) with the lithium salt generated in situ from compounds of General Formula VIII (where R^{28} is C_1-C_4 alkyl) as illustrated in Scheme 6.

SCHEME 6



wherein

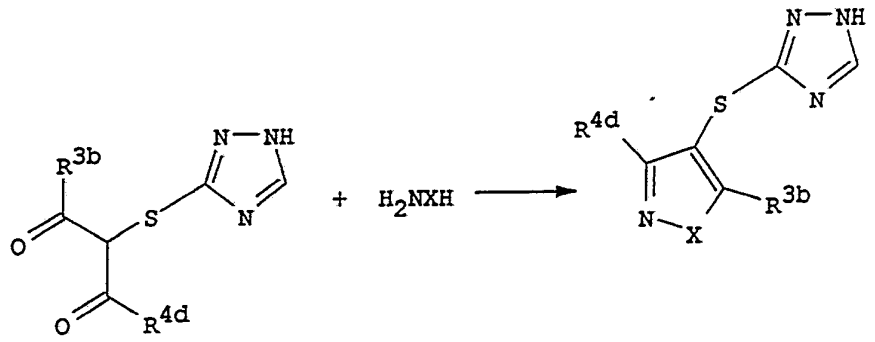
R^{27} is n-butyl, 2-butyl or t-butyl.

In this reaction, the compound of General Formula VIII in an inert solvent such as diethylether, dimethoxyethane or tetrahydrofuran is cooled under N_2 to -60°C to -100°C and the solution of an alkyl lithium such n-butyl lithium or t-butyl lithium

in an inert solvent such as hexane is slowly added dropwise to it. The resulting mixture is kept at -50 to -100°C for a period of time ranging from 10 minutes to 2 hours. The disulfide of General Formula IX in an inert solvent such as diethylether, dimethoxyethane or tetrahydrofuran is then added while the reaction temperature is kept at -50 to -100°C. After the addition, the reaction mixture is allowed to warm up to a temperature ranging from 20°C to 60°C and stirred at that temperature for 10 minutes to 5 hours. Aqueous hydrochloric acid is then added. The resulting mixture is allowed to stir for 10 minutes to 2 hours. Aqueous $NaHCO_3$ solution is then added to this mixture until a pH between 5 and 7 is reached. Organic solvent such as methylene chloride is then added. The mixture is then shaken in a separatory funnel. The organic layer is separated, dried over sodium sulfate or magnesium sulfate and concentrated to give the crude product. The crude product can be further purified by flash column chromatography, recrystallization or other similar operation. Alternatively, the reaction procedures taught by A. R. Katritzky et al., *Tetrahedron* 46(2), 641 (1990), or slight modifications thereof, can also be used for the reaction of Scheme 6.

Scheme 7 illustrates the preparation of compounds of General Formula IIc (which are compounds of General Formula II where n is 0, A is A-4; R^3 and R^4 are independently C_1-C_6 alkyl or C_3-C_6 cycloalkyl, X is O or NR^6) whereby a triazolylthiodiketone of General Formula X is reacted with a hydrazine or a hydroxylamine of General Formula XI.

SCHEME 7



X XI IIc

wherein

R^{4d} is C_1-C_6 alkyl or C_3-C_6 cycloalkyl;

R^{3b} is C_1-C_6 alkyl or C_3-C_6 cycloalkyl;

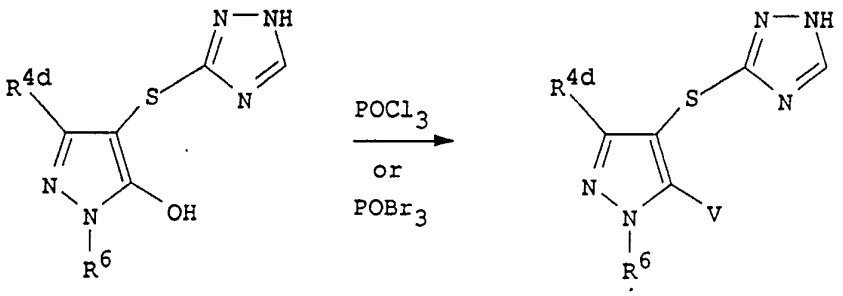
X is O or NR^6.

This reaction is carried out in a solvent such as methanol, ethanol, isopropanol, *N*-*N*-dimethylformamide or acetonitrile with the reaction temperature between 25°C and 140°C for a period of time ranging from 0.5 to 500 hours. One to 3 equivalents of XI are usually used per equivalent of X.

Upon completion of the reaction, the reaction mixture is concentrated. Water is added to the residue. The aqueous layer is then extracted with organic solvent such as hexane, ether or methylene chloride. The organic extract is then dried over sodium sulfate or magnesium sulfate and concentrated under reduced pressure to give the desired product. This crude product may be further purified by flash column chromatography, recrystallization or other similar operation.

Scheme 8 illustrates the preparation of compounds of General Formula IId (which are compounds of General Formula II where n is 0, A is A-4; R^3 is Cl or Br; R^4 is R^{4d}; X is NR^6) whereby a triazolylthioheterocycle of General Formula XII (wherein R^{4d} and R^6 are defined as above) is allowed to react with a halogenating agent such as phosphorous oxychloride or phosphorous oxybromide.

SCHEME 8



XII IId

wherein

R^{4d} is defined as above;

R^6 is defined as above;

V is Cl or Br.

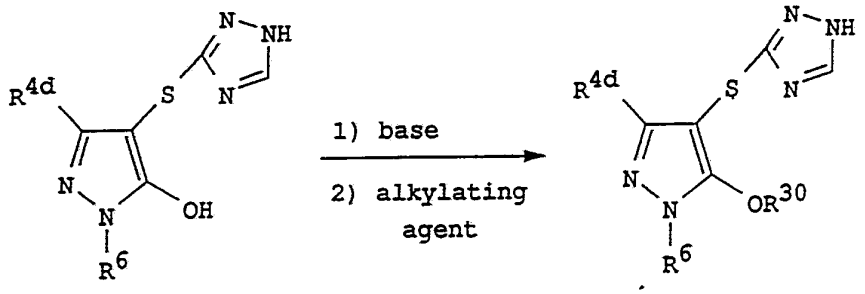
This reaction is carried out in the absence of a solvent or in an inert solvent such as dioxane, chloroform, dichloroethane or toluene in a sealed tube or under atmospheric pressure. The reaction temperature is between 50°C and 170°C and the

reaction time ranges from 2 to 50 hours. One to 100 equivalents of halogenating agent such as phosphorus oxychloride or phosphorus oxybromide are used per equivalent of the compound of General Formula XII.

Upon completion of the reaction, the solvent and/or the excess halogenating agent are evaporated under reduced pressure. Water is then added to the residue. The aqueous layer is then extracted with organic solvent such as ether or methylene chloride. The organic extract is dried over magnesium sulfate or sodium sulfate and then concentrated under reduced pressure to give the desired product. This crude product can be further purified by flash column chromatography, recrystallization or other similar operation.

Scheme 8a illustrates the preparation of compounds of General Formula IIg (which are compounds of General Formula II where n is 0, A is A-4; R^3 is C_1-C_6 alkoxy; R^4 is R^{4d}; X is NR^6) whereby a triazolylthioheterocycle of General Formula XII (wherein R^{4d} and R^6 are defined as above) is allowed to react with an alkylating agent such as dialkylsulfate, alkyliodide, alkylbromide, or alkylsulfonate in the presence of a base such as potassium carbonate, sodium carbonate, potassium bicarbonate, triethylamine, or 1,8-diazabicyclo[5.4.0]-undec-7-ene (DBU).

SCHEME 8a



XII IIg

wherein

R^{4d} is defined as above;

R^6 is defined as above;

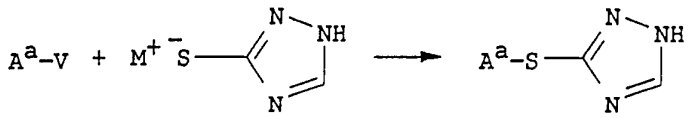
R^{30} is C_1-C_6 alkyl.

To one equivalent of the compound of General Formula XII in an inert solvent such as acetone, dioxane, N,N-dimethylformamide is added one to twenty equivalents of a base. The resulting mixture is stirred at temperature between 0°C and 150°C for 1 to 150 hours. One to five equivalents of an alkylating agent is then

added. The resulting mixture is stirred for another 1 to 100 hours at temperature between 0°C and 150°C. The solvent is then evaporated. To the residue is added water. The aqueous solution is then extracted with an organic solvent such as methylene chloride or ethyl acetate. The organic extract is then dried over sodium sulfate or magnesium sulfate and concentrated under reduced pressure to give the desired product. This crude product may be further purified by flash column chromatography, recrystallization or other similar operation.

Scheme 9 illustrates the preparation of compounds of General Formula IIe (which are compounds of General Formula II where A is A-1 to A-14); whereby a halogen substituted heterocycle of General Formula XIII (wherein V is Cl or Br; A^a is A-1 to A-14) is allowed to react with the anion of 1,2,4-triazole-3-thiol (Formula XIV).

SCHEME 9



XIII XIV IIe

wherein

M is Na, Li or K.

This reaction is carried out in a solvent such as *N,N*-dimethylformamide, ethanol, isopropanol or t-butyl alcohol at temperatures between 50°C and 140°C for a period of time between 30 minutes and 48 hours. One to 2 equivalents of XIV are usually used per equivalent of XIII.

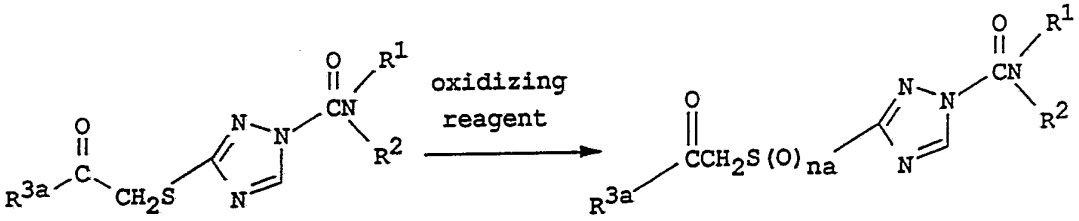
Upon completion of the reaction, the reaction solvent is evaporated under reduced pressure and water is added to the residue. Aqueous hydrochloric acid is then added until the solution pH reaches about 7.

If the desired product precipitated out from the water, it is collected by filtration, air dried and then dried in an oven. Alternatively, organic solvent such as methylene chloride or ethyl acetate is added to extract the product out of the aqueous layer. The organic extract is then dried over sodium sulfate or magnesium sulfate and then concentrated to give the desired product. The crude product can be further purified by recrystallization, flash column chromatography or other similar operation.

Compounds of General Formula III and General Formula IV are either commercially available or can be prepared by one skilled in the art.

Compounds of General Formula Va (which are compounds of General Formula V where n is 1 or 2; R^1, R^2 and R^{3a} are defined as above) can be prepared by allowing compounds of General Formula Vb (which are compounds of General Formula V where n is 0; R^1, R^2 and R^{3a} are defined as above) to react with the appropriate amount of an oxidizing reagent such as 3-chloroperoxybenzoic acid, peracetic acid, trifluoroperacetic acid or hydrogen peroxide as illustrated in Scheme 10.

SCHEME 10

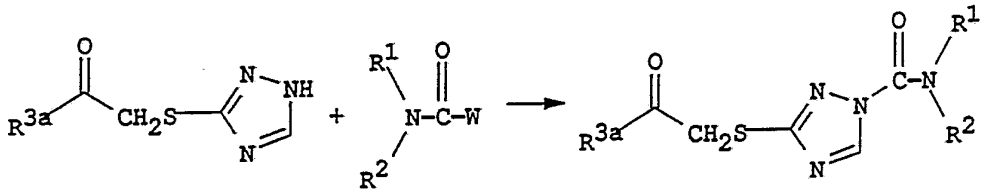


Vb Va

The reaction conditions for Scheme 10 are very similar to those described for Scheme 3 with the exception that Vb is used instead of Ic.

Scheme 11 illustrates the preparation of compounds of General Formula Vb whereby the α-triazolylthioketone of General Formula XV (wherein R^{3a} is defined as above) is allowed to react with the carbamoyl halide of General Formula III.

SCHEME 11



XV III Vb

This reaction is performed in an inert solvent such as acetonitrile, *N,N*-dimethylformamide, toluene, chloroform or tetrahydrofuran and in the presence

of a hydrogen halide removing agent such as triethylamine, pyridine or sodium carbonate at a temperature between 0 and 140°C for a period of time ranging from 10 minutes to 100 hours. One to 5 equivalents of hydrogen halide removing agent and 1 to 4 equivalents of carbamoyl halide of General Formula III are usually used per equivalent of the triazole derivative of Formula XV.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure and water is added to the residue. The product can be collected by filtration if it precipitates.

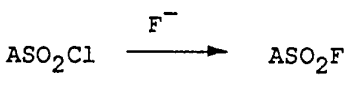
Alternatively, the aqueous solution is extracted with organic solvent. The organic extract is then dried and concentrated to give the desired product. The crude product can be further purified by means of recrystallization, flash column chromatography or a similar operation if needed.

Compounds of General Formula VI can be prepared using methods taught by G. D. Appleyard and C. J. M. Stirling in *J. Chem. Soc.* (C), 1904 (1969); and by J. W. Batty, P. D. Howes and C. J. M. Stirling in *J.C.S., Perkin I*, 65 (1973) or using slight modifications of the above-mentioned method.

Compounds of General Formula VIII can be prepared from 1,2,4-triazole, dialkylamine (or its hydrochloride salt) and formaldehyde using methods taught by Alan R. Katritzky, Gordon W. Rewcastle and Wei-Giang Fan in *J. Org. Chem.*, 53 5685 (1988); by F. B. Stocker, J. L. Kurtz, B. L. Gilman and D. A. Forsyth in *J. Org. Chem.* 35 883 (1970); by K. Hideg and H. O. Hankovsky in *Acta. Chim. Acad. Sci. Hung (Budapest)* 53 271 (1967); by Alan R. Katritzky, Andrzej Jozwiak, Ping Lue, Konstantina Yannakopoulou, Gus J. Palenik and Ze Ying Zhang in *Tetrahedron* 46 (2), 633 (1990); and by S. Oeckl, H. G. Schmitt, W. Paulus, and H. Genth in German Patent DE 3,238,006, April 19, 1984, or using slight modification of the above-mentioned methods.

Compounds of General Formula VII can be prepared from sulfonyl chlorides of General Formula XVI (where A is defined as above) as illustrated in Scheme 12.

SCHEME 12

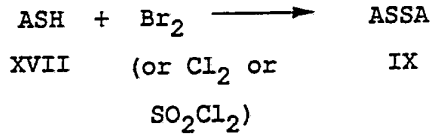


XVI VII

Reaction conditions taught by J. Ichihara, T. Matsuo, T. Hanafusa and T. Ando in *J. Chem. Soc. Chem. Comm.*, No. 10, 793 (1986); by H. G. Liu, P. Wang and P. N. Sun in *J. Flourine Chem.*, 43(3), 429 (1989); by C. L. Borders, Jr., D. L. Macdonell, and J. L. Chambers, Jr., in *J. Org. Chem.* 37 3549 (1972); by T. A. Blanchi and L. A. Cate, in *J. Org. Chem.*, 42 2031 (1977); and by T. Kitazume and N. Ishikawa, in *Chem. Lett.*, 283 (1978) or slight modifications thereof can be used for reactions of Scheme 12.

Compounds of General Formula IX can be prepared by reacting thiols of General Formula XVII (wherein A is defined as above) with bromine, chlorine or sulfuryl chloride as illustrated in Scheme 13.

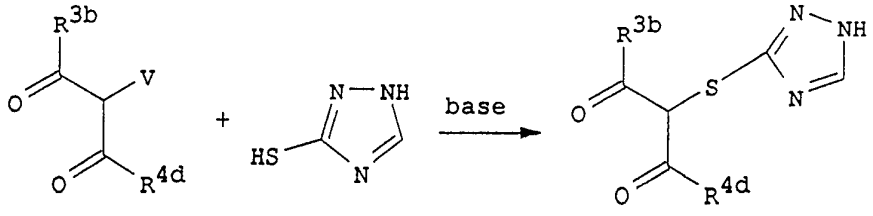
SCHEME 13



This reaction is carried out in a solvent such as methylene chloride, chloroform or methanol in the presence of 1 to 3 equivalents of hydrogen halide removing agent such as triethylamine or sodium methoxide (per equivalent of the thiol of General Formula XVII) at temperature between 0 and 60°C for a period of time ranging from 10 minutes to 20 hours. Per equivalent of the thiol of Formula XVII, 0.5 to 1.2 equivalents of the halogenating agent such as bromine, chlorine or sulfuryl chloride are usually used. The product can be isolated by filtration if it precipitates out of the reaction solution. Otherwise the reaction mixture is concentrated under reduced pressure. To the residue is added water and the aqueous layer is then extracted with organic solvent such as ether, hexane or methylene chloride. The organic extract is dried over sodium sulfate or magnesium sulfate and then concentrated under reduced pressure to give the desired product. The crude product can be further purified by recrystallization, flash column chromatography or other similar operation.

Scheme 14 illustrates the preparation of compounds of General Formula X whereby compounds of General Formula XVIII (wherein R^{3b} and R^{4d} are defined as above; V is Cl or Br) are allowed to react with 1,2,4-triazole-3-thiol.

SCHEME 14



XVIII X

This reaction is performed in a solvent such as *N,N*-dimethylformamide, acetonitrile, tetrahydrofuran or methanol in the presence of a base such as triethylamine, sodium methoxide, potassium hydroxide or sodium hydride at temperature between 25°C and 140°C for a period of time ranging from 30 minutes to 70 hours.

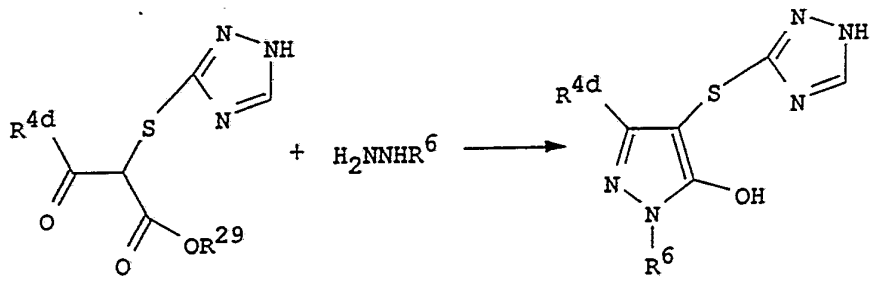
One to 2 equivalents of 1,2,4-triazole-3-thiol and 1 to 3 equivalents of the base is usually used per equivalent of XVIII.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. Water is added to the residue. The product can be isolated by filtration if it precipitates. Otherwise the aqueous solution is extracted with organic solvent. The organic solvent is dried over magnesium sulfate (or sodium sulfate) and concentrated under reduced pressure to give the desired product. The crude product can be further purified by recrystallization, flash column chromatography or other similar operation.

Compounds of General Formula XI are either commercially available or can be prepared by one skilled in the art.

Scheme 15 illustrates the preparation of compounds of General Formula XII whereby a triazolylthioketoester of General Formula XIX (wherein R^{4d} is defined as above; R^{29} is C_1-C_2 alkyl) is allowed to react with hydrazines of General Formula XX (wherein R^6 is defined as above).

SCHEME 15



XIX XX XII

The reaction conditions for Scheme 15 are very similar to those described for Scheme 7 with the exception that XIX is used instead of X.

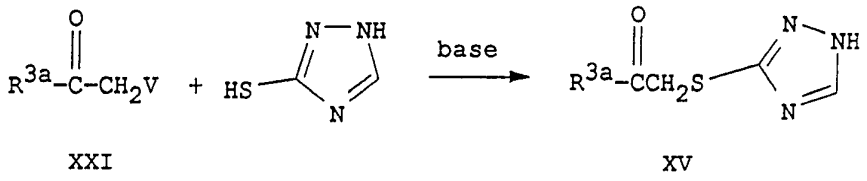
Compounds of General Formula XIII are either commercially available or can be prepared by one skilled in the art using literature methods or slight modification thereof.

Some examples of the above-mentioned literature methods are:

- Dario Chiarino et al., *J. Med. Chem.*, 34 (2), 600 (1991)
- Kenzi Makino et al., *J. Fluorine Chem.*, 39 (3), 435 (1988)
- Robert Kenneth Howe et al., EP 27020
- Dietmar Seyferth et al., *J. Am. Chem. Soc.*, 95 (25), 84645 (1973)
- Len F. Lee et al., *J. Heterocycl. Chem.*, 22 (6), 1621 (1985)
- V. S. Korsunskii et al., *Khim.-Farm. Zh.*, 23 (2), 249 (1989)
- Jerzy Suwinski et al., *Pol. J., Chem.*, 56 (10-12), 1261 (1982)
- Patricia Demaree et al., *Can. J. Chem.*, 55 (2) 243 (1977)
- Yu. N. Bulychev et al., *Khim. Geterotsikl. Soedin.*, (7) 920 (1988)
- L. I. Bagal et al., *Khim. Geterotsikl. Soedin.*, (12) 1701 (1970)
- Ian J. Ferguson et al., *J. Chem. Soc., Perkin Trans.* 1, (6) 672 (1977)
- Zdislaw Machon et al., *Acta Pol. Pharm.*, 45 (1) 18 (1988)
- Norio Saito et al., *Yakugaku Zasshi*, 90 (1) 32 (1970)
- Tadashi Sasaki et al., *J. Chem. Soc. C*, (11) 2147 (1971)
- Franz Effenberger et al., *Chem. Ber.*, 120 (1) 45 (1987)
- Richard C. Larock et al., *J. Org. Chem.*, 48, (13) 2151 (1983)
- Michael E. Sitzmann., *J. Heterocycl. Chem.*, 16 (3) 477 (1979)

Scheme 16 illustrates the preparation of compounds of General Formula XV whereby a haloketone of General Formula XXI (wherein V is Cl or Br; R^{3a} is defined as above) is allowed to react with 1,2,4-triazole-3-thiol.

SCHEME 16



XXI XV

The reaction conditions for Scheme 16 are very similar to those described for Scheme 14 with the exception that XXI is used instead of XVIII.

Compounds of General Formula XVI and General Formula XVII are either commercially available or can be prepared by one skilled in the art using literature methods or slight modifications thereof.

The literature methods include:

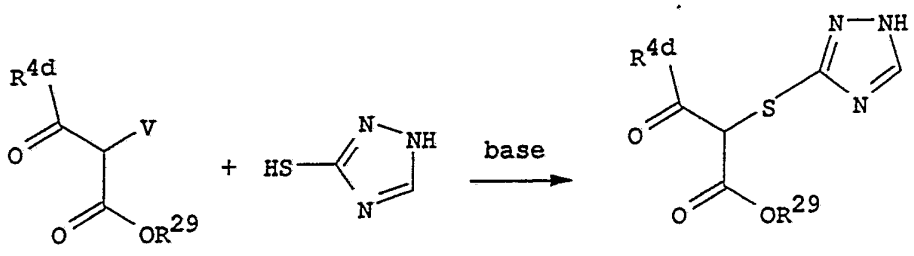
- George Levitt et al., U.S. H504 (published 8/2/88)
- R. G. Jones et al., *J. Am. Chem. Soc.*, 72, 4000 (1949)
- Paolo Grunanger and Paola Vita-Finzi, "Heterocyclic Compounds", Vol. 49 p. 337 and p. 391
- Geoffrey A. Carter et al., *Pestic. Sci.*, 6 (1), 43 (1975)
- Tyo Sone et al., *Bull. Chem. Soc. Jap.*, 58 (3), 1063 (1985),
- L. S. Abovyan et al., *Kim.-Farm. Zh.*, 17 (6), 685 (1983)
- Giovanni Consiglio et al., *J. Chem. Soc., Perkin Trans.* 2, (5), 625 (1982)
- Phillip A. Rossy et al., *J. Org. Chem.*, 45 (4) 617 (1980)
- Robert Bellemin et al., *J. Heterocycl. Chem.*, 21 (4), 1017 (1984)
- Fritz Eiden et al., *Arch. Pharm. (Weinheim)*, 322 (11), 807 (1989)
- Kenneth Clarke et al., *J. Chem. Soc., Perkin Trans.* 1, (4), 1029 (1980)
- Manfred Regitz et al., *Chem. Ber.*, 102 (2), 417 (1969)
- Manfred Regitz et al., *Justus Liebigs Ann. Chem.*, 710, 118 (1967)
- Marcel Pesson et al., *C. R. Acad Sci., Paris, Ser. C*, 267 (25), 1726 (1968)
- Marcel Pesson et al., *Bull. Soc. Chim. Fr.*, (4), 1590 (1970)
- Ludwig Nuesslein et al., DE 2853196

- Charles A. R. Baxter et al., DE 2612761
- Marc Montavon et al., EP-A-75104
- M. Liliana Graziano et al., *J. Chem. Res., Synop.*, (2) 42 (1989)
- Alfred Treibo et al., *Justus Liebigs Ann. Chem.*, (2), 207 (1973)
- R. L. N. Harris, *Aust. J. Chem.*, 25 (5), 985 (1972)
- Ya. L. Goldfarb et al., *Izv. Akad. Nauk SSSR, Ser. Khim.*, (10) 2260 (1969)
- L. A. Boiko et al., *Khim. Geterotsikl. Soedin.*, (6), 723 (1970)
- Nobuyuki Okajima et al., *Synthesis, (5)*, 398 (1989)
- I. M. Bazavova et al., *Zh. Org. Khim.*, 17 (1), 200 (1981)
- P. Manolova et al., *Farmatsiya (Sofia)*, 29 (6), 1 (1979)
- V. Buran et al., *Boll. Chim. Farm.*, 119 (12), 725 (1980)
- Surendra Kulkarni et al., *Aust. J. Chem.*, 40 (8) 1415 (1987)
- T. K. Vinogradova et al., *Zh. Org. Khim.*, 18 (9), 1864 (1982)
- Benjamin Blank et al., *J. Med. Chem.*, 20 (4), 572 (1977)
- Manfred Regitz et al., *Liebigs Ann. Chem.*, (2), 305 (1980)
- R. Alan Jones; "Heterocyclic Compounds", Vol. 48 p. 235

Compounds of General Formula XVIII are either commercially available or can be prepared by one skilled in the art by well-known methods.

Scheme 17 illustrates the preparation of compounds of General Formula XIX whereby a haloketoester of General Formula XXII (wherein V is Cl or Br; R^{4d} and R^{29} are defined as above) is allowed to react with 1,2,4-triazole-3-thiol.

SCHEME 17



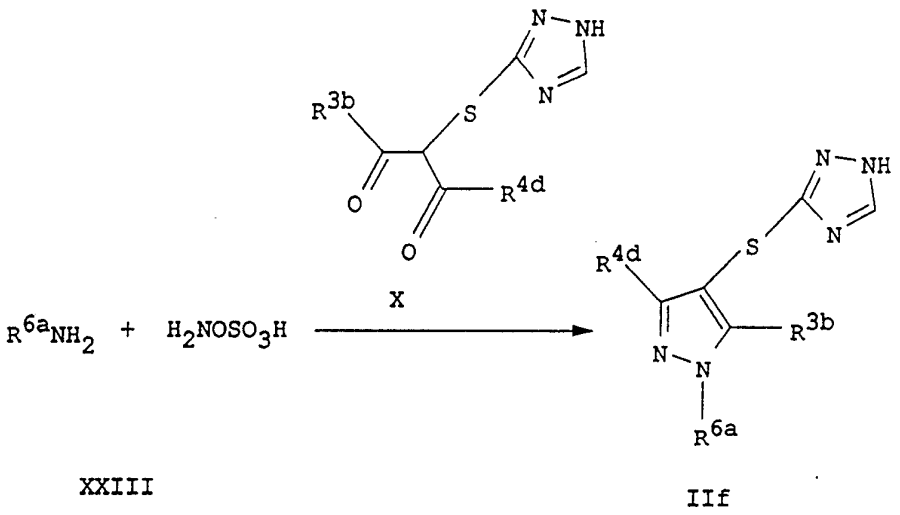
XXII XIX

The reaction conditions for Scheme 17 are very similar to those described for Scheme 14 with the exception that XXII is used instead of XVIII.

Compounds of General Formula XXI and General Formula XXII are either commercially available or can be prepared by one skilled in the art using well-known methods such as N. DeKimpe et al., Synthesis, 2, 188 (1987).

Scheme 18 illustrates an alternative method for preparing compounds of General Formula IIf (which are compounds of General Formula II where A is A-4; n is O; X is NR^{6a} and R^{6a} is C_1-C_6 alkyl or C_3-C_6 cycloalkyl; R^3 is R^{3b}; R^4 is R^{4d}) whereby an amine of General Formula XXIII is allowed to react with hydroxylamine-O-sulfonic acid and the reaction product formed in situ is then allowed to react with a triazolylthiodiketone of General Formula X.

SCHEME 18



XXIII IIf

wherein

R^{3b} and R^{4d} are defined as above;

R^{6a} is C_1-C_6 alkyl or C_3-C_6 cycloalkyl.

This reaction is carried out by adding hydroxylamine-O-sulfonic acid in a solvent such as water to an amine of General Formula XXIII in a solvent such as water or in the absence of a solvent. The mixture is stirred at temperature between 0°C and 80°C for a period of time between 1 minute and 24 hours. Most of the unreacted amine of General Formula XXIII is then distilled away under reduced pressure. To the residue is then added the triazolylthiodiketone of General Formula X in a solvent such as methanol, acetonitrile or *N,N*-dimethylformamide. The

resulting mixture is then stirred at a temperature between 0°C for a period of time between 1 and 200 hours.

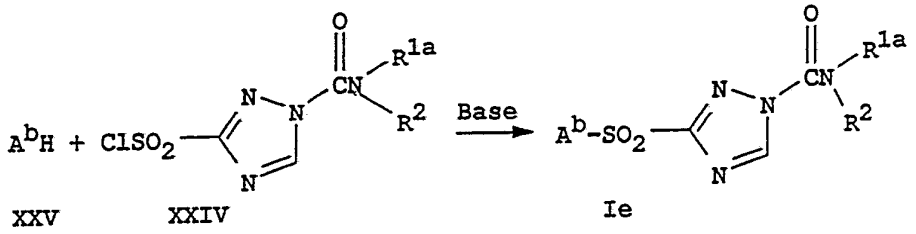
One to ten thousand equivalents of the amine of General Formula XXIII and one to five equivalents of hydroxylamine-O-sulfonic acid per equivalent of the triazolylthiodiketone of General Formula X are usually used.

Upon completion of the reaction, the solvent is evaporated under reduced pressure. The residue is partitioned between water and an organic solvent such as dichloromethane. The organic extract is then separated, dried over magnesium sulfate (or sodium sulfate) and concentrated under reduced pressure. This crude product can be further purified by flash column chromatography, recrystallization or other similar operations.

The amines of General Formula XXIII are either commercially available or can be prepared by one skilled in the art using well-known methods.

Scheme 19 illustrates the preparation of compounds of General Formula Ie (which are compounds of General Formula I where A is A-15, A-16, A-17, A-18, A-19 or A-20; n is 2; R is R^{1a}, R^2 is defined as above) whereby a 1-aminocarbonyltriazole-3-sulfonyl chloride of General Formula XXIV is allowed to react with a heterocycle of General Formula XXV in the presence of a base.

SCHEME 19



wherein

A^b is A-15, A-16, A-17, A-18, A-19 or A-20.

This reaction is carried out in a solvent such as acetonitrile, methylene chloride, N,N-dimethylformamide, dioxane, tetrahydrofuran or toluene with reaction temperature ranging from 0 to 120°C and reaction time between 10 minutes and 100 hours.

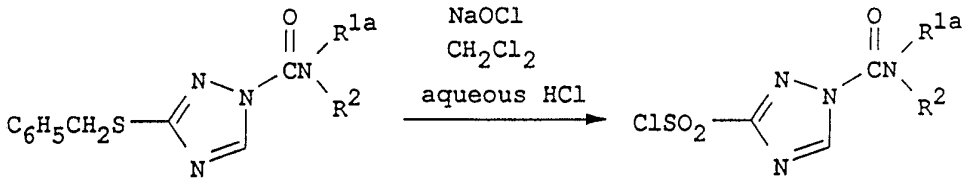
In general, 0.5 to 5 equivalents of base such as triethylamine, diisopropylethylamine, sodium hydride or potassium t-butoxide and 0.5 to 2 equivalents of 1-aminocarbonyltriazole-3-sulfonyl chloride of General Formula XXIV are used per

equivalent of the heterocycle of General Formula XXV. Compounds of General Formula XXV are either commercially available or can be prepared by one skilled in the art.

Upon completion of the reaction, the reaction mixture is concentrated under reduced pressure. The desired product is isolated from the residue by flash column chromatography, recrystallization or a similar operation.

The 1-aminocarbonyltriazole-3-sulfonyl chlorides of General Formula XXIV can be prepared from the thioether of General Formula XXVI as depicted in Scheme 20.

SCHEME 20

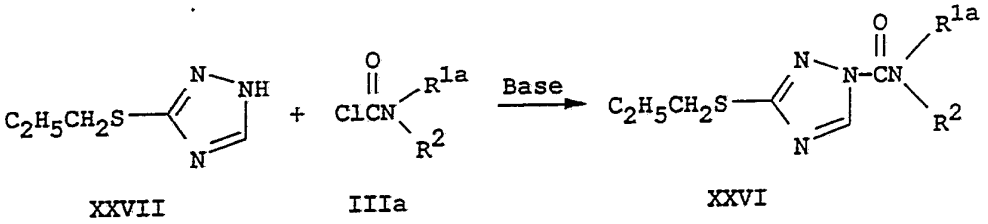


XXVI XXIV

In this reaction, hypochlorite solution, i.e., NaOCl, is contacted with thioether of General Formula XXVI in a two-phase solvent system buffered with a suitable inorganic acid such as aqueous hydrochloric acid to provide XXIV. The reaction temperature can be from about -10° to about 10°C, preferably from about -5° to about 5°C , and the reaction time from about 0.5 to 3 hours, preferably from 0.5 to 1 hour. Suitable solvents are water and an inert organic solvent such as methylene chloride or 1,2-dichlorobenzene, with methylene chloride being preferred. Following completion of the reaction, the organic phase is isolated, washed with aqueous sodium bisulfite solution, dried (e.g., $MgSO_4$) and concentrated in vacuo at about 25° to 35°C to provide a residue containing XXIV. The impure residue containing XXIV can be further purified by slurrying with hexane and/or flash chromatography on silica gel, and/or recrystallization if a solid. For further details, see analogous reactions in South African Patent Application No. 84/8845 and 84/8844.

Intermediate thioether of General Formula XXVI can be prepared as depicted in Scheme 21.

SCHEME 21



XXVII IIIa XXVI

The reaction of Scheme 21 can be carried out according to the teachings of U.S. Patent 4,280,831, DE 3,929,673 A1 and U.S. Patent 3,962,001. Thus, XXVI can be obtained by contacting 3-benzylthio-1,2,4-triazole (XXVII) with carbamyl chloride of General Formula IIIa (which are compounds of General Formula III where R^1 is R^{1a}; W is Cl; R^2 is defined as above) in excess pyridine at from about 20° to about 30°C; or by contacting XXVII with IIIa and a tertiary amine base such as triethylamine in an inert organic solvent such as tetrahydrofuran at about 25°C to reflux.

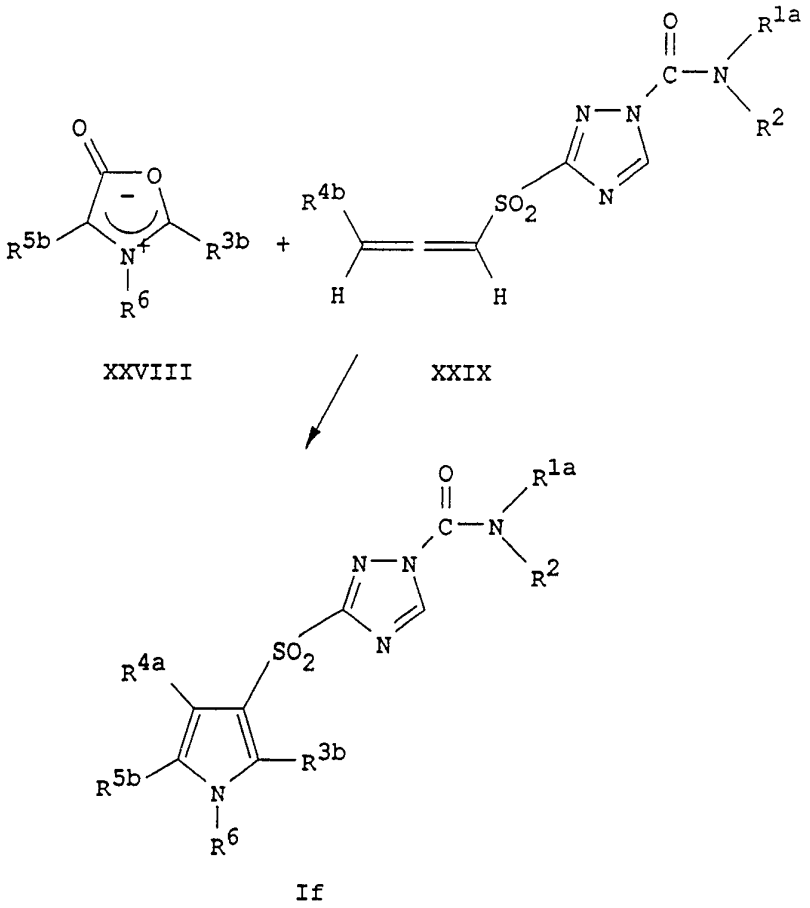
Intermediate carbamyl chloride IIIa can be prepared by contacting appropriate secondary amines with phosgene in an inert organic solvent such as refluxing ethyl acetate, according to the teachings of U.S. Patent 3,952,001. The preparation of 3-benzylthio-1,2,4-triazole XXVII is taught in U.S. Patent 4,280,831.

Alternatively, thioethers of General Formula XXVI can be prepared according to the teachings of U.S. Patent 3,952,001. Thus, contacting triazole of General Formula XXVII with phosgene and a tertiary amine base such as pyridine or triethylamine in an inert organic solvent such tetrahydrofuran at from about 0° to about 30°C can provide the corresponding carbamyl chloride. Subsequent reaction of the carbamyl chloride with an appropriate secondary amine in the presence of a suitable base such as pyridine or triethylamine in an inert organic solvent such as tetrahydrofuran at from about 0° to about 30°C can provide XXVI. Appropriate secondary amines are known or can be prepared by methods generally known to those skilled in the art; see, e.g., U.S. Patent 3,952,001.

Scheme 22 illustrates the preparation of compounds of General Formula If (which are compounds of General Formula I where A is A-2; X is NR^6; n is 2; R^1 is R^{1a}; R^2 is defined as above; R^3 is H or C_1-C_6 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy; R^4 is R^{4a}; R^5 is H or C_1-C_6 alkyl optionally substituted with one or more halogen) whereby a mesoionic oxazolones of Gemeral

Formula XXVIII (which may be prepared in situ) is allowed to react with an 1,2-propadienylsulfone of General Formula XXIX.

SCHEME 22



XXVIII XXIX If

wherein

R^{3b} is H or C_1-C_6 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy;

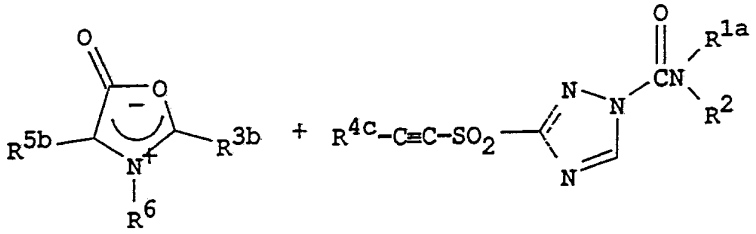
R^{5b} is H or C_1-C_6 alkyl optionally substituted with one or more halogen.

This reaction is carried out in a solvent such as xylene, toluene, 1,2-dichlorobenzene, 1,3-dichlorobenzene or an anhydride of Formula $(R^{3b}CO)_2O$ with the reaction temperature ranging from 0 to 200°C and the reaction time being between 10 minutes and 100 hours. One to twenty equivalents of the mesoionic oxazolone of General Formula XXVIII is used per equivalent of the 1,2-propadienylsulfone of General Formula XXIX.

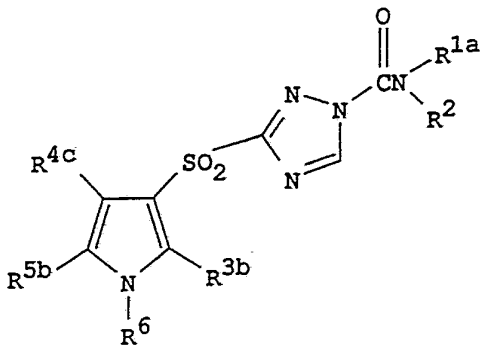
Upon completion of the reaction, the reaction mixture is concentrated. The desired product is isolated from the residue by flash column chromatography, recrystallization or other similar operation.

Scheme 23 illustrates the preparation of compounds of General Formula Ig (which are compounds of General Formula I where A is A-2, X is NR^6; n is 2; R^1 is R^{1a}; R^2 is defined as above; R^3 is R^{3b}; R^4 is H, C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $CONR^9R^{10}$, or $SO_2NR^{13}R^{14}$; C_3-C_6 cycloalkyl; C_1-C_6 alkoxy; or phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy) whereby a mesoionic oxazolones of General Formula XXVIII (which may be prepared in situ) is allowed to react with an alkynylsulfone of General Formula XXX.

SCHEME 23



XXVIII XXX



Ig

wherein

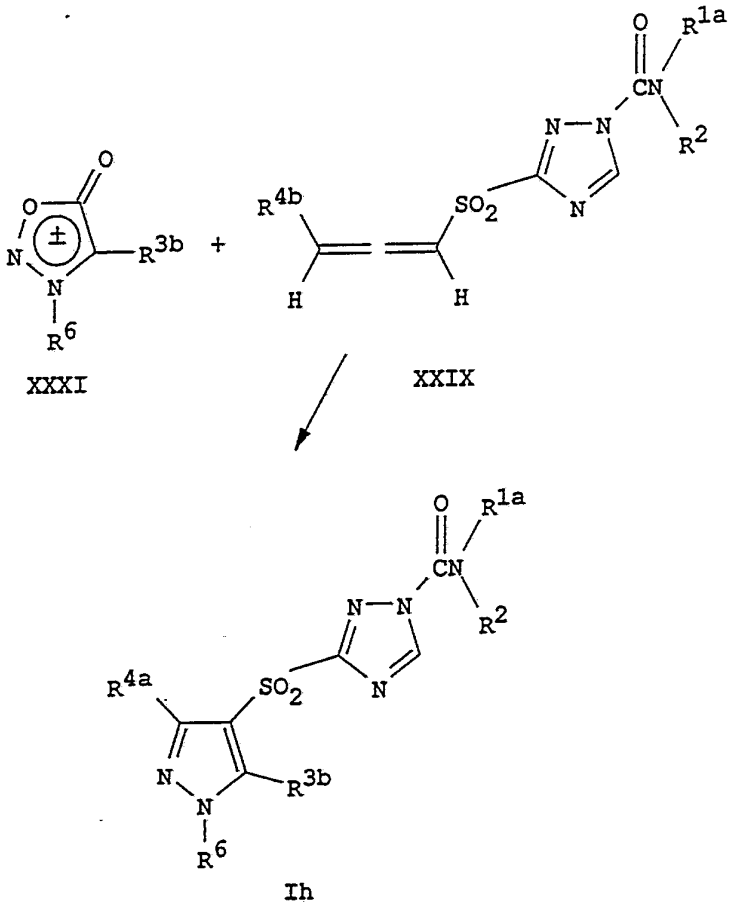
R^{4c} is H, C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$, C_3-C_6 cycloalkyl;

C_1-C_6 alkoxy; or phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy.

This reaction is carried out in a solvent such as xylene, toluene, 1,2-dichlorobenzene, 1,3-dichlorobenzene or an anhydride of Formula $(R^{3b}CO)_2O$ with the reaction temperature ranging from 0 to 200°C and the reaction time being between 10 minutes and 100 hours. One to twenty equivalents of mesoionic oxazolone of General Formula XXVIII is used per equivalent of the alkynyl sulfone of General Formula XXX. Upon completion of the reaction, the reaction mixture is concentrated. The desired product is isolated from the residue by flash column chromatography, recrystallization or other similar operation.

Scheme 24 illustrates the preparation of compounds of General Formula Ih (which are compounds of General Formula I where A is A-4, X is NR^6, n is 2; R^1 is R^{1a}, R^2 is defined as above; R^3 is R^{3b}, R^4 is R^{4a}; R^{3b} and R^6 may be taken together as $-(CH_2)_3-$ or $-(CH_2)_4-$ whereby a sydnone of General Formula XXXI is allowed to react with a 1,2-propadienylsulfone of General Formula XXIX.

SCHEME 24



wherein

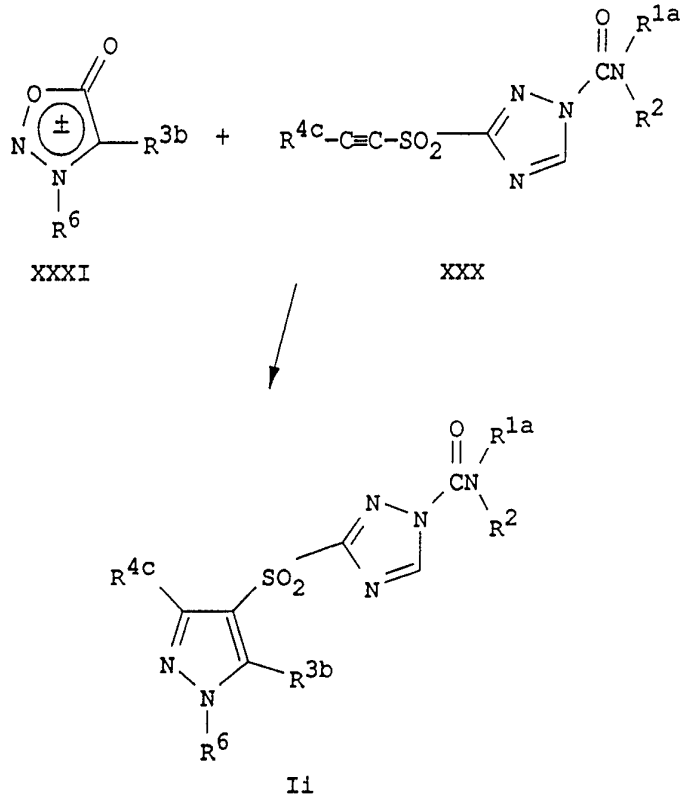
R^{3b} and R^6 may be taken together as $-(CH_2)_3-$ or $-(CH_2)_4-$.

This reaction is carried out in a solvent such as xylene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, toluene, nitrobenzene, 1,2-dimethoxyethane or N,N-dimethylformamide with the reaction temperature ranging from 0 to 200°C and the reaction time being between 10 minutes and 100 hours. One to twenty equivalents of the sydnone of General Formula XXXI is used per equivalent of 1,2-propadienylsulfone of General Formula XXIX. Upon completion of the reaction, the reaction mixture is concentrated. The desired product is isolated from the residue by flash column chromatography, recrystallization or other similar operation.

Scheme 25 illustrates the preparation of compounds of General Formual Ii (which are compounds of General Formula I where A is A-4, X is NR^6, n is 2; R^1 is R^{1a}, R^2 is defined as above, R^3 is R^{3b}, R^4 is R^{4c}, R^{3b} and R^6 may be taken together

as -$(CH_2)_3$- or -$(CH_2)_4$-) whereby a sydnone of General Formula XXXI is allowed to react with an alkynylsulfone of General Formula XXX.

SCHEME 25



XXXI XXX Ii

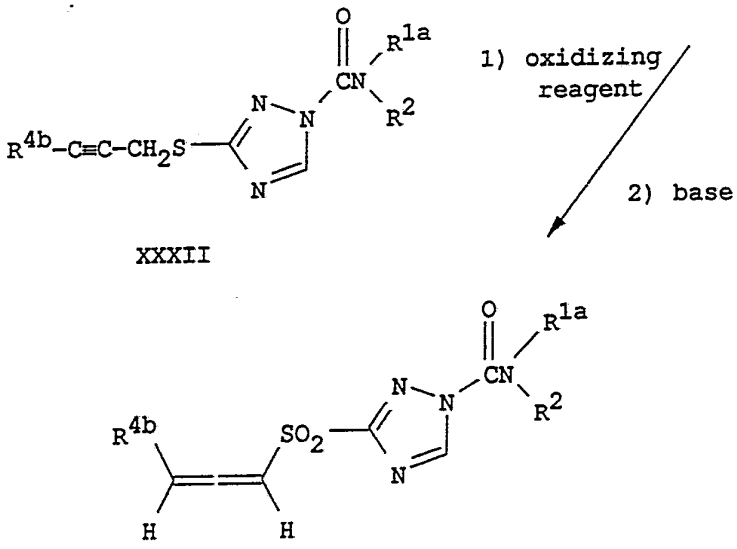
wherein

R^{3b} and R^6 may be taken together as -$(CH_2)_3$- or -$(CH_2)_4$-.

This reaction is carried out in a solvent such as xylene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, toluene, nitrobenzene, 1,2-dimethoxyethane or N,N-dimethylformamide with the reaction temperature ranging from 0 to 200°C and the reaction time being between 10 minutes and 100 hours. One to twenty equivalents of the sydnone of General Formula XXXI are used per equivalent of alkynylsulfone of General Formula XXX.

The 1,2-propadienylsulfones of General Formula XXIX can be prepared by oxidizing the compounds of General Formula XXXII followed by treatment of a base such as sodium bicarbonate aqueous solution sodium carbonate aqueous solution, triethylamine, 1,8-diazobicyclo[5.4.0]-undec-7-ene (DBU) or potassium t-butoxide as illustrated in Scheme 26.

SCHEME 26



XXXII

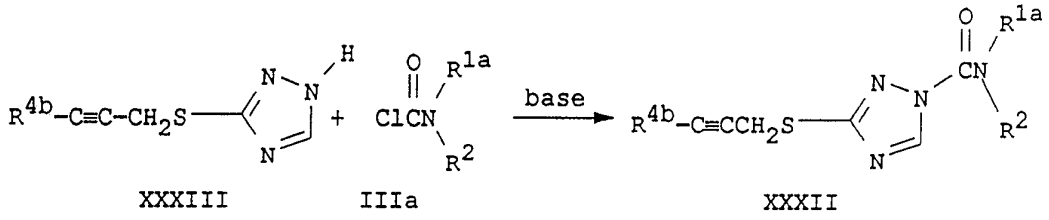
XXIX

The oxidizing reagents that can be used in the process of Scheme 26 include 3-chloroperoxybenzoic acid, peracetic acid, trifluoroperacetic acid, and hydrogen peroxide. The oxidation is normally performed in a solvent and solvents that can be used will vary depending on the type of oxidizing reagent used. For example, if the oxidizing reagent is 3-chloroperoxybenzoic acid, benzene, methylene chloride, chloroform or other halogenated hydrocarbons can be used as solvent. If peracetic acid or trifluoroperacetic acid is used as the oxidizing reagent, halogenated hydrocarbon or the corresponding acid can be used as solvent. If the oxidant is hydrogen peroxide, water, acetone, acetic acid or the like can be used.

The reaction temperature range is normally 0 to 80°C while the reaction time ranges from 10 minutes to 100 hours. In general, two to five equivalents of oxidant are used per equivalent of the compound of General Formula XXXII. Upon completion of the reaction, methylsulfide or other reducing agents are added to destroy the unreacted oxidant. Additional organic solvent such as methylene chloride or chloroform was then added. The reaction mixture was then washed or treated with the above mentioned base. The organic layer is dried and concentrated. The crude product is then purified by flash column chromatography over silica gel.

Scheme 27 illustrates the preparation of compounds of General Formula XXXII whereby the thiotriazole of General Formula XXXIII is allowed to react with the carbamyl chloride of General Formula IIIa.

SCHEME 27

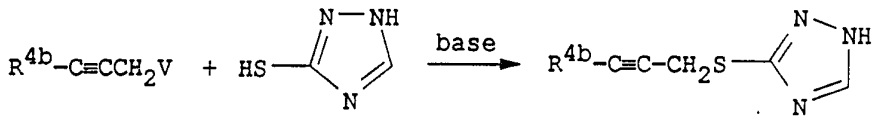


XXXIII IIIa XXXII

The reaction conditions for Scheme 27 are very similar to those described for Scheme 21 with the exception that XXXIII is used instead of XXVII.

Scheme 28 illustrates the preparation of compounds of General Formula XXXIII whereby a 2-propynyl halide of General Formual XXXIV (wherein V is Cl or Br; R^{4b} is defined as above) is allowed to react with 1,2,4-triazole-3-thiol.

SCHEME 28

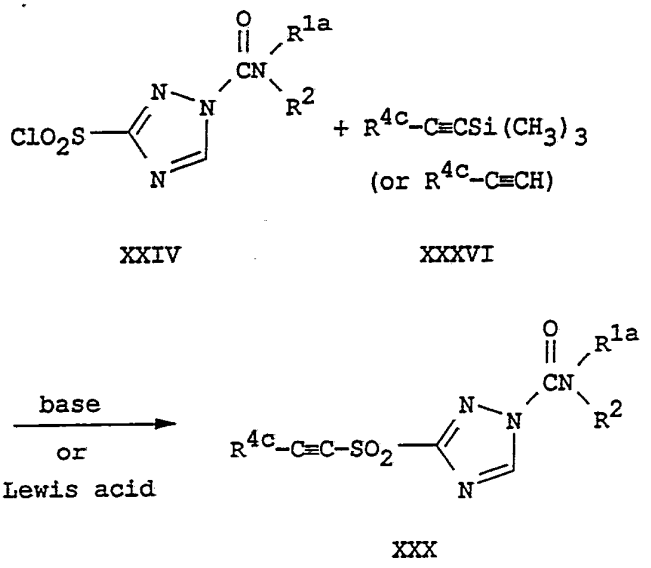


XXXIV XXXIII

The reaction conditions for Scheme 28 are very similar to those described for Scheme 14 with the exception that XXXIV is used instead of XVIII.

The alkynylsulfones of General Formula XXX can be prepared by reacting the 1-aminocarbonyltriazole-3-sulfonyl chlorides of General Formula XXIV with a trimethylsilylalkyne of General Formula XXXV or an alkyne of General Formula XXXVI as depicted in Scheme 29.

SCHEME 29



The reaction conditions (including the catalysts which may be needed) for Scheme 29 are very similar to those reaction conditions for the synthesis of alkynylsulfones taught by J. Dunogues et al., in *J. Chem. Res. (S)* 16 (1982) and K. Schank in The Chemistry of Sulfones and Sulfoxide (edited by S. Patai et al.; published by John-Wiley & Sons; pp. 190-202) with the exception that XXIV is used instead of other sulfonyl chlorides.

Compounds of General Formula XXXIV, XXXV and XXXVI are either commercially available or can be prepared by one skilled in the art.

The sydnones of General Formula XXXI can be prepared by one skilled in the art using literature methods or slight modifications thereof.

Some examples of the above mentioned literature methods are:

- F. H. C. Stewart, *Chemical Reviews* 64 129 (1964)
- H. J. Tien et al., *Bull. Chem. Soc. of Japan* 45 2944 (1972)
- C. V. Greco et al., *J. Heterocycl. Chem., 3(3)* 391 (1966)

The mesoionic oxazolone of General Formula XXVIII can be prepared (in situ in most cases) by one skilled in the art using literature methods of slight modifications thereof.

Some examples of the above mentioned literature methods are:

- R. Huisgen et al., *Chem. Ber.* 103, 2611 (1970)
- M. T. Pizzorno et al., *J. Org. Chem.*, 42(5) 909 (1977)

• K. T. Potts et al., *J. Org. Chem.*, 44(6) 977(1979)

The following are non-limiting examples illustrating the preparation of compounds of this invention Chemical shifts in the proton nuclear magnetic resonance (NMR) spectra are reported as parts per million downfield from the internal standard tetramethylsilanes. Melting points are uncorrected.

EXAMPLE 1

Preparation of 3-[(4H-1,2,4-triazol-3-yl)thio]-2,4-pentanedione

Under N_2, 1.25 g of sodium was added to 100 ml of methanol. This mixture was stirred at ambient temperature for 15 minutes and 5.7 g of 1,2,4-triazole-3-thiol was then added. The reaction solution was then stirred at ambient temperature for 45 minutes. To this reaction solution was then added 6.7 g of 3-chloro-2,4-pentanedione. The resulting mixture was refluxed for ~4 hours and was then concentrated under reduced pressure. The residue was stirred in water. The solid precipitated was collected by filtration, washed with water, air dried, and then dried in a vacuum oven to give 3.53 g of the title product as a solid, m.p. 114-115°C. The aqueous filtrate was concentrated under reduced pressure to a smaller volume. The precipitate was collected by filtration, air dried and then dried in a vacuum oven to give an additional 3.35 g of the title product, m.p. 114-115°C.

NMR ($CDCl_3$): 2.42 (s, 6H); 8.19 (s, 1H).

EXAMPLE 2

Preparation of 3-[(1-ethyl-3,5-dimethyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole

Under N_2, 0.56 g of sodium was added to 100 ml of methanol. This mixture was stirred at ambient temperature for 15 minutes and 2.8 g of ethylhydrazine oxalate was added. The reaction mixture was stirred at ambient temperature for another 15 minutes. To the reaction solution was then added 2.5 g of 3-[(4H-1,2,4-triazol-3-yl)thio]-2,4-pentanedione.

The resulting mixture was refluxed overnight and was then concentrated under reduced pressure. The residue was dissolved in 200 ml of water and the aqueous solution was extracted with methylene chloride (4 x 100 ml). The methylene chloride extracts were combined, dried over magnesium sulfate and concentrated under reduced pressure to give 2 g of the titled product as a solid, m.p. 127-129°C.

NMR ($CDCl_3$): 1.38 (t, 3H); 2.24 (s, 3H); 2.32 (s, 3H); 4.04 (q, 2H); 7.98 (s, 1H).

EXAMPLE 3

Preparation of *N,N*-diethyl-3-[(1-ethyl-3,5-dimethyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole-1-carboxamide

To 34 ml of acetonitrile was added 1.1 g of 3-[(1-ethyl-3,5-dimethyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole, 1.9 ml of diethylcarbamyl chloride and 2.2 ml of triethylamine. The resulting mixture was refluxed under nitrogen for 24 hours and was then concentrated under reduced pressure. To the residue was added 100 ml of water. The aqueous layer was then extracted with a solution of 150 ml of diethylether and 150 ml of hexane twice. The organic extracts were then combined, dried over magnesium sulfate and concentrated under reduced pressure to give 1.2 g of the title product as a solid, m.p. 67-69°C.

NMR ($CDCl_3$): 1.18 (bt, 6H); 1.39 (t, 3H); 2.25 (s, 3H); 2.3 (s, 3H); 3.64 (q, 4H); 4.05 (q, 2H); 8.69 (s, 1H).

EXAMPLE 4

Preparation of *N,N*-diethyl-3-[(1-ethyl-3,5-dimethyl-1H-pyrazol-4-yl)sulfonyl]-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.82 g of *N,N*-diethyl-3[(1-ethyl-3,5-dimethyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole-1-carboxamide in 16 ml of methylene chloride at room temperature was added 2.8 g of 3-chloroperoxybenzoic acid (50%-60% pure; from Aldrich Chemical Co., Inc., Milwaukee, Wisconsin). The resulting mixture was stirred at room temperature for ~58 hours. To this reaction mixture was then added 1.5 ml of methylsulfide. The resulting mixture was stirred for another 5 minutes and 100 ml of methylene chloride was added. The methylene chloride solution was then washed with dilute sodium bicarbonate aqueous solution (3 x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure to give 0.5 g of the title product as a solid, m.p. 90-96°C.

NMR ($CDCl_3$): 1.3 (t, 6H); 1.4 (t, 3H); 2.45 (s, 3H); 2.58 (s, 3H); 3.6 (b, 4H); 4.03 (q, 2H); 8.8 (s, 1H).

EXAMPLE 5

Preparation of 3-[(3,5-dimethyl-1-propyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole

Under N_2, 0.69 g of sodium was added to 100 ml of methanol. The mixture was stirred at ambient temperature for 10 minutes and 3.4 g of n-propylhydrazine oxalate was then added. The resulting mixture was stirred at room temperature for another 15 minutes and 3 g of 3-[(4H-1,2,4-triazol-3-yl)thio]-2,4-pentanedione was then added. The reaction mixture was refluxed for 48 hours and was then

concentrated under reduced pressure. To the residue was added 200 ml of water and the aqueous layer was extracted with methylene chloride (4 x 100 ml). The methylene chloride extracts were combined, dried over magnesium sulfate and concentrated under reduced pressure. The residue was triturated in 10 ml of 1-chlorobutane. The precipitate was collected by filtration and dried in a vacuum oven to give 1.3 g of the title compound as a solid, m.p. 106-108°C.
NMR ($CDCl_3$): 0.9 (t, 3H); 1.8 (m, 2H); 2.24 (s, 3H); 2.31 (s, 3H); 3.93 (t, 3H); 7.98 (s, 1H).

EXAMPLE 6

Preparation of 3-[(3,5-dimethyl-1-propyl-1H-pyrazol-4-yl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 1.1 g of 3-[(3,5-dimethyl-1-propyl-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole in 34 ml of acetonitrile was added 1.9 ml of diethylcarbamyl chloride and then 2.2 ml of triethylamine. The resulting mixture was refluxed under nitrogen for 18 hours and was then concentrated under reduced pressure. To the residue was added 100 ml of water. The aqueous layer was extracted with a solution of 150 ml of diethylether and 150 ml of hexane twice. The organic extracts were then combined, dried over magnesium sulfate and concentrated under reduced pressure to give 1.15 g of the title product as a solid, m.p. 81-83°C.
NMR ($CDCl_3$): 0.93 (t, 3H); 1.2 (m, 6H); 1.82 (m, 2H); 2.25 (s, 3H); 2.30 (s, 3H); 3.48 (q, 4H); 3.97 (t, 2H); 8.89 (s, 1H).

EXAMPLE 7

Preparation of 3-[(3,5-dimethyl-1-propyl-1H-pyrazol-4-yl)sulfonyl]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 1.1 g of 3-[(3,5-dimethyl-1-propyl-1H-pyrazol-4-yl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide in 24 ml of methylene chloride was added 3.8 g of 3-chloroperoxybenzoic acid (50-60% pure; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at room temperature overnight. To this reaction mixture was then added 1.5 ml of methylsulfide. The resulting mixture was stirred for another 5 minutes and 100 ml of methylene chloride was added. The methylene chloride solution was then washed with dilute sodium bicarbonate aqueous solution (3 x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure to give 0.78 g of the title compound as an oil.
NMR ($CDCl_3$): 0.92 (t, 3H); 1.29 (t, 6H); 1.8 (m, 2H); 2.45 (s, 3H); 2.57 (s, 3H); 3.6 (m, 4H); 3.95 (t, 2H); 8.8 (s, 1H).

EXAMPLE 8

Preparation of 3-[(3,5-dimethyl-4-isoxazolyl)thio]-1H-1,2,4-triazole

Under nitrogen, 0.6 g of sodium was added to 50 ml of methanol. This mixture was stirred at ambient temperature for 15 minutes and 2.4 g of hydroxylamine hydrochloride was added. The resulting mixture was then stirred for another hour. To it was added 3 g of 3-[(4H-1,2,4-triazol-3-yl)thio]-2,4-pentanedione. The reaction mixture was refluxed for 2 weeks and then concentrated under reduced pressure. The residue was triturated in 300 ml of hexane which was then decanted away. The residue was then triturated in 150 ml of water. The precipitate was collected by filtration to give 2.3 g of the title compound as a solid, m.p. 129-131°C.

NMR ($CDCl_3$): 2.28 (s, 3H); 2.5 (s, 3H); 8.15 (s, 1H).

EXAMPLE 9

Preparation of 3-[(3,5-dimethyl-4-isoxazolyl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 1.2 g of 3-[(3,5-dimethyl-4-isoxazolyl)thio]-1H-1,2,4-triazole in 34 ml of acetonitrile was added 2.5 ml of diethylcarbamyl chloride and then 3 ml of triethylamine. The resulting mixture was refluxed under nitrogen for 21 hours and was then concentrated. To the residue was added 100 ml of water. The aqueous layer was then extracted with a solution of 150 ml of diethylether and 150 ml of hexane twice. The organic extracts were combined, dried over magnesium sulfate and concentrated under reduced pressure to give 1.15 g of the title compound as an oil.

NMR ($CDCl_3$): 1.2 (m, 6H); 2.27 (s, 3H); 2.48 (s, 3H); 3.48 (q, 4H); 8.72 (s, 1H).

EXAMPLE 10

Preparation of 3-[(3,5-dimethyl-4-isoxazolyl)sulfonyl]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.7 g of 3-[(3,5-dimethyl-4-isoxazolyl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide in 16 ml of methylene chloride was added 2.8 g of 3-chloroperoxybenzoic acid (50-60% pure; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at room temperature for 14 hours. To this reaction mixture was then added 1.5 ml of methylsulfide. The resulting mixture was stirred for another 5 minutes and 100 ml of methylene chloride was added. The methylene chloride solution was then washed with dilute sodium bicarbonate aqueous solition (3

x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure to give 0.58 g of the title compound as a solid, m.p. 108-110°C.

NMR ($CDCl_3$): 1.3 (t, 6H); 2.49 (s, 3H); 2.76 (s, 3H); 3.6 (m, 4H); 8.86 (s, 1H).

EXAMPLE 11

Preparation of 1-[5-chloro-2-[(1H-1,2,4-triazol-3-yl)thio]3-thienyl]ethanone

To a solution of 4.5 g of 1,2,4-triazole-3-thiol in 100 ml *N,N*-dimethylformamide under N_2 was added 2 g of sodium hydride (60% dispersion in mineral oil). The resulting mixture was stirred at ambient temperature for 15 minutes and 7.8 g of 3-acetyl-2,5-dichlorothiophene was then added to it. The resulting mixture was heated at 90°C for 2 hours and was then concentrated under reduced pressure. To the residue was added 100 ml of water. Aqueous hydrochloric acid (1 normal) was then added with stirring until the pH was 7. The precipitate was collected by filtration, washed with water, air dried and dried in a vacuum oven to give 10.45 g of the title product as a solid, m.p. 187-189°C.

NMR ($CDCl_3$): 2.51 (s, 3H); 7.64 (s, 1H); 8.8 (s, 1H).

EXAMPLE 12

Preparation of 3-[(3-acetyl-5-chloro-2-thienyl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 5.5 g of 1-[5-chloro-2-[(1H-1,2,4-triazol-3-yl)thio]3-thienyl]ethanone in 75 ml of acetonitrile was added 4.4 ml of diethylcarbamyl chloride and then 5.3 ml of triethylamine. The resulting mixture was refluxed under nitrogen overnight and was then concentrated. The residue was stirred in 100 ml of water for 15 minutes. The precipitate was collected by filtration, washed with water and dried in a vacuum oven to give 6.8 g of the title product as a solid, m.p. 103-105°C.

NMR ($CDCl_3$): 1.28 (t, 6H); 2.54 (s, 3H); 3.6 (m, 4H); 7.24 (s, 1H); 8.87 (s, 1H).

EXAMPLE 13

Preparation of 3-[(3-acetyl-5-chloro-2-thienyl)sulfonyl]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.98 g of 3-[(3-acetyl-5-chloro-2-thienyl)thio]-*N,N*-diethyl-1H-1,2,4-triazole-1-carboxamide in 21 ml of methylene chloride was added 3 g of 3-chloroperoxybenzoic acid (50-60% pure; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at ambient temperature for 20 hours and 1.5 ml of methylsulfide was then added. The reaction mixture was stirred for another 5 minutes and 100 ml of methylene chloride was then added. The methylene chloride

solution was washed with dilute sodium bicarbonate aqueous solution (3 x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure to give 0.79 g of the title product as a solid, m.p. 128-130°C.

NMR ($CDCl_3$): 1.29 (t, 6H); 2.52 (s,3 H); 3.6 (b, 4H); 7.27 (s, 1H); 8.83 (s, 1H).

IR (Nujol): 1700, 1328, 1130 cm^{-1}.

EXAMPLE 14

Preparation of methyl 3-oxo-2-[(1H-1,2,4-triazol-3yl)thio]butanoate

Under nitrogen, 7 g of sodium was added to 300 ml of methanol. This mixture was stirred at ambient temperature for 30 minutes and 30 g of 1,2,4-triazol-3-thiol was then added. The reaction mixture was then stirred at ambient temperature for 15 minutes. To this reaction mixture with stirring was then added 50 ml of methyl 2-chloroacetoacetate dropwise. The resulting mixture was stirred at ambient temperature for 1 hour and was then concentrated under reduced pressure. To the residue was added 200 ml of water. The precipitate was collected by filtration, washed with 100 ml of water, air dried and then dried in oven to give 50.5 g of the title compound as a solid, m.p. 63-65°C.

NMR ($CDCl_3$): 2.39 (s, 3H); 3.75 (s, 3H); 8.14 (s, 1H); 13.7 (bs, 1H).

EXAMPLE 15

Preparation of 1,2-dihydro-5-methyl-4-[(1H-1,2,4-triazol-3-yl)thio]-2-(2,2,2-trifluoroethyl)-3H-pyrazol-3-one

To a solution of 4 g of methyl 3-oxo-2-[(1H-1,2,4-triazol-3-yl)thio]butanoate in 100 ml of methanol was added 2.8 ml of 2,2,2-trifluoroethylhydrazine. The resulting solution was refluxed under nitrogen for 20 hours and was then concentrated under reduced pressure. The residue was triturated in 200 ml of diethylether for ten minutes. The precipitate was collected by filtration, air dried and dried in oven to give a solid. This solid was then stirred in 400 ml of diethylether for 4 hours. The precipitate was then collected by filtration, washed with diethylether and dried in oven to give 3 g of the title compound as a solid, m.p. 196-200°C.

NMR (DMSO-d6): 2.02 (s, 3H); 4.58 (q, 2H); 8.18 (s, 1H) with impurity peaks.

EXAMPLE 16

Preparation of 3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4yl)thio]-1H-1,2,4-triazole

To a heavy walled glass tube with a magnetic stirring bar and a screw teflon cap was added 40 ml of phosphorus oxychloride and then 2 g of 1,2-dihydro-5-methyl-4-[(1H-1,2,4-triazol-3-yl)thio]-2-(2,2,2-trifluoroethyl)-3H-pyrazol-3-one.

The tube was purged with nitrogen and was then sealed with a teflon cap. The sealed glass tube was put into a silicon oil bath (~ 2/3 of the tube was under the oil surface) with the magnetic bar stirring. The oil bath was heated at ~160°C for 5 hours and was then cooled down to room temperature. The resulting reaction mixture was then concentrated under reduced pressure. To the residue was added 40 ml of water. The resulting mixture was stirred for 10 minutes and was then extracted with methylene chloride (3 x 100 ml). The methylene chloride extracts were combined, dried over magnesium sulfate, and concentrated under reduced pressure to give 0.56 g of the title compound as a solid, m.p. 112-114°C.

NMR ($CDCl_3$): 2.31 (s, 3H); 4.7 (q, 2H); 8.13 (s, 1H).

EXAMPLE 17

Preparation of 3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4-yl]thio]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.56 g of 3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4-yl)thio]-1H-1,2,4-triazole in 21 ml of acetonitrile was added 1 ml of diethylcarbamyl chloride and then 1.1 ml of triethylamine. The resulting mixture was refluxed under nitrogen for 20 hours and was then concentrated under reduced pressure. To the residue was added 100 ml of water. The resulting mixture was stirred at ambient temperature for 10 minutes. The precipitate was collected by filtration, washed with water, air dried, and then dried in oven to give 0.64 g of the title product as a solid, m.p. 112-114°C.

NMR ($CDCl_3$): 1.15 (m, 6H); 2.3 (s, 3H); 3.48 (q, 4H); 4.72 (q, 2H); 8.73 (s, 1H).

EXAMPLE 18

Preparation of 3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4-yl]-sulfonyl]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.6 g of 3-[[5-chloro-3-methyl-1-(2,2,2-trifluoroethyl)-1H-pyrazol-4-yl)thio]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide in 16 ml of methylene chloride was added 2 g of 3-chloroperoxybenzoic acid (50-60% pure; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at ambient temperature for 20 hours. To this reaction mixture was then added 1.5 ml of methylsulfide. The resulting mixture was stirred for another 5 minutes and 100 ml of methylene chloride was added. The methylene chloride solution was then washed with dilute sodium bicarbonate aqueous solution (3 x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure to give 0.44 g of the title compound as a solid, m.p. 103-105°C.

NMR ($CDCl_3$): 1.29 (t, 6H); 2.53 (s, 3H); 3.6 (bs, 4H); 4.7 (q, 2H); 8.86 (s, 1H).

EXAMPLE 19

Preparation of 3-[[phenylmethyl]thio]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 3-benzylthio-1H-1,2,4-triazole (98.4 g, 0.52 mol) (U.S. Patent 4,280,831) in pyridine (350 mL) was added dropwise diethylcarbamyl chloride (73.5 g, 0.54 mol) at ambient temperature. The solution was stirred overnight (ca. 16 h), then poured into excess water (1500 mL). The suspension was stirred until a precipitate formed, then filtered, and the residue was suction-dried overnight to provide the title compound (98.0 g) as a solid melting at 50-55°C.
IR (mineral oil): 1690 cm^{-1}; ^1H-NMR ($CDCl_3$): δ 1.25 (t, 6H), 3.6 (bs, 4H), 4.4 (s, 2H), 7.2-7.4 (m, 5H), 8.75 (s, 1H).

EXAMPLE 20

Preparation of 1-[(diethylamino)carbonyl]-1H-1,2,4-triazole-3-sulfonyl chloride

To a solution of 40.0 g of 3-[(phenylmethyl)thio]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide in methylene chloride (606 mL) was added water (318 mL), and the suspension was cooled with external cooling to about 0° to 5°C. Concentrated hydrochloric acid (41 mL) was added followed by dropwise addition of Clorox® (658 mL, active ingredient 5.25% sodium hypochlorite) while maintianing the reaction temperature at 0° to 5°C with external cooling and occasional addition of wet ice to the reaction suspension. After stirring at 0° to 5°C for 1 h, the organic layer was separated, washed with saturated aqueous sodium bisulfite (150-175 mL), then dried ($MgSO_4$) and concentrated in vacuo (25-35°C) to an oil. On standing overnight the oil partially crystallized. The suspension was slurried with hexane (75 mL), filtered and the residue suction-dried to provide the title compound as a solid (26.0 g). The solid was further purified by flash chromatography (silica gel with 1:1 hexane:ethyl acetate) to provide the title compound (23.0 g), melting at 44-47°C.
IR (mineral oil): 1160, 1270-1290, 1720 cm^{-1}; ^1H-NMR ($CDCl_3$): δ 1.35 (t, 6H), 3.6 (bs, 4H), 9.0 (s, 1H).

EXAMPLE 21

Preparation of 3-[(3,5-diethyl-1H-pyrazol-1-yl)sulfonyl]-N,N-diethyl-1H-1,2,4-triazole-1-carboxamide

To a solution of 0.62 g of 3,5-diethyl-1H-pyrazole in 22 ml of anhydrous tetrahydrofuran under nitrogen with stirring was added 0.62 g of 60% sodium hydride (dispersion in mineral oil; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at ambient temperature for 1 hour. To this mixture was then added 1.36 g of 1-[(diethylamino)carbonyl]-1H-1,2,4-triazole-3-sulfonyl chloride. The resulting mixture was stirred at ambient temperature for another 2 hours and was then concentrated under reduced pressure. The residue was flash column chromatographed (silica gel with 1:9 ethyl acetate/hexane and 1:2 ethyl acetate/hexane as eluents) to provide 1.0 g of the title compound as a solid, m.p. 70-71°C.

NMR ($CDCl_3$): 1.15-1.4 (m, 12H); 2.6 (q, 2H); 3.03 (q, 2H); 3.6 (m, 4H); 6.1 (s, 1H); 8.82 (s, 1H).

EXAMPLE 22

Preparation of 3-(2-propynylthio)-1H-1,2,4-triazole

To a solution of 21.8 g of potassium hydroxide in 400 ml of methanol under nitrogen was added 33.37 g of 1,2,4-triazole-3-thiol. The resulting mixture was stirred at ambient temperature for ~ 1 hour. To this mixture was added 33.4 ml of propargyl bromide dropwise while keeping the reaction temperature below 30°C. After the addition, the resulting mixture was stirred at ambient temperature for ~ 4 hours and was then concentrated under reduced pressure. The residue was triturated in 300 ml of water. The precipitate was collected by filtration, washed with water and then hexanes, air dried and then dried in oven to give 24.6 g of the title product as a solid, m.p. 102-104°C.

NMR (DMSO-d6): 3.14 (t, 1H); 3.92 (d, 2H); 8.48 (s, 1H); 14.2 (bs, 1H).

EXAMPLE 23

Preparation of N,N-diethyl-3-(2-propynylthio)-1H-1,2,4-triazol-1-carboxamide

To 31.5 ml of pyridine was added 5.56 g of 3-(2-propynylthio)-1H-1,2,4-triazole and then 6.3 ml of diethylcarbamyl chloride. The resulting mixture was stirred under nitrogen at ambient temperature for 3 days and was then poured into 350 ml of cold water with agitation. The precipitate was collected by filtration,

washed with water, air dried and then dried in oven to give 8.1 g of the title compound as a solid, m.p. 67-69°C.

NMR ($CDCl_3$): 1.3 (t, 6H); 2,21 (t, 1H); 3.62 (m, 4H); 3.88 (d, 2H); 8.78 (s, 1H).

EXAMPLE 24

Preparation of N,N-diethyl-3-(1,2-propadienylsulfonyl)-1H-1,2,4-triazole-1-carboxamide

To a solution of 2 g of N,N-diethyl-3-(2-propynylthio)-1H-1,2,4-triazole-1-carboxamide in 40 ml of methylene chloride was added 10 g of 3-chloroperoxybenzoic acid (50-60%; from Aldrich Chemical Co., Inc.). The resulting mixture was stirred at ambient temperature for 22 hours. To this reaction mixture was then added 3 ml of methylsulfide. The resulting mixture was stirred for another 15 minutes and 50 ml of methylene chloride was added. The methylene chloride solution was then washed with 5% sodium bicarbonate aqueous solution (3 x 150 ml), dried over magnesium sulfate and concentrated under reduced pressure. The residue was then flash column chromatographed (silica gel with 1:2 ethyl acetate/hexanes as eluent) to provide 1.87 g of the title compound as a solid, m.p. 98-100°C.

NMR ($CDCl_3$): 1.32 (t, 6H); 3.6 (m, 4H); 5.62 (d, 2H); 6.46 (t, 1H); 8.89 (s, 1H).

IR (neat): 1966 cm^{-1}, 1712 cm^{-1}, 1334 cm^{-1}, 1140 cm^{-1}.

EXAMPLE 25

Preparation of N,N-diethyl-3-[(1,2,4-trimethyl-1H-pyrrol-3-yl)-sulfonyl]-1H-1,2,4-triazole-1-carboxamide

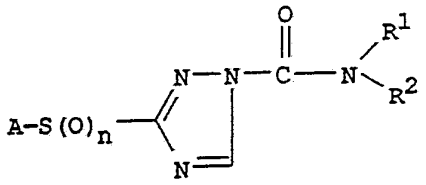
To 20 ml of acetic anhydride was added 0.9 g of sarcosin. The resulting mixture was heated under nitrogen to 98°C and was stirred at 98°C for 10 minutes. To this reaction solution at 98°C was then added a solution of 0.6 g of N,N-diethyl-3-(1,2-propadienylsulfonyl)-1H-1,2,4-triazole-1-carboxamide in 5 ml of methylene chloride dropwise. The resulting mixture was then heated to 110°C and was stirred at 110°C for 1.5 hours. The reaction mixture was then concentrated under reduced pressure. The residue was then purified by flash column chromatography twice (silica gel with 2:3 ethyl acetate/hexane as eluent were employed for the first flash column chromatography; silica gel with 2%, 4%, 6%, 8% and 10% ether in methylene chloride as eluents were employed for the second flash column chromatography) to provide 0.308 g of the title compound as an oil.

NMR ($CDCl_3$): 1.3 (m, 6H); 2.23 (s, 3H); 2.53 (s, 3H); 3.48 (s, 3H); 3.6 (m, 4H); 6.32 (s, 1H); 8.78 (s, 1H).

By the general procedures described in Schemes 1-29 and Examples 1-25 or by obvious modifications thereof, one skilled in the art can prepare the compounds of Tables 1-20.

TABLES 1-20

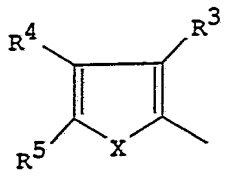
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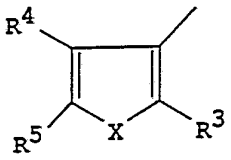
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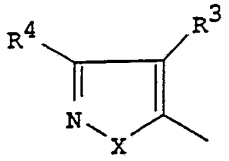
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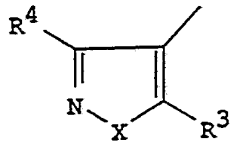
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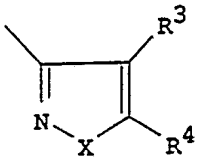
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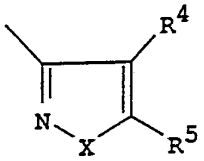
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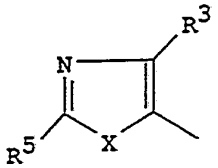
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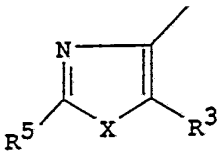
A-5



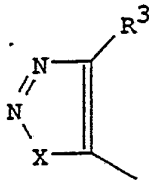
A-6



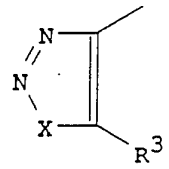
A-7



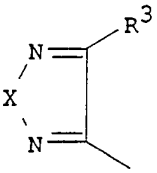
A-8



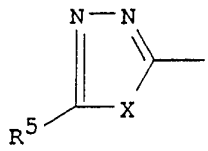
A-9



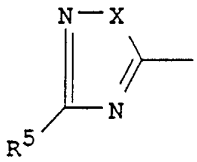
A-10



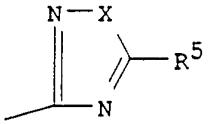
A-11



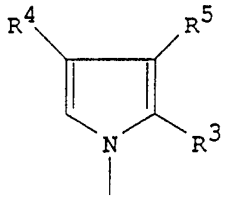
A-12



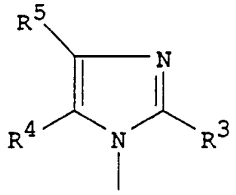
A-13



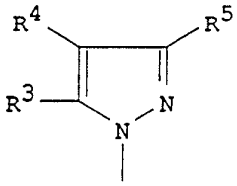
A-14



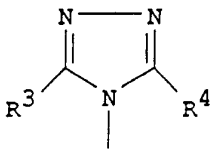
A-15



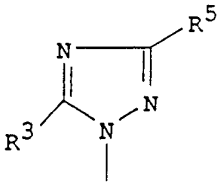
A-16



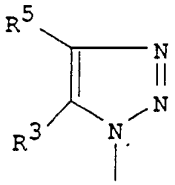
A-17



A-18



or



A-19 A-20

In the following tables, each page or section is read in the order of the columns to the left of the vertical dividing line, in their entirety, followed by the columns to the right of the line, and then followed again by the columns to the left of the line on the next page or section.

TABLE 1

A=A-1; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H
2	OCH_3	OCH_3	CH_3
2	OCH_3	OCH_3	C_2H_5
2	OCH_3	OCH_3	$CH_2CH_2CH_3$
2	OCH_3	CH_3	H
2	OCH_3	CH_3	CH_3
2	OCH_3	CH_3	C_2H_5
2	OCH_3	CH_3	$CH_2CH_2CH_3$
2	OCH_3	C_2H_5	H
2	OCH_3	C_2H_5	CH_3
2	OCH_3	C_2H_5	C_2H_5
2	OCH_3	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	H	H
2	CH_3	H	CH_3
2	CH_3	H	C_2H_5
2	CH_3	H	$CH_2CH_2CH_3$
2	CH_3	Cl	H
2	CH_3	Cl	CH_3

2	CH_3	Cl	C_2H_5
2	CH_3	Cl	$CH_2CH_2CH_3$
2	CH_3	OCH_3	H
2	CH_3	OCH_3	CH_3
2	CH_3	OCH_3	C_2H_5
2	CH_3	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3	H
2	CH_3	CH_3	CH_3
2	CH_3	CH_3	C_2H_5
2	CH_3	CH_3	$CH_2CH_2CH_3$
2	CH_3	C_2H_5	H
2	CH_3	C_2H_5	CH_3
2	CH_3	C_2H_5	C_2H_5
2	CH_3	C_2H_5	$CH_2CH_2CH_3$
2	C_2H_5	H	H
2	C_2H_5	H	CH_3
2	C_2H_5	H	C_2H_5
2	C_2H_5	H	$CH_2CH_2CH_3$
2	C_2H_5	Cl	H
2	C_2H_5	Cl	CH_3
2	C_2H_5	Cl	C_2H_5
2	C_2H_5	Cl	$CH_2CH_2CH_3$
2	C_2H_5	OCH_3	H
2	C_2H_5	OCH_3	CH_3
2	C_2H_5	OCH_3	C_2H_5
2	C_2H_5	OCH_3	$CH_2CH_2CH_3$
2	C_2H_5	CH_3	H
2	C_2H_5	CH_3	CH_3
2	C_2H_5	CH_3	C_2H_5
2	C_2H_5	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5	H
2	C_2H_5	C_2H_5	CH_3
2	C_2H_5	C_2H_5	C_2H_5
2	C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H	H
2	$CH_2CH_2CH_3$	H	CH_3
2	$CH_2CH_2CH_3$	H	C_2H_5
2	$CH_2CH_2CH_3$	H	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	Cl	H
2	$CH_2CH_2CH_3$	Cl	CH_3
2	$CH_2CH_2CH_3$	Cl	C_2H_5
2	$CH_2CH_2CH_3$	Cl	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	OCH_3	H
2	$CH_2CH_2CH_3$	OCH_3	CH_3
2	$CH_2CH_2CH_3$	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	OCH_3	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH_2CH_3$	CH_3	CH_3
2	$CH_2CH_2CH_3$	CH_3	C_2H_5
2	$CH_2CH_2CH_3$	CH_3	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	C_2H_5	H
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	C_2H_5
2	$CH_2CH_2CH_3$	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	CH_3	Cl
2	CH_3	CH_3	OCH_3
2	CH_3	CH_3	F
2	CH_3	CH_3	Br
2	CH_3	CH_3	CO_2CH_3
2	CH_3	CH_3	$CO_2C_2H_5$
2	CH_3	CH_3	CH_2OCH_3
2	CH_3	CH_3	$CON(CH_3)_2$
2	CH_3	CH_3	SCH_3
2	CH_3	CH_3	SO_2CH_3
2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H

2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H
2	$CH=CH_2$	CH_3	H
2	CH_3	$CH=CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(OCH_3)_2$	H	H
2	$COCH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

A=A-1; X=O; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-1; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H

2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
1	CH_3	CH_3	H
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H
2	OCH_3	OCH_3	CH_3
2	OCH_3	OCH_3	C_2H_5
2	OCH_3	OCH_3	$CH_2CH_2CH_3$
2	OCH_3	CH_3	H
2	OCH_3	CH_3	CH_3
2	OCH_3	CH_3	C_2H_5
2	OCH_3	CH_3	$CH_2CH_2CH_3$
2	OCH_3	C_2H_5	H
2	OCH_3	C_2H_5	CH_3
2	OCH_3	C_2H_5	C_2H_5
2	OCH_3	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	H	H
2	CH_3	H	CH_3
2	CH_3	H	C_2H_5
2	CH_3	H	$CH_2CH_2CH_3$
2	CH_3	Cl	H
2	CH_3	Cl	CH_3
2	CH_3	Cl	C_2H_5
2	CH_3	Cl	$CH_2CH_2CH_3$
2	CH_3	OCH_3	H
2	CH_3	OCH_3	CH_3
2	CH_3	OCH_3	C_2H_5
2	CH_3	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3	H
2	CH_3	CH_3	CH_3
2	CH_3	CH_3	C_2H_5
2	CH_3	CH_3	$CH_2CH_2CH_3$
2	CH_3	C_2H_5	H
2	CH_3	C_2H_5	CH_3
2	CH_3	C_2H_5	C_2H_5
2	CH_3	C_2H_5	$CH_2CH_2CH_3$
2	C_2H_5	H	H
2	C_2H_5	H	CH_3
2	C_2H_5	H	C_2H_5
2	C_2H_5	H	$CH_2CH_2CH_3$
2	C_2H_5	Cl	H

2	C_2H_5	Cl	CH_3
2	C_2H_5	Cl	C_2H_5
2	C_2H_5	Cl	$CH_2CH_2CH_3$
2	C_2H_5	OCH_3	H
2	C_2H_5	OCH_3	CH_3
2	C_2H_5	OCH_3	C_2H_5
2	C_2H_5	OCH_3	$CH_2CH_2CH_3$
2	C_2H_5	CH_3	H
2	C_2H_5	CH_3	CH_3
2	C_2H_5	CH_3	C_2H_5
2	C_2H_5	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5	H
2	C_2H_5	C_2H_5	CH_3
2	C_2H_5	C_2H_5	C_2H_5
2	C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	C_2H_5	CH_3
2	$CH(CH_3)_2$	C_2H_5	C_2H_5
2	$CH(CH_3)_2$	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	CH_3	Cl
2	CH_3	CH_3	OCH_3
2	CH_3	CH_3	F
2	CH_3	CH_3	Br
2	CH_3	CH_3	CO_2CH_3
2	CH_3	CH_3	$CO_2C_2H_5$
2	CH_3	CH_3	CH_2OCH_3
2	CH_3	CH_3	$CON(CH_3)_2$
2	CH_3	CH_3	SCH_3
2	CH_3	CH_3	SO_2CH_3
2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H
2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H
2	$CH=CH_2$	CH_3	H
2	CH_3	$CH=CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(OCH_3)_2$	H	H
2	$C(O)CH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl
0	$C(O)CH_3$	H	Cl

A=A-1; X=S; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H

2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2	--$(CH_2)_5$-		CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-1; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
2	H	$CH(CH_3)_2$	H
2	H	$CH(CH_3)_2$	CH_3
2	H	$CH(CH_3)_2$	C_2H_5
2	H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	H	$CH_2CH_2CH_3$	H
2	H	$CH_2CH_2CH_3$	CH_3
2	H	$CH_2CH_2CH_3$	C_2H_5
2	H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5

2	Cl	C_2H_5	$CH_2CH_2CH_3$
1	CH_3	CH_3	H
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H
2	OCH_3	OCH_3	CH_3
2	OCH_3	OCH_3	C_2H_5
2	OCH_3	OCH_3	$CH_2CH_2CH_3$
2	OCH_3	CH_3	H
2	OCH_3	CH_3	CH_3
2	OCH_3	CH_3	C_2H_5
2	OCH_3	CH_3	$CH_2CH_2CH_3$
2	OCH_3	C_2H_5	H
2	OCH_3	C_2H_5	CH_3
2	OCH_3	C_2H_5	C_2H_5
2	OCH_3	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	H	H
2	CH_3	H	CH_3
2	CH_3	H	C_2H_5
2	CH_3	H	$CH_2CH_2CH_3$
2	CH_3	Cl	H
2	CH_3	Cl	CH_3
2	CH_3	Cl	C_2H_5
2	CH_3	Cl	$CH_2CH_2CH_3$
2	CH_3	OCH_3	H
2	CH_3	OCH_3	CH_3
2	CH_3	OCH_3	C_2H_5
2	CH_3	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3	H
2	CH_3	CH_3	CH_3
2	CH_3	CH_3	C_2H_5
2	CH_3	CH_3	$CH_2CH_2CH_3$
2	CH_3	C_2H_5	H
2	CH_3	C_2H_5	CH_3
2	CH_3	C_2H_5	C_2H_5
2	CH_3	C_2H_5	$CH_2CH_2CH_3$
2	C_2H_5	H	H
2	C_2H_5	H	CH_3
2	C_2H_5	H	C_2H_5
2	C_2H_5	H	$CH_2CH_2CH_3$
2	C_2H_5	Cl	H
2	C_2H_5	Cl	CH_3
2	C_2H_5	Cl	C_2H_5
2	C_2H_5	Cl	$CH_2CH_2CH_3$
2	C_2H_5	OCH_3	H
2	C_2H_5	OCH_3	CH_3
2	C_2H_5	OCH_3	C_2H_5
2	C_2H_5	OCH_3	$CH_2CH_2CH_3$
2	C_2H_5	CH_3	H
2	C_2H_5	CH_3	CH_3
2	C_2H_5	CH_3	C_2H_5
2	C_2H_5	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5	H
2	C_2H_5	C_2H_5	CH_3
2	C_2H_5	C_2H_5	C_2H_5
2	C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	CH_3	Cl
2	CH_3	CH_3	OCH_3
2	CH_3	CH_3	F
2	CH_3	CH_3	Br
2	CH_3	CH_3	CO_2CH_3
2	CH_3	CH_3	$CO_2C_2H_5$
2	CH_3	CH_3	CH_2OCH_3
2	CH_3	CH_3	$CON(CH_3)_2$

2	CH_3	CH_3	SCH_3
2	CH_3	CH_3	SO_2CH_3
2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H
2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H
2	$CH=CH_2$	CH_3	H
2	CH_3	$CH=CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(CH_3)_2$	H	H
2	$COCH_3$	H	C
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

A=A-1; X=NCH_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
2	CH_3	CH_3	H

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$

2 H	CH_3	H
2 H	CH_3	CH_3
2 H	CH_3	C_2H_5
2 H	CH_3	$CH_2CH_2CH_3$
2 H	C_2H_5	H
2 H	C_2H_5	CH_3
2 H	C_2H_5	C_2H_5
2 H	C_2H_5	$CH_2CH_2CH_3$
2 H	$CH(CH_3)_2$	H
2 H	$CH(CH_3)_2$	CH_3
2 H	$CH(CH_3)_2$	C_2H_5
2 H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 H	$CH_2CH_2CH_3$	H
2 H	$CH_2CH_2CH_3$	CH_3
2 H	$CH_2CH_2CH_3$	C_2H_5
2 H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0 CH_3	CH_3	H
2 Cl	H	H
2 Cl	H	CH_3
2 Cl	H	C_2H_5
2 Cl	H	$CH_2CH_2CH_3$
2 Cl	Cl	H
2 Cl	Cl	CH_3
2 Cl	Cl	C_2H_5
2 Cl	Cl	$CH_2CH_2CH_3$
2 Cl	OCH_3	H
2 Cl	OCH_3	CH_3
2 Cl	OCH_3	C_2H_5
2 Cl	OCH_3	$CH_2CH_2CH_3$
2 Cl	CH_3	H
2 Cl	CH_3	CH_3
2 Cl	CH_3	C_2H_5
2 Cl	CH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	H
2 Cl	C_2H_5	CH_3
2 Cl	C_2H_5	C_2H_5
2 Cl	C_2H_5	$CH_2CH_2CH_3$
1 CH_3	CH_3	H
2 OCH_3	H	H
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	H
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	H
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$

2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C_2H_5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH=CH_2$	CH_3	H
2 CH_3	$CH=CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-1; X=NC_2H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H

2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5$	CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-1; X=$NCH_2CH_2CH_3$; $R^1=C_2H_5$; $R^2=C_2H_5$

nR^3	R^4	R^5
2H	H	H
2H	H	CH_3
2H	H	C_2H_5
2H	H	$CH_2CH_2CH_3$
2H	Cl	H
2H	Cl	CH_3
2H	Cl	C_2H_5
2H	Cl	$CH_2CH_2CH_3$
2H	OCH_3	H
2H	OCH_3	CH_3
2H	OCH_3	C_2H_5
2H	OCH_3	$CH_2CH_2CH_3$
2H	CH_3	H
2H	CH_3	CH_3
2H	CH_3	C_2H_5
2H	CH_3	$CH_2CH_2CH_3$
2H	C_2H_5	H
2H	C_2H_5	CH_3
2H	C_2H_5	C_2H_5
2H	C_2H_5	$CH_2CH_2CH_3$
2H	$CH(CH_3)_2$	H
2H	$CH(CH_3)_2$	CH_3
2H	$CH(CH_3)_2$	C_2H_5
2H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2H	$CH_2CH_2CH_3$	H
2H	$CH_2CH_2CH_3$	CH_3
2H	$CH_2CH_2CH_3$	C_2H_5
2H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0 CH_3	CH_3	H
2 Cl	H	H
2 Cl	H	CH_3
2 Cl	H	C_2H_5
2 Cl	H	$CH_2CH_2CH_3$
2 Cl	Cl	H
2 Cl	Cl	CH_3
2 Cl	Cl	C_2H_5
2 Cl	Cl	$CH_2CH_2CH_3$
2 Cl	OCH_3	H
2 Cl	OCH_3	CH_3
2 Cl	OCH_3	C_2H_5
2 Cl	OCH_3	$CH_2CH_2CH_3$
2 Cl	CH_3	H

2 Cl	CH_3	CH_3	2 CH_3	Cl	$CH_2CH_2CH_3$
2 Cl	CH_3	C_2H_5	2 CH_3	OCH_3	H
2 Cl	CH_3	$CH_2CH_2CH_3$	2 CH_3	OCH_3	CH_3
2 Cl	C_2H_5	H	2 CH_3	OCH_3	C_2H_5
2 Cl	C_2H_5	CH_3	2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	C_2H_5	2 CH_3	CH_3	H
2 Cl	C_2H_5	$CH_2CH_2CH_3$	2 CH_3	CH_3	CH_3
1 CH_3	CH_3	H	2 CH_3	CH_3	C_2H_5
2 OCH_3	H	H	2 CH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	H	CH_3	2 CH_3	C_2H_5	H
2 OCH_3	H	C_2H_5	2 CH_3	C_2H_5	CH_3
2 OCH_3	H	$CH_2CH_2CH_3$	2 CH_3	C_2H_5	C_2H_5
2 OCH_3	Cl	H	2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	Cl	CH_3	2 C_2H_5	H	H
2 OCH_3	Cl	C_2H_5	2 C_2H_5	H	CH_3
2 OCH_3	Cl	$CH_2CH_2CH_3$	2 C_2H_5	H	C_2H_5
2 OCH_3	OCH_3	H	2 C_2H_5	H	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	CH_3	2 C_2H_5	Cl	H
2 OCH_3	OCH_3	C_2H_5	2 C_2H_5	Cl	CH_3
2 OCH_3	OCH_3	$CH_2CH_2CH_3$	2 C_2H_5	Cl	C_2H_5
2 OCH_3	CH_3	H	2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 OCH_3	CH_3	CH_3	2 C_2H_5	OCH_3	H
2 OCH_3	CH_3	C_2H_5	2 C_2H_5	OCH_3	CH_3
2 OCH_3	CH_3	$CH_2CH_2CH_3$	2 C_2H_5	OCH_3	C_2H_5
2 OCH_3	C_2H_5	H	2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	CH_3	2 C_2H_5	CH_3	H
2 OCH_3	C_2H_5	C_2H_5	2 C_2H_5	CH_3	CH_3
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$	2 C_2H_5	CH_3	C_2H_5
2 CH_3	H	H	2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 CH_3	H	CH_3	2 C_2H_5	C_2H_5	H
2 CH_3	H	C_2H_5	2 C_2H_5	C_2H_5	CH_3
2 CH_3	H	$CH_2CH_2CH_3$	2 C_2H_5	C_2H_5	C_2H_5
2 CH_3	Cl	H	2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	Cl	CH_3	2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2 CH_3	Cl	C_2H_5	2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3

2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	C_2H_5
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH=CH_2$	CH_3	H
2 CH_3	$CH=CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-1; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

TABLE 2

A=A-2; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
1	CH_3	CH_3	H
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H
2	OCH_3	OCH_3	CH_3
2	OCH_3	OCH_3	C_2H_5
2	OCH_3	OCH_3	$CH_2CH_2CH_3$
2	OCH_3	CH_3	H
2	OCH_3	CH_3	CH_3
2	OCH_3	CH_3	C_2H_5
2	OCH_3	CH_3	$CH_2CH_2CH_3$
2	OCH_3	C_2H_5	H
2	OCH_3	C_2H_5	CH_3
2	OCH_3	C_2H_5	C_2H_5
2	OCH_3	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	H	H
2	CH_3	H	CH_3
2	CH_3	H	C_2H_5
2	CH_3	H	$CH_2CH_2CH_3$

2	CH_3	Cl	H
2	CH_3	Cl	CH_3
2	CH_3	Cl	C_2H_5
2	CH_3	Cl	$CH_2CH_2CH_3$
2	CH_3	OCH_3	H
2	CH_3	OCH_3	CH_3
2	CH_3	OCH_3	C_2H_5
2	CH_3	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3	H
2	CH_3	CH_3	CH_3
2	CH_3	CH_3	C_2H_5
2	CH_3	CH_3	$CH_2CH_2CH_3$
2	CH_3	C_2H_5	H
2	CH_3	C_2H_5	CH_3
2	CH_3	C_2H_5	C_2H_5
2	CH_3	C_2H_5	$CH_2CH_2CH_3$
2	C_2H_5	H	H
2	C_2H_5	H	CH_3
2	C_2H_5	H	C_2H_5
2	C_2H_5	H	$CH_2CH_2CH_3$
2	C_2H_5	Cl	H
2	C_2H_5	Cl	CH_3
2	C_2H_5	Cl	C_2H_5
2	C_2H_5	Cl	$CH_2CH_2CH_3$
2	C_2H_5	OCH_3	H
2	C_2H_5	OCH_3	CH_3
2	C_2H_5	OCH_3	C_2H_5
2	C_2H_5	OCH_3	$CH_2CH_2CH_3$
2	C_2H_5	CH_3	H
2	C_2H_5	CH_3	CH_3
2	C_2H_5	CH_3	C_2H_5
2	C_2H_5	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5	H
2	C_2H_5	C_2H_5	CH_3
2	C_2H_5	C_2H_5	C_2H_5
2	C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	CH_3	Cl
2	CH_3	CH_3	OCH_3
2	CH_3	CH_3	F
2	CH_3	CH_3	Br
2	CH_3	CH_3	CO_2CH_3
2	CH_3	CH_3	$CO_2C_2H_5$
2	CH_3	CH_3	CH_2OCH_3
2	CH_3	CH_3	$CON(CH_3)_2$
2	CH_3	CH_3	SCH_3
2	CH_3	CH_3	SO_2CH_3
2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H
2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H
2	$CH{=}CH_2$	CH_3	H
2	CH_3	$CH{=}CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(OCH_3)_2$	H	H
2	$COCH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

A=A-2; X=O; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-2; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$

2 Cl	CH_3	H
2 Cl	CH_3	CH_3
2 Cl	CH_3	C_2H_5
2 Cl	CH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	H
2 Cl	C_2H_5	CH_3
2 Cl	C_2H_5	C_2H_5
2 Cl	C_2H_5	$CH_2CH_2CH_3$
2 Cl	$CH(CH_3)_2$	H
2 Cl	$CH(CH_3)_2$	CH_3
2 Cl	$CH(CH_3)_2$	C_2H_5
2 Cl	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 Cl	$CH_2CH_2CH_3$	H
2 Cl	$CH_2CH_2CH_3$	CH_3
2 Cl	$CH_2CH_2CH_3$	C_2H_5
2 Cl	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1 CH_3	CH_3	H
2 OCH_3	H	H
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	H
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	$CH(CH_3)_2$	H
2 OCH_3	$CH(CH_3)_2$	CH_3
2 OCH_3	$CH(CH_3)_2$	C_2H_5
2 OCH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 OCH_3	$CH_2CH_2CH_3$	H
2 OCH_3	$CH_2CH_2CH_3$	CH_3
2 OCH_3	$CH_2CH_2CH_3$	C_2H_5
2 OCH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	H
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	$CH(CH_3)_2$	H
2 CH_3	$CH(CH_3)_2$	CH_3
2 CH_3	$CH(CH_3)_2$	C_2H_5
2 CH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 CH_3	$CH_2CH_2CH_3$	H

2 CH_3	$CH_2CH_2CH_3$	CH_3
2 CH_3	$CH_2CH_2CH_3$	C_2H_5
2 CH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C_2H_5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH=CH_2$	CH_3	H
2 CH_3	$CH=CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-2; X=S; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2	-$(CH_2)_5$-		H
2	-$(CH_2)_4$-		H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H

2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2	--$(CH_2)_5$-		CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-2; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
1	CH_3	CH_3	H
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H

2	OCH_3	OCH_3	CH_3
2	OCH_3	OCH_3	C_2H_5
2	OCH_3	OCH_3	$CH_2CH_2CH_3$
2	OCH_3	CH_3	H
2	OCH_3	CH_3	CH_3
2	OCH_3	CH_3	C_2H_5
2	OCH_3	CH_3	$CH_2CH_2CH_3$
2	OCH_3	C_2H_5	H
2	OCH_3	C_2H_5	CH_3
2	OCH_3	C_2H_5	C_2H_5
2	OCH_3	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	H	H
2	CH_3	H	CH_3
2	CH_3	H	C_2H_5
2	CH_3	H	$CH_2CH_2CH_3$
2	CH_3	Cl	H
2	CH_3	Cl	CH_3
2	CH_3	Cl	C_2H_5
2	CH_3	Cl	$CH_2CH_2CH_3$
2	CH_3	OCH_3	H
2	CH_3	OCH_3	CH_3
2	CH_3	OCH_3	C_2H_5
2	CH_3	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3	H
2	CH_3	CH_3	CH_3
2	CH_3	CH_3	C_2H_5
2	CH_3	CH_3	$CH_2CH_2CH_3$
2	CH_3	C_2H_5	H
2	CH_3	C_2H_5	CH_3
2	CH_3	C_2H_5	C_2H_5
2	CH_3	C_2H_5	$CH_2CH_2CH_3$
2	C_2H_5	H	H
2	C_2H_5	H	CH_3
2	C_2H_5	H	C_2H_5
2	C_2H_5	H	$CH_2CH_2CH_3$
2	C_2H_5	Cl	H
2	C_2H_5	Cl	CH_3
2	C_2H_5	Cl	C_2H_5
2	C_2H_5	Cl	$CH_2CH_2CH_3$
2	C_2H_5	OCH_3	H
2	C_2H_5	OCH_3	CH_3
2	C_2H_5	OCH_3	C_2H_5
2	C_2H_5	OCH_3	$CH_2CH_2CH_3$
2	C_2H_5	CH_3	H
2	C_2H_5	CH_3	CH_3
2	C_2H_5	CH_3	C_2H_5
2	C_2H_5	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5	H
2	C_2H_5	C_2H_5	CH_3
2	C_2H_5	C_2H_5	C_2H_5
2	C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2	CH_3	CH_3	Cl
2	CH_3	CH_3	OCH_3
2	CH_3	CH_3	F
2	CH_3	CH_3	Br
2	CH_3	CH_3	CO_2CH_3
2	CH_3	CH_3	$CO_2C_2H_5$
2	CH_3	CH_3	CH_2OCH_3
2	CH_3	CH_3	$CON(CH_3)_2$
2	CH_3	CH_3	SCH_3
2	CH_3	CH_3	SO_2CH_3
2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H
2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H

2	$CH=CH_2$	CH_3	H
2	CH_3	$CH=CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(CH_3)_2$	H	H
2	$COCH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

A=A-2; X=NCH_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
0	CH_3	CH_3	H

A=A-2; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$

2 H	$CH(CH_3)_2$	H
2 H	$CH(CH_3)_2$	CH_3
2 H	$CH(CH_3)_2$	C_2H_5
2 H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 H	$CH_2CH_2CH_3$	H
2 H	$CH_2CH_2CH_3$	CH_3
2 H	$CH_2CH_2CH_3$	C_2H_5
2 H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0 CH_3	CH_3	H
2 Cl	H	H
2 Cl	H	CH_3
2 Cl	H	C_2H_5
2 Cl	H	$CH_2CH_2CH_3$
2 Cl	Cl	H
2 Cl	Cl	CH_3
2 Cl	Cl	C_2H_5
2 Cl	Cl	$CH_2CH_2CH_3$
2 Cl	OCH_3	H
2 Cl	OCH_3	CH_3
2 Cl	OCH_3	C_2H_5
2 Cl	OCH_3	$CH_2CH_2CH_3$
2 Cl	CH_3	H
2 Cl	CH_3	CH_3
2 Cl	CH_3	C_2H_5
2 Cl	CH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	H
2 Cl	C_2H_5	CH_3
2 Cl	C_2H_5	C_2H_5
2 Cl	C_2H_5	$CH_2CH_2CH_3$
2 Cl	$CH(CH_3)_2$	H
2 Cl	$CH(CH_3)_2$	CH_3
2 Cl	$CH(CH_3)_2$	C_2H_5
2 Cl	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 Cl	$CH_2CH_2CH_3$	H
2 Cl	$CH_2CH_2CH_3$	CH_3
2 Cl	$CH_2CH_2CH_3$	C_2H_5
2 Cl	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1 CH_3	CH_3	H
2 OCH_3	H	H
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	H
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	$CH(CH_3)_2$	H
2 OCH_3	$CH(CH_3)_2$	CH_3
2 OCH_3	$CH(CH_3)_2$	C_2H_5
2 OCH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 OCH_3	$CH_2CH_2CH_3$	H
2 OCH_3	$CH_2CH_2CH_3$	CH_3
2 OCH_3	$CH_2CH_2CH_3$	C_2H_5
2 OCH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$

2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	H
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C_2H_5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH{=}CH_2$	CH_3	H
2 CH_3	$CH{=}CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-2; X=NC_2H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

A=A-2; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
2	H	$CH(CH_3)_2$	H
2	H	$CH(CH_3)_2$	CH_3
2	H	$CH(CH_3)_2$	C_2H_5
2	H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	H	$CH_2CH_2CH_3$	H
2	H	$CH_2CH_2CH_3$	CH_3
2	H	$CH_2CH_2CH_3$	C_2H_5
2	H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3	H
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5

2 Cl	H	$CH_2CH_2CH_3$
2 Cl	Cl	H
2 Cl	Cl	CH_3
2 Cl	Cl	C_2H_5
2 Cl	Cl	$CH_2CH_2CH_3$
2 Cl	OCH_3	H
2 Cl	OCH_3	CH_3
2 Cl	OCH_3	C_2H_5
2 Cl	OCH_3	$CH_2CH_2CH_3$
2 Cl	CH_3	H
2 Cl	CH_3	CH_3
2 Cl	CH_3	C_2H_5
2 Cl	CH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	H
2 Cl	C_2H_5	CH_3
2 Cl	C_2H_5	C_2H_5
2 Cl	C_2H_5	$CH_2CH_2CH_3$
1 CH_3	CH_3	H
2 OCH_3	H	H
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	H
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	H
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$

2 C_2H_5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	H	H
2 $CH(CH_3)_2$	H	CH_3
2 $CH(CH_3)_2$	H	C_2H_5
2 $CH(CH_3)_2$	H	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	C_2H_5
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH{=}CH_2$	CH_3	H
2 CH_3	$CH{=}CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-2; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$	H
2	$CH_2C{\equiv}CH$	$CH_2C{\equiv}CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2	-$(CH_2)_5$-		H
2	-$(CH_2)_4$-		H
2	$CH_2CH{=}CH_2$	C_2H_5	H
2	$CH_2C{\equiv}CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H

2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3

2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2	$-(CH_2)_5-$		CH_3
0	CH_3	CH_3	H
1	CH_3	CH_3	H

TABLE 3

A=A-3; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-3; X=O; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-3; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3

2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-3; X=S; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-3; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	CHF_2	CH_3
2	CHF_2	C_2H_5
2	CHF_2	$CH_2CH_2CH_3$
2	CH_2Br	CH_3
2	CH_2OCH_3	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-3; X=NCH_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$

2	$CH_2C{\equiv}CH$	$CH_2C{\equiv}CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	-$(CH_2)_5$-	
2	-$(CH_2)_4$-	
2	$CH_2CH{=}CH_2$	C_2H_5
2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-3; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$

1	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H
2	CHF_2	CH_3
2	CHF_2	C_2H_5
2	CHF_2	$CH_2CH_2CH_3$

A=A-3; X=NC_2H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-3; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$

2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	CHF_2	CH_3
2	CHF_2	C_2H_5
2	CHF_2	$CH_2CH_2CH_3$
2	$CH(OCH_3)_2$	H

A=A-3; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5

2	H		2	$CH_2CH_2CH_3$	CH_3
2			0	H	CH_3
2	H	$CH_2CH{=}CH_2$	1	H	CH_3

TABLE 4

A=A-4; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1	CH_3	H
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=O; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl

2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
1	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=S; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3

2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NCH_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	

2	$(CH_2)_4$-	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	H
0	Cl	H

1	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NC_2H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3
0	CH_3	CH_3

A=A-4; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$

2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
0	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	

2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NC_6H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3

2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NC_6H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2		$-(CH_2)_5-$
2		$-(CH_2)_4-$
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NCH_2CF_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl

2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
0	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NCH_2CF_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H5	CH_3
2	OC_2H5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=$NCH_2CO_2C_2H_5$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl

2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=$NCH_2CO_2C_2H_5$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3

2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NCH_2CH_2CN; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5

2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NCH_2CH_2CN; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=$NC(O)N(C_2H_5)_2$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
0	CH_3	CH_3
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3

2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
0	CH_3	CH_3
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=$NC(O)N(C_2H_5)_2$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$

2		-$(CH_2)_5$-
2		-$(CH_2)_4$-
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=$NCH_2CH_2CH_2CH_3$; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$

0	CH_3	CH_3
0	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; $X=NCH_2CH_2CH_2CH_3$; $R^3=CH_3$; $R^4=CH_3$

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; $X=NCH_2CH(CH_3)_2$; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$

2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=$NCH_2CH(CH_3)_2$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	

2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=$NCH_2C_6H_5$; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$

2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=$NCH_2C_6H_5$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2		$-(CH_2)_5-$
2		$-(CH_2)_4-$
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=NH; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H

2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	CH_3
1	Cl	CH_3
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X=NH; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-4; X=$NCH(CH_3)_2$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl

2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$

A=A-4; X=NCH(CH_3)(CH_3);

$R^1=C_2H_5$; $R^2=C_2H_5$

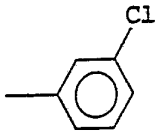
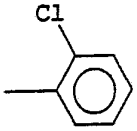
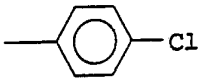
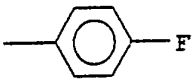
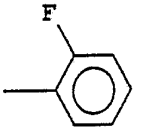
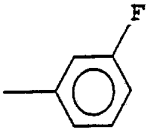
n	R^3	R^4
0	CH_3	H
0	Cl	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H

2	$CH(OCH_3)_2$	H

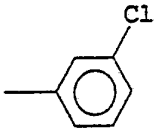
A=A-4; X=NC_2H_5; R^3=CH_3; R^4=CH_3

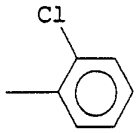
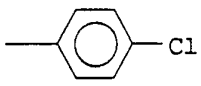
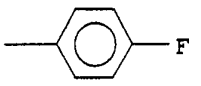
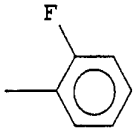
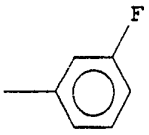
n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3
0	CH_3	CH_3

A=A-4; X=NR^6; R^1=C_2H_5; R^2=C_2H_5; R^3=CH_3; R^4=CH_3

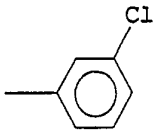
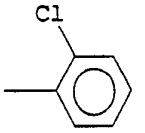
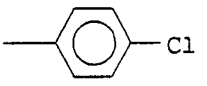
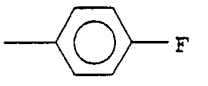
n	R^6
2	
2	
2	
2	
2	
2	
2	$-CH_2CH_2Cl$
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

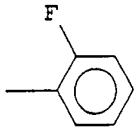
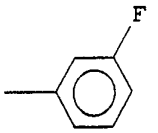
A=A-4; X=NR^6; R^1=C_2H_5; R^2=C_2H_5; R^3=C_2H_5; R^4=C_2H_5

n	R^6
2	

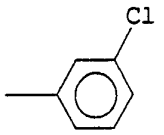
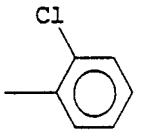
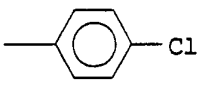
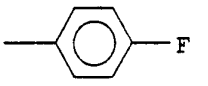
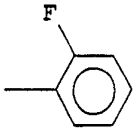
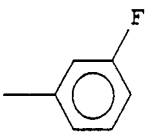
2	
2	
2	
2	
2	
2	$-CH_2CH_2Cl$
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

A=A-4; X=NR^6; $R^1=C_2H_5$; $R^2=C_2H_5$; $R^3=C_2H_5$; $R^4=CH_3$

n	R^6
2	
2	
2	
2	
2	

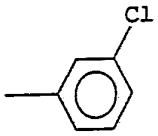
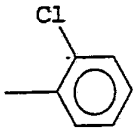
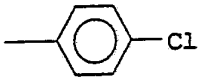
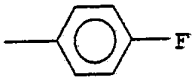
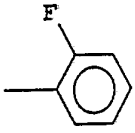
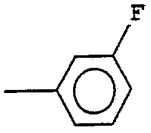
2	
2	
2	$-CH_2CH_2Cl$
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

A=A-4; X=NR^6; $R^1=C_2H_5$; $R^2=C_2H_5$; $R^3=CH_3$; $R^4=C_2H_5$

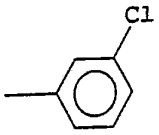
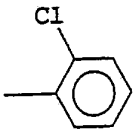
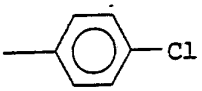
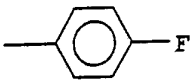
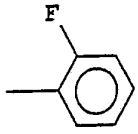
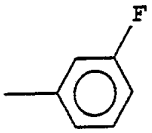
n	R^6
2	
2	
2	
2	
2	
2	
2	$-CH_2CH_2Cl$

n	R^6
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

A=A-4; $X=NR^6$; $R^1=C_2H_5$; $R^2=C_2H_5$; R^3=Cl; $R^4=CH_3$

n	R^6
2	
2	
2	
2	
2	
2	
2	$-CH_2CH_2Cl$
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

A=A-4; $X=NR^6$; $R^1=C_2H_5$; $R^2=C_2H_5$; R^3=Cl; R^4=Cl

n	R^6
2	
2	
2	
2	
2	
2	
2	$-CH_2CH_2Cl$
2	$-CH_2CH_2Br$
2	$-CH_2CH=CH_2$
2	$-CH=CH_2$
2	$-CH_2CH_2OCH_3$

A=A-4; $X=NCH_3$; R^1 and R^2=$-CH(CH_3)CH_2CH_2CH_2CH_2-$

n	R^3	R^4
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	OCH_3	Cl
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
2	CH_3	C_2H_5
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
1	CH_3	H
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3

A=A-4; X=NC_2H_5; R^1 and R^2=-$CH(CH_3)CH_2CH_2CH_2CH_2$-

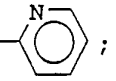
n	R^3	R^4
2	CH_3	CH_3
2	CH_3	Cl
2	CH_3	OCH_3
2	OCH_3	CH_3
2	C_2H_5	C_2H_5
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	C_2H_5	CH_3
2	CH_3	C_2H_5

A=A-4; X=$NCH_2CH_2CH_3$; R^1 and R^2=-$CH(CH_3)CH_2CH_2CH_2CH_2$-

n	R^3	R^4
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
2	CH_3	C_2H_5
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5

A=A-4; X=NCH_2CF_3; R^1 and R^2=-$CH(CH_3)CH_2CH_2CH_2CH_2$-

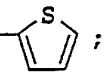
n	R^3	R^4
2	CH_3	CH_3
2	CH_3	C_2H_5
2	C_2H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	C_2H_5	C_2H_5

A=A-4; X=  ;

R^1=C_2H_5; R^2=C_2H_5

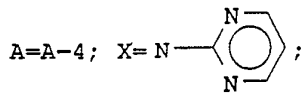
n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3

2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
0	CH_3	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3

A=A-4; X=  ;

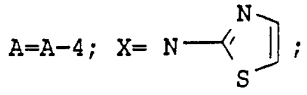
$R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	Cl	Cl
2	CH_3	CH_3
2	C_2H_5	CH_3
2	CH_3	C_2H_5
2	C_2H_5	C_2H_5
2	CH_3	Cl
2	Cl	CH_3

A=A-4; X=  ;

$R^1=C_2H_5$; $R^2=C_2H_5$

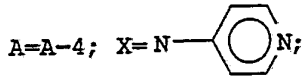
n	R^3	R^4
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
1	CH_3	H
1	Cl	H
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3

A=A-4; X=  ;

$R^1=C_2H_5$; $R^2=C_2H_5$

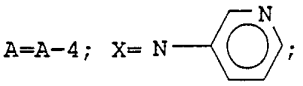
n	R^3	R^4
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
1	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	CH_3

2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	CH_3
1	CH_3	CH_3
1	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3



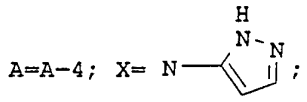
$R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	Cl
2	H	CH_3
2	H	C_2H_5
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	OCH_3	Cl
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
1	CH_3	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-4; X= ;

$R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	CH_3
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	CH_3
1	CH_3	CH_3
1	Cl	CH_3
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3

A=A-4; X= ;

$R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	CH_3	CH_3
2	CH_3	Cl
2	CH_3	OCH_3
2	C_2H_5	CH_3
2	CH_3	C_2H_5
2	C_2H_5	C_2H_5
2	CH_3	Cl
2	Cl	CH_3
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3

2	CH_3	CH_3
1	CH_3	H
2	CH_3	C_2H_5
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	CH_3
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	CH_3
1	CH_3	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3

TABLE 5

A=A-5; X=O; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-5; X=O; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-5; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl

2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-5; X=S; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-5; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-5; X=NCH_3; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5

2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-5; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3

2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-5; X=NC_2H_5; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-5; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5

2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH{=}CH_2$	CH_3
2	CH_3	$CH{=}CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-5; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^4=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$
2	$CH_2C{\equiv}CH$	$CH_2C{\equiv}CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH{=}CH_2$	C_2H_5
2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

TABLE 6

A=A-6; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^4	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-6; X=O; R^4=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-6; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^4	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl

2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-6; X=S; R^4=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-6; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^4	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-6; X=NCH_3; R^4=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5

2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-6; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^4	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3

2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-6; X=NC_2H_5; R^4=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-6; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^4	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H

2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-6; X=$NCH_2CH_2CH_3$; R^4=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

TABLE 7

A=A-7; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-7; X=O; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-7; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl

2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-7; X=S; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-7; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	Cl	CHF_2
1	Cl	CHF_2
2	CHF_2	$CH_2CH_2CH_3$
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-7; X=NCH_3; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$

2	-$(CH_2)_5$-	
2	-$(CH_2)_4$-	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-7; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5

2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-7; X=NC_2H_5; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-7; X=$NCH_2CH_2CH_3$; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H

2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-7; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$

2	$CH_2CH_2CH_3$	CH_3	1	H	CH_3
0	H	CH_3			

TABLE 8

A=A-8; X=O; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-8; X=O; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-8; X=S; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl

2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-8; X=S; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-8; X=NCH_3; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5

2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-8; X=NCH_3; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5

2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-8; X=NC_2H_5; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3

2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-8; $X=NC_2H_5$; $R^3=CH_3$; $R^5=CH_3$

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

A=A-8; $X=NCH_2CH_2CH_3$; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
0	CH_3	H
1	CH_3	H

2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH{=}CH_2$	CH_3
2	CH_3	$CH{=}CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-8; X=$NCH_2CH_2CH_3$; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$
2	$CH_2C{\equiv}CH$	$CH_2C{\equiv}CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH{=}CH_2$	C_2H_5
2	$CH_2C{\equiv}CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH{=}CH_2$
2	$CH_2CH_2CH_3$	CH_3
0	H	CH_3
1	H	CH_3

TABLE 9

A=A-9; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 10

A=A-10; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 11

A=A-11; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 12

A=A-12; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^5	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 13

A=A-13; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^5	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 14

A=A-14; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^5	X
2	H	O
2	H	S
2	H	NCH_3
2	H	NC_2H_5
2	H	$NCH_2CH_2CH_3$
2	Cl	O
2	Cl	S
2	Cl	NCH_3
2	Cl	NC_2H_5
2	Cl	$NCH_2CH_2CH_3$
2	OCH_3	O
2	OCH_3	S
2	OCH_3	NCH_3
2	OCH_3	NC_2H_5
2	OCH_3	$NCH_2CH_2CH_3$
2	CH_3	O
2	CH_3	S
2	CH_3	NCH_3
2	CH_3	NC_2H_5
2	CH_3	$NCH_2CH_2CH_3$
2	C_2H_5	O
2	C_2H_5	S
2	C_2H_5	NCH_3
2	C_2H_5	NC_2H_5
2	C_2H_5	$NCH_2CH_2CH_3$
2	$CH(CH_3)_2$	O
2	$CH(CH_3)_2$	S
2	$CH(CH_3)_2$	NCH_3
2	$CH(CH_3)_2$	NC_2H_5
2	$CH(CH_3)_2$	$NCH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	O
2	$CH_2CH_2CH_3$	S
2	$CH_2CH_2CH_3$	NCH_3
2	$CH_2CH_2CH_3$	NC_2H_5
2	$CH_2CH_2CH_3$	$NCH_2CH_2CH_3$
0	CH_3	NCH_3
1	CH_3	NCH_3

TABLE 15

A=A-15; $R^1=C_2H_5$; $R^2=C_2H_5$

R^3	R^4	R^5
2 H	H	H
2 H	H	CH_3
2 H	H	C_2H_5
2 H	H	$CH_2CH_2CH_3$
2 H	Cl	H
2 H	Cl	CH_3
2 H	Cl	C_2H_5
2 H	Cl	$CH_2CH_2CH_3$
2 H	OCH_3	H
2 H	OCH_3	CH_3
2 H	OCH_3	C_2H_5
2 H	OCH_3	$CH_2CH_2CH_3$
2 H	CH_3	H
2 H	CH_3	CH_3
2 H	CH_3	C_2H_5
2 H	CH_3	$CH_2CH_2CH_3$
2 H	C_2H_5	H
2 H	C_2H_5	CH_3
2 H	C_2H_5	C_2H_5
2 H	C_2H_5	$CH_2CH_2CH_3$
2 H	$CH(CH_3)_2$	H
2 H	$CH(CH_3)_2$	CH_3
2 H	$CH(CH_3)_2$	C_2H_5
2 H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 H	$CH_2CH_2CH_3$	H
2 H	$CH_2CH_2CH_3$	CH_3
2 H	$CH_2CH_2CH_3$	C_2H_5
2 H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 Cl	H	CH_3
2 Cl	H	C_2H_5
2 Cl	H	$CH_2CH_2CH_3$
2 Cl	Cl	H
2 Cl	Cl	CH_3
2 Cl	Cl	C_2H_5
2 Cl	Cl	$CH_2CH_2CH_3$
2 Cl	OCH_3	H
2 Cl	OCH_3	CH_3
2 Cl	OCH_3	C_2H_5
2 Cl	OCH_3	$CH_2CH_2CH_3$
2 Cl	CH_3	H
2 Cl	CH_3	CH_3
2 Cl	CH_3	C_2H_5
2 Cl	CH_3	$CH_2CH_2CH_3$
2 Cl	C_2H_5	H
2 Cl	C_2H_5	CH_3
2 Cl	C_2H_5	C_2H_5
2 Cl	C_2H_5	$CH_2CH_2CH_3$
2 Cl	$CH(CH_3)_2$	H
2 Cl	$CH(CH_3)_2$	CH_3
2 Cl	$CH(CH_3)_2$	C_2H_5
2 Cl	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 Cl	$CH_2CH_2CH_3$	H
2 Cl	$CH_2CH_2CH_3$	CH_3
2 Cl	$CH_2CH_2CH_3$	C_2H_5
2 Cl	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H

2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	$CH(CH_3)_2$	H
2 OCH_3	$CH(CH_3)_2$	CH_3
2 OCH_3	$CH(CH_3)_2$	C_2H_5
2 OCH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 OCH_3	$CH_2CH_2CH_3$	H
2 OCH_3	$CH_2CH_2CH_3$	CH_3
2 OCH_3	$CH_2CH_2CH_3$	C_2H_5
2 OCH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	$CH(CH_3)_2$	H
2 CH_3	$CH(CH_3)_2$	CH_3
2 CH_3	$CH(CH_3)_2$	C_2H_5
2 CH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 CH_3	$CH_2CH_2CH_3$	H
2 CH_3	$CH_2CH_2CH_3$	CH_3
2 CH_3	$CH_2CH_2CH_3$	C_2H_5
2 CH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	$CH(CH_3)_2$	H
2 C_2H_5	$CH(CH_3)_2$	CH_3
2 C_2H_5	$CH(CH_3)_2$	C_2H_5
2 C_2H_5	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 C_2H_5	$CH_2CH_2CH_3$	H
2 C_2H_5	$CH_2CH_2CH_3$	CH_3
2 C_2H_5	$CH_2CH_2CH_3$	C_2H_5
2 C_2H_5	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	H	CH_3
2 $CH(CH_3)_2$	H	C_2H_5
2 $CH(CH_3)_2$	H	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	Cl	CH_3
2 $CH(CH_3)_2$	Cl	C_2H_5
2 $CH(CH_3)_2$	Cl	$CH_2CH_2CH_3$

2 $CH(CH_3)_2$	OCH_3	CH_3
2 $CH(CH_3)_2$	OCH_3	C_2H_5
2 $CH(CH_3)_2$	OCH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	CH_3	CH_3
2 $CH(CH_3)_2$	CH_3	C_2H_5
2 $CH(CH_3)_2$	CH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	C_2H_5	CH_3
2 $CH(CH_3)_2$	C_2H_5	C_2H_5
2 $CH(CH_3)_2$	C_2H_5	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH(CH_3)_2$	H
2 $CH(CH_3)_2$	$CH(CH_3)_2$	CH_3
2 $CH(CH_3)_2$	$CH(CH_3)_2$	C_2H_5
2 $CH(CH_3)_2$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	H
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	CH_3
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	C_2H_5
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	H	CH_3
2 $CH_2CH_2CH_3$	H	C_2H_5
2 $CH_2CH_2CH_3$	H	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	Cl	CH_3
2 $CH_2CH_2CH_3$	Cl	C_2H_5
2 $CH_2CH_2CH_3$	Cl	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	OCH_3	CH_3
2 $CH_2CH_2CH_3$	OCH_3	C_2H_5
2 $CH_2CH_2CH_3$	OCH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	CH_3	CH_3
2 $CH_2CH_2CH_3$	CH_3	C_2H_5
2 $CH_2CH_2CH_3$	CH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	C_2H_5	CH_3
2 $CH_2CH_2CH_3$	C_2H_5	C_2H_5
2 $CH_2CH_2CH_3$	C_2H_5	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	CH_3
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	C_2H_5
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	C_2H_5
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	$-COCH_3$
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 CH_3	CF_3	H
2 $COCH_3$	H	H
2 $CH{=}CH_2$	CH_3	H
2 SCH_3	CH_3	H
2 NO_2	CH_3	H
2 NH_2	CH_3	H
2 CHO	CH_3	H
2 CO_2CH_3	H	H
2 $CH(OCH_3)_2$	H	H
2 $COCH_3$	H	Cl
2 C_2H_5	H	Cl
2 CO_2CH_3	H	Cl

A=A-15; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3

TABLE 16

A=A-16; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4	R^5
2	H	H	H
2	H	H	CH_3
2	H	H	C_2H_5
2	H	H	$CH_2CH_2CH_3$
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
2	H	$CH(CH_3)_2$	H
2	H	$CH(CH_3)_2$	CH_3
2	H	$CH(CH_3)_2$	C_2H_5
2	H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	H	$CH_2CH_2CH_3$	H
2	H	$CH_2CH_2CH_3$	CH_3
2	H	$CH_2CH_2CH_3$	C_2H_5
2	H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	Cl	H	H
2	Cl	H	CH_3
2	Cl	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	Cl	Cl	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	Cl	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
2	Cl	$CH(CH_3)_2$	H
2	Cl	$CH(CH_3)_2$	CH_3
2	Cl	$CH(CH_3)_2$	C_2H_5
2	Cl	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	Cl	$CH_2CH_2CH_3$	H
2	Cl	$CH_2CH_2CH_3$	CH_3
2	Cl	$CH_2CH_2CH_3$	C_2H_5
2	Cl	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	OCH_3	H	H
2	OCH_3	H	CH_3
2	OCH_3	H	C_2H_5
2	OCH_3	H	$CH_2CH_2CH_3$
2	OCH_3	Cl	H
2	OCH_3	Cl	CH_3
2	OCH_3	Cl	C_2H_5
2	OCH_3	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3	H
2	OCH_3	OCH_3	CH_3

2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	$CH(CH_3)_2$	H
2 OCH_3	$CH(CH_3)_2$	CH_3
2 OCH_3	$CH(CH_3)_2$	C_2H_5
2 OCH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 OCH_3	$CH_2CH_2CH_3$	H
2 OCH_3	$CH_2CH_2CH_3$	CH_3
2 OCH_3	$CH_2CH_2CH_3$	C_2H_5
2 OCH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	OCH_3	H
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5
2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	$CH(CH_3)_2$	H
2 CH_3	$CH(CH_3)_2$	CH_3
2 CH_3	$CH(CH_3)_2$	C_2H_5
2 CH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 CH_3	$CH_2CH_2CH_3$	H
2 CH_3	$CH_2CH_2CH_3$	CH_3
2 CH_3	$CH_2CH_2CH_3$	C_2H_5
2 CH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C2H5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	$CH(CH_3)_2$	H
2 C_2H_5	$CH(CH_3)_2$	CH_3
2 C_2H_5	$CH(CH_3)_2$	C_2H_5
2 C_2H_5	$CH(CH_3)_2$	$CH_2CH_2CH_3$

2 C_2H_5	$CH_2CH_2CH_3$	H
2 C_2H_5	$CH_2CH_2CH_3$	CH_3
2 C_2H_5	$CH_2CH_2CH_3$	C_2H_5
2 C_2H_5	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	H	H
2 $CH(CH_3)_2$	H	CH_3
2 $CH(CH_3)_2$	H	C_2H_5
2 $CH(CH_3)_2$	H	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	Cl	H
2 $CH(CH_3)_2$	Cl	CH_3
2 $CH(CH_3)_2$	Cl	C_2H_5
2 $CH(CH_3)_2$	Cl	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	OCH_3	H
2 $CH(CH_3)_2$	OCH_3	CH_3
2 $CH(CH_3)_2$	OCH_3	C_2H_5
2 $CH(CH_3)_2$	OCH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	CH_3	H
2 $CH(CH_3)_2$	CH_3	CH_3
2 $CH(CH_3)_2$	CH_3	C_2H_5
2 $CH(CH_3)_2$	CH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	C_2H_5	H
2 $CH(CH_3)_2$	C_2H_5	CH_3
2 $CH(CH_3)_2$	C_2H_5	C_2H_5
2 $CH(CH_3)_2$	C_2H_5	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH(CH_3)_2$	H
2 $CH(CH_3)_2$	$CH(CH_3)_2$	CH_3
2 $CH(CH_3)_2$	$CH(CH_3)_2$	C_2H_5
2 $CH(CH_3)_2$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	H
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	CH_3
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	C_2H_5
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	H	H
2 $CH_2CH_2CH_3$	H	CH_3
2 $CH_2CH_2CH_3$	H	C_2H_5
2 $CH_2CH_2CH_3$	H	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	Cl	H
2 $CH_2CH_2CH_3$	Cl	CH_3
2 $CH_2CH_2CH_3$	Cl	C_2H_5
2 $CH_2CH_2CH_3$	Cl	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	OCH_3	H
2 $CH_2CH_2CH_3$	OCH_3	CH_3
2 $CH_2CH_2CH_3$	OCH_3	C_2H_5
2 $CH_2CH_2CH_3$	OCH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	CH_3	H
2 $CH_2CH_2CH_3$	CH_3	CH_3
2 $CH_2CH_2CH_3$	CH_3	C_2H_5
2 $CH_2CH_2CH_3$	CH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	C_2H_5	H
2 $CH_2CH_2CH_3$	C_2H_5	CH_3
2 $CH_2CH_2CH_3$	C_2H_5	C_2H_5
2 $CH_2CH_2CH_3$	C_2H_5	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	H
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	CH_3
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	C_2H_5
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	C_2H_5
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3

2	CH_3	CH_3	NO_2
2	CH_3	CH_3	$N(CH_3)_2$
2	CH_3	CH_3	NH_2
2	CH_3	CH_3	C_6H_5
2	CH_3	C_6H_5	H
2	C_6H_5	CH_3	H
2	CH_3	CF_3	H
2	CF_3	CH_3	H
2	$COCH_3$	H	H
2	$CH=CH_2$	CH_3	H
2	CH_3	$CH=CH_2$	H
2	SCH_3	CH_3	H
2	CH_3	SCH_3	H
2	NO_2	CH_3	H
2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(OCH_3)_2$	H	H
2	$COCH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

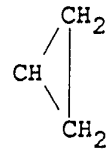
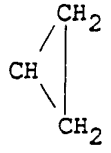
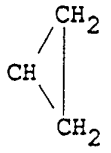
A=A-16; R^3=CH_3; R^4=CH_3

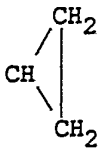
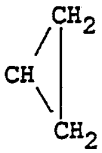
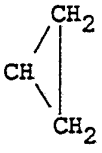
n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3

TABLE 17

A=A-17; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4	R^5
2	H	H	
2	H	I	H
2	H	CH_3	
2	H	C_2H_5	
2	H	$CH_2CH_2CH_3$	
2	H	Cl	H
2	H	Cl	CH_3
2	H	Cl	C_2H_5
2	H	Cl	$CH_2CH_2CH_3$
2	H	OCH_3	H
2	H	OCH_3	CH_3
2	H	OCH_3	C_2H_5
2	H	OCH_3	$CH_2CH_2CH_3$
2	H	CH_3	H
2	H	CH_3	CH_3
2	H	CH_3	C_2H_5
2	H	CH_3	$CH_2CH_2CH_3$
2	H	C_2H_5	H
2	H	C_2H_5	CH_3
2	H	C_2H_5	C_2H_5
2	H	C_2H_5	$CH_2CH_2CH_3$
2	H	$CH(CH_3)_2$	H
2	H	$CH(CH_3)_2$	CH_3
2	H	$CH(CH_3)_2$	C_2H_5
2	H	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	H	$CH_2CH_2CH_3$	H
2	H	$CH_2CH_2CH_3$	CH_3
2	H	$CH_2CH_2CH_3$	C_2H_5
2	H	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	Cl	H	H
2	Cl	H	CH_3
2	CF_3	H	CH_3
2	Cl	H	C_2H_5
2	CF_3	H	C_2H_5
2	Cl	H	$CH_2CH_2CH_3$
2	CF_3	H	$CH_2CH_2CH_3$
2	Cl	Cl	H
2	Cl	Cl	CH_3
2	CF_3	CF_3	CH_3
2	Cl	Cl	C_2H_5
2	CF_3	CF_3	C_2H_5
2	Cl	Cl	$CH_2CH_2CH_3$
2	CF_3	CF_3	$CH_2CH_2CH_3$
2	Cl	OCH_3	H
2	Cl	OCH_3	CH_3
2	Cl	OCH_3	C_2H_5
2	Cl	OCH_3	$CH_2CH_2CH_3$
2	Cl	CH_3	H
2	CF_3	CH_3	H
2	Cl	CH_3	CH_3
2	CF_3	CH_3	CH_3
2	Cl	CH_3	C_2H_5
2	CF_3	CH_3	C_2H_5
2	Cl	CH_3	$CH_2CH_2CH_3$
2	CF_3	CH_3	$CH_2CH_2CH_3$
2	Cl	C_2H_5	H
2	CF_3	C_2H_5	H
2	Cl	C_2H_5	CH_3
2	Cl	C_2H_5	C_2H_5
2	Cl	C_2H_5	$CH_2CH_2CH_3$
2	Cl	$CH(CH_3)_2$	H
2	Cl	$CH(CH_3)_2$	CH_3
2	Cl	$CH(CH_3)_2$	C_2H_5
2	Cl	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	Cl	$CH_2CH_2CH_3$	H
2	Cl	$CH_2CH_2CH_3$	CH_3

2 CH_3	H	CF_3
2 CH_3	Cl	CF_3
2 CH_3	Br	CF_3
2 CH_3	CH_3	CF_3
2 CH_3	C_2H_5	CF_3
2 CF_3	H	CF_3
2 CF_3	Cl	CF_3
2 CF_3	Br	CF_3
2 Cl	$CH_2CH_2CH_3$	C_2H_5
2 Cl	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 OCH_3	H	H
2 OCH_3	H	CH_3
2 OCH_3	H	C_2H_5
2 OCH_3	H	$CH_2CH_2CH_3$
2 OCH_3	Cl	H
2 OCH_3	Cl	CH_3
2 OCH_3	Cl	C_2H_5
2 OCH_3	Cl	$CH_2CH_2CH_3$
2 OCH_3	OCH_3	H
2 OCH_3	OCH_3	CH_3
2 OCH_3	OCH_3	C_2H_5
2 OCH_3	OCH_3	$CH_2CH_2CH_3$
2 OCH_3	CH_3	H
2 OCH_3	CH_3	CH_3
2 OCH_3	CH_3	C_2H_5
2 OCH_3	CH_3	$CH_2CH_2CH_3$
2 OCH_3	C_2H_5	H
2 OCH_3	C_2H_5	CH_3
2 OCH_3	C_2H_5	C_2H_5
2 OCH_3	C_2H_5	$CH_2CH_2CH_3$
2 OCH_3	$CH(CH_3)_2$	H
2 OCH_3	$CH(CH_3)_2$	CH_3
2 OCH_3	$CH(CH_3)_2$	C_2H_5
2 OCH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 OCH_3	$CH_2CH_2CH_3$	H
2 OCH_3	$CH_2CH_2CH_3$	CH_3
2 OCH_3	$CH_2CH_2CH_3$	C_2H_5
2 OCH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	H
2 CH_3	H	CH_3
2 CH_3	Br	CH_3
2 CH_3	H	C_2H_5
2 CH_3	H	
2 CH_3	H	$CH_2CH_2CH_3$
2 CH_3	Cl	H
2 CH_3	Cl	CH_3
2 CH_3	Br	C_2H_5
2 CH_3	Cl	C_2H_5
2 CH_3	Cl	$CH_2CH_2CH_3$
2 CH_3	Cl	
2 CH_3	OCH_3	H
2 CH_3	Br	
2 CH_3	OCH_3	CH_3
2 CH_3	OCH_3	C_2H_5
2 CH_3	OCH_3	$CH_2CH_2CH_3$
2 CH_3	CH_3	H
2 CH_3	CH_3	CH_3
2 CH_3	CH_3	C_2H_5
2 CH_3	CH_3	$CH_2CH_2CH_3$
2 CH_3	C_2H_5	H
2 CH_3	C_2H_5	CH_3
2 CH_3	C_2H_5	C_2H_5

2 CH_3	C_2H_5	$CH_2CH_2CH_3$
2 CH_3	H	$CH_2CH(CH_3)_2$
2 CH_3	H	$CH(CH3)_2$
2 CH_3	$CH(CH_3)_2$	H
2 CH_3	$CH(CH_3)_2$	CH_3
2 CH_3	$CH(CH_3)_2$	C_2H_5
2 CH_3	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 CH_3	$CH_2CH_2CH_3$	H
2 CH_3	$CH_2CH_2CH_3$	CH_3
2 CH_3	$CH_2CH_2CH_3$	C_2H_5
2 CH_3	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	H	C_6H_5
2 CH_3	Br	C_6H_5
2 CH_3	Cl	C_6H_5
2 CH_3	H	$CH(CH_3)_2$
2 CH_3	Br	$CH(CH_3)_2$
2 CH_3	Cl	$CH(CH_3)_2$
2 C_6H_5	H	CH_3
2 C_6H_5	Cl	CH_3
2 C_6H_5	Br	CH_3
2 C_2H_5	H	H
2 C_2H_5	H	CH_3
2 C_2H_5	H	C_2H_5
2 C_2H_5	H	$CH_2CH_2CH_3$
2 C_2H_5	Cl	H
2 C_2H_5	Cl	CH_3
2 C_2H_5	Cl	C_2H_5
2 C_2H_5	Cl	$CH_2CH_2CH_3$
2 C_2H_5	OCH_3	H
2 C_2H_5	OCH_3	CH_3
2 C_2H_5	OCH_3	C_2H_5
2 C_2H_5	OCH_3	$CH_2CH_2CH_3$
2 C2H5	CH_3	H
2 C_2H_5	CH_3	CH_3
2 C_2H_5	CH_3	C_2H_5
2 C_2H_5	CH_3	$CH_2CH_2CH_3$
2 C_2H_5	C_2H_5	H
2 C_2H_5	C_2H_5	CH_3
2 C_2H_5	C_2H_5	C_2H_5
2 C_2H_5	C_2H_5	$CH_2CH_2CH_3$
2 C_2H_5	$CH(CH_3)_2$	H
2 C_2H_5	$CH(CH_3)_2$	CH_3
2 C_2H_5	$CH(CH_3)_2$	C_2H_5
2 C_2H_5	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 C_2H_5	$CH_2CH_2CH_3$	H
2 C_2H_5	$CH_2CH_2CH_3$	CH_3
2 C_2H_5	$CH_2CH_2CH_3$	C_2H_5
2 C_2H_5	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	H	H
2 	Br	CH_3
2 $CH(CH_3)_2$	H	CH_3
2 	H	CH_3
2 $CH(CH_3)_2$	H	C_2H_5
2 $CH(CH_3)_2$	H	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	Cl	H
2 $CH(CH_3)_2$	Br	CH_3
2 $CH(CH_3)_2$	Cl	CH_3
2 	Cl	CH_3
2 $CH(CH_3)_2$	Cl	C_2H_5
2 $CH(CH_3)_2$	Cl	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	OCH_3	H
2 $CH(CH_3)_2$	OCH_3	CH_3

2 $CH(CH_3)_2$	OCH_3	C_2H_5
2 $CH(CH_3)_2$	OCH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	CH_3	H
2 $CH(CH_3)_2$	CH_3	CH_3
2 $CH(CH_3)_2$	CH_3	C_2H_5
2 $CH(CH_3)_2$	CH_3	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	C_2H_5	H
2 $CH(CH_3)_2$	C_2H_5	CH_3
2 $CH(CH_3)_2$	C_2H_5	C_2H_5
2 $CH(CH_3)_2$	C_2H_5	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH(CH_3)_2$	H
2 $CH(CH_3)_2$	$CH(CH_3)_2$	CH_3
2 $CH(CH_3)_2$	$CH(CH_3)_2$	C_2H_5
2 $CH(CH_3)_2$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	H
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	CH_3
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	C_2H_5
2 $CH(CH_3)_2$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	H	H
2 $CH_2CH_2CH_3$	H	CH_3
2 $CH_2CH_2CH_3$	H	C_2H_5
2 $CH_2CH_2CH_3$	H	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	Cl	H
2 $CH_2CH_2CH_3$	Cl	CH_3
2 $CH_2CH_2CH_3$	Cl	C_2H_5
2 $CH_2CH_2CH_3$	Cl	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	OCH_3	H
2 $CH_2CH_2CH_3$	OCH_3	CH_3
2 $CH_2CH_2CH_3$	OCH_3	C_2H_5
2 $CH_2CH_2CH_3$	OCH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	CH_3	H
2 $CH_2CH_2CH_3$	CH_3	CH_3
2 $CH_2CH_2CH_3$	CH_3	C_2H_5
2 $CH_2CH_2CH_3$	CH_3	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	C_2H_5	H
2 $CH_2CH_2CH_3$	C_2H_5	CH_3
2 $CH_2CH_2CH_3$	C_2H_5	C_2H_5
2 $CH_2CH_2CH_3$	C_2H_5	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	H
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	CH_3
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	C_2H_5
2 $CH_2CH_2CH_3$	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	C_2H_5
2 $CH_2CH_2CH_3$	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2 CH_3	CH_3	Cl
2 CH_3	CH_3	OCH_3
2 CH_3	CH_3	F
2 CH_3	CH_3	Br
2 CH_3	CH_3	CO_2CH_3
2 CH_3	CH_3	$CO_2C_2H_5$
2 CH_3	CH_3	CH_2OCH_3
2 CH_3	CH_3	$CON(CH_3)_2$
2 CH_3	CH_3	SCH_3
2 CH_3	CH_3	SO_2CH_3
2 CH_3	CH_3	NO_2
2 CH_3	CH_3	$N(CH_3)_2$
2 CH_3	CH_3	NH_2
2 CH_3	CH_3	C_6H_5
2 CH_3	C_6H_5	H
2 C_6H_5	CH_3	H
2 CH_3	CF_3	H
2 CF_3	CH_3	H
2 $COCH_3$	H	H
2 $CH{=}CH_2$	CH_3	H
2 CH_3	$CH{=}CH_2$	H
2 SCH_3	CH_3	H
2 CH_3	SCH_3	H
2 NO_2	CH_3	H

2	NH_2	CH_3	H
2	CHO	CH_3	H
2	CO_2CH_3	H	H
2	$CH(OCH_3)_2$	H	H
2	$COCH_3$	H	Cl
2	C_2H_5	H	Cl
2	CO_2CH_3	H	Cl

A=A-17; R^3=CH_3; R^4=CH_3

n	R^1	R^2	R^5
2	CH_3	CH_3	H
2	C_2H_5	CH_3	H
2	H	CH_3	H
2	H	C_2H_5	H
2	H	$CH_2CH_2CH_3$	H
2	OCH_3	CH_3	H
2	OCH_3	C_2H_5	H
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	H
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$	H
2	$CH(CH_3)_2$	$CH(CH_3)_2$	H
2		$-(CH_2)_5-$	H
2		$-(CH_2)_4-$	H
2	$CH_2CH=CH_2$	C_2H_5	H
2	$CH_2C\equiv CH$	C_2H_5	H
2	OC_2H_5	CH_3	H
2	OC_2H_5	C_2H_5	H
2	H		H
2			H
2	H	$CH_2CH=CH_2$	H
2	$CH_2CH_2CH_3$	CH_3	H
2	$CH_2CH=CH_2$	CH_3	CH_3
2	$CH_2CH=CH_2$	C_2H_5	CH_3
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$	CH_3
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5	CH_3
2		$-(CH_2)_5-$	CH_3

TABLE 18

A=A-18; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^4
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	CH_3
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	CH_3	CF_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	SCH_3	CH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-18; $R^3=CH_3$; $R^4=CH_3$

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3

TABLE 19

A=A-19; R^1=C_2H_5; R^2=C_2H_5

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-19; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3

TABLE 20

A=A-20; $R^1=C_2H_5$; $R^2=C_2H_5$

n	R^3	R^5
2	H	H
2	H	Cl
2	H	OCH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH(CH_3)_2$
2	H	$CH_2CH_2CH_3$
2	Cl	H
2	Cl	Cl
2	Cl	OCH_3
2	Cl	CH_3
2	Cl	C_2H_5
2	Cl	$CH(CH_3)_2$
2	Cl	$CH_2CH_2CH_3$
2	OCH_3	H
2	OCH_3	Cl
2	OCH_3	OCH_3
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	OCH_3	$CH(CH_3)_2$
2	OCH_3	$CH_2CH_2CH_3$
2	CH_3	H
2	CH_3	Cl
2	CH_3	OCH_3
2	CH_3	CH_3
2	CH_3	C_2H_5
2	CH_3	$CH(CH_3)_2$
2	CH_3	$CH_2CH_2CH_3$
2	C_2H_5	H
2	C_2H_5	Cl
2	C_2H_5	OCH_3
2	C_2H_5	CH_3
2	C_2H_5	C_2H_5
2	C_2H_5	$CH(CH_3)_2$
2	C_2H_5	$CH_2CH_2CH_3$
2	$CH(CH_3)_2$	H
2	$CH(CH_3)_2$	Cl
2	$CH(CH_3)_2$	OCH_3
2	$CH(CH_3)_2$	CH_3
2	$CH(CH_3)_2$	C_2H_5
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$CH(CH_3)_2$	$CH_2CH_2CH_3$
2	$CH_2CH_2CH_3$	H
2	$CH_2CH_2CH_3$	Cl
2	$CH_2CH_2CH_3$	OCH_3
2	$CH_2CH_2CH_3$	CH_3
2	$CH_2CH_2CH_3$	C_2H_5
2	$CH_2CH_2CH_3$	$CH(CH_3)_2$
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	CH_3	C_6H_5
2	C_6H_5	CH_3
2	CH_3	CF_3
2	CF_3	CH_3
2	$COCH_3$	H
2	$CH=CH_2$	CH_3
2	CH_3	$CH=CH_2$
2	SCH_3	CH_3
2	CH_3	SCH_3
2	NO_2	CH_3
2	NH_2	CH_3
2	CHO	CH_3
2	CO_2CH_3	H
2	$CH(OCH_3)_2$	H

A=A-20; R^3=CH_3; R^5=CH_3

n	R^1	R^2
2	CH_3	CH_3
2	C_2H_5	CH_3
2	H	CH_3
2	H	C_2H_5
2	H	$CH_2CH_2CH_3$
2	OCH_3	CH_3
2	OCH_3	C_2H_5
2	$CH_2CH_2CH_3$	$CH_2CH_2CH_3$
2	$CH_2CH=CH_2$	$CH_2CH=CH_2$
2	$CH_2C\equiv CH$	$CH_2C\equiv CH$
2	$CH(CH_3)_2$	$CH(CH_3)_2$
2	$-(CH_2)_5-$	
2	$-(CH_2)_4-$	
2	$CH_2CH=CH_2$	C_2H_5
2	$CH_2C\equiv CH$	C_2H_5
2	OC_2H_5	CH_3
2	OC_2H_5	C_2H_5
2	H	
2		
2	H	$CH_2CH=CH_2$
2	$CH_2CH_2CH_3$	CH_3

Formulation

Compounds of this invention will generally be used in formulation with an agriculturally suitable carrier comprising a liquid or solid diluent or an organic solvent. Use formulations include dusts, granules, pellets, solutions, suspensions, emulsions, wettable powders, emulsifiable concentrates, dry flowables and the like, consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred liters per hectare. High strength compositions are primarily used as intermediates for further formulation. The formulations will typically contain effective amounts of active ingredient, diluent and surfactant within the following approximate ranges which add up 100 weight percent.

	Weight Percent		
	Active Ingredient	Diluent	Surfactant
Wettable Powders	25-90	0-74	1-10
Oil Suspensions, Emulsions, Solutions, (including Emulsifiable Concentrates)	5-50	40-95	0-15
Dusts	1-25	70-99	0-5
Granules and Pellets	0.01-99	5-99.99	0-15
High Strength Compositions	90-99	0-10	0-2

Typical solid diluents are described in Watkins, et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents and solvents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950. *McCutcheon's Detergents and Emulsifiers Annual*, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can contain minor amounts of additives to reduce foam, caking, corrosion, microbiological growth, etc.

Solutions are prepared by simply mixing the ingredients. Fine solid compositions are made by blending and, usually, grinding as in a hammer mill or fluid energy mill. Water-dispersible granules can be produced be agglomerating a fine powder composition; see for example, Cross et al., *Pesticide Formulations*,

Washington, D.C., 1988, pp 251-259. Suspensions are prepared by wet-milling; see, for example, U.S. 3,060,084. Granules and pellets can be made by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147-48, *Perry's Chemical Engineer's Handbook*, 4th Ed., McGraw-Hill, New York, 1963, pages 8–57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714. Water-dispersible and water-soluble granules can also be prepared as taught in DE 3,246,493.

For further information regarding the art of formulation, see U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10–41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138-140, 162-164, 166, 167 and 169-182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1-4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81-96; and Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989.

In the following Examples, all percentages are by weight and all formulations are worked up in conventional ways. Compound numbers refer to compounds in Index Table A.

Example A

High Strength Concentrate

Compound 1	98.5%
silica aerogel	0.5%
synthetic amorphous fine silica	1.0%

Example B

Wettable Powder

Compound 1	65.0%
dodecylphenol polyethylene glycol ether	2.0%
sodium ligninsulfonate	4.0%
sodium silicoaluminate	6.0%
montmorillonite (calcined)	23.0%

Example C

Granule

Compound 1	10.0%
attapulgite granules (low volative matter, 0.71/0.30 mm; U.S.S. No.	

25-50 sieves)	90.0%

Example D

Extruded Pellet

Compound 1	25.0%
anhydrous sodium sulfate	10.0%
crude calcium ligninsulfonate	5.0%
sodium alkylnaphthalenesulfonate	1.0%
calcium/magnesium bentonite	59.0%

UTILITY

Test results indicate compounds of this invention are active postemergence and, in particular, preemergence herbicides. Many compounds in this invention are useful for the control of selected grass and broadleaf weeds with tolerance to important agronomic crops such as barley (Hordeum vulgare), corn (Zea mays), cotton (Gossypium hirsutum), rape (Brassica napus), rice (Oryza sativa), sorghum (Sorghum bicolor), soybean (Glycine max), sugar beet (Beta vulgaris), and wheat (Triticum aestivum), and to vegetable crops. Grass and broadleaf weed species controlled include, but are not limited to, barnyardgrass (Echinochloa crusgalli), blackgrass (Alopecurus myosuroides), chickweed (Stellaria media), crabgrass (Digitaria spp.), foxtail (Setaria spp.), lambsquarters (Chenopodium spp.), and wild oats (Avena fatua).

Compounds 15 and 18 demonstrated excellent control of weeds including pigweed, crabgrass, giant foxtail, green foxtail, fall panicum and wild proso with outstanding crop tolerance to cotton and soybeans in Table C. Compounds 30 and 38 demonstrated control of important weeds such as lambsquarter, barnyardgrass, crabgrass, giant foxtail, blackgrass and wild oats with excellent tolerance to crops including corn, soybean, cotton and wheat in Table B.

These compounds also have utility for weed control of selected vegetation in specified areas such as around storage tanks, parking lots, highways, and railways; in fallow crop areas; and in citrus and plantation crops such as banana, coffee, oil palm, and rubber. Alternatively, these compounds are useful to modify plant growth.

Effective rates of application for compounds of this invention are determined by a number of factors. These factors include: formulation selected, method of application, amount and type of vegetation present, growing conditions, etc. In general terms, the subject compounds should be applied at rates from 0.03 to 20

kg/ha with a preferred rate range of 0.05 to 2 kg/ha. One skilled in the art can easily determine effective application rates necessary for desired level of weed control.

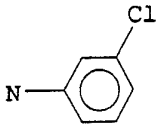
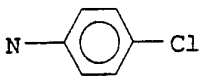
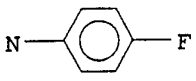
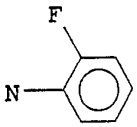
Compounds of this invention can be used alone or in combination with other commercial herbicides, insecticides or fungicides. A mixture of one or more of the following herbicides with a compound of this invention may be particularly useful for weed control. Examples of other herbicides with which compounds of this invention can be formulated are: acetochlor, acifluorfen, acrolein, 2-propenal, alachlor, ametryn, amidosulfuron, ammonium sulfamate, amitrole, anilofos, asulam, atrazine, barban, benefin, bensulfuron methyl, bensulide, bentazon, benzofluor, benzoylprop, bifenox, bromacil, bromoxynil, bromoxynil heptanoate, bromoxynil octanoate, butachlor, buthidazole, butralin, butylate, cacodylic acid, 2-chloro-*N*,*N*-di-2-propenylacetamide, 2-chloroallyl diethyldithiocarbamate, chloramben, chlorbromuron, chloridazon, chlorimuron ethyl, chlormethoxynil, chlornitrofen, chloroxuron, chlorpropham, chlorsulfuron, chlortoluron, cinmethylin, cinosulfuron, clethodim, clomazone, cloproxydim, clopyralid, calcium salt of methylarsonic acid, cyanazine, cycloate, cycluron, cyperquat, cyprazine, cyprazole, cypromid, dalapon, dazomet, dimethyl 2,3,5,6-tetrachloro-1,4-benzenedicarboxylate, desmedipham, desmetryn, dicamba, dichlobenil, dichlorprop, diclofop, diethatyl, difenzoquat, diflufenican, dimepiperate, dinitramine, dinoseb, diphenamid, dipropetryn, diquat, diuron, 2-methyl-4,6-dinitrophenol, disodium salt of methylarsonic acid, dymron, endothall, S-ethyl dipropylcarbamothioate, esprocarb, ethalfluralin, ethametsulfuron methyl, ethofumesate, fenac, fenoxaprop, fenuron, salt of fenuron and trichloroacetic acid, flamprop, fluazifop, fluazifop-P, fluchloralin, flumesulam, flumipropyn, fluometuron, fluorochloridone, fluorodifen, fluoroglycofen, flupoxam, fluridone, fluroxypyr, fluzasulfuron, fomesafen, fosamine, glyphosate, haloxyfop, hexaflurate, hexazinone, imazamethabenz, imazapyr, imazaquin, imazamethabenz methyl, imazethapyr, imazosulfuron, ioxynil, isopropalin, isoproturon, isouron, isoxaben, karbutilate, lactofen, lenacil, linuron, metobenzuron, metsulfuron methyl, methylarsonic acid, monoammonium salt of methylarsonic acid, (4-chloro-2-methylphenoxy)acetic acid, *S*,*S*'-dimethyl-2-(difluoromethyl)-4-(2-methylpropyl)-6-(trifluoromethyl)-3,5-pyridinedicarbothioate, mecoprop, mefenacet, mefluidide, methalpropalin, methabenzthiazuron, metham, methazole, methoxuron, metolachlor, metribuzin, 1,2-dihydropyridazine-3,6-dione, molinate, monolinuron, monuron, monuron salt and trichloroacetic acid, monosodium salt of methylarsonic acid, napropamide, naptalam, neburon, nicosulfuron, nitralin, nitrofen, nitrofluorfen,

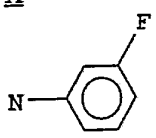
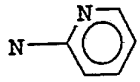
norea, norflurazon, oryzalin, oxadiazon, oxyfluorfen, paraquat, pebulate, pendimethalin, perfluidone, phenmedipham, picloram, 5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitroacetophenone oxime-O-acetic acid methyl ester, pretilachlor, primisulfuron, procyazine, profluralin, prometon, prometryn, pronamide, propachlor, propanil, propazine, propham, prosulfalin, prynachlor, pyrazolate, pyrazon, pyrazosulfuron ethyl, quinchlorac, quizalofop ethyl, rimsulfuron, secbumeton, sethoxydim, siduron, simazine, 1-(a,a-dimethylbenzyl)-3-(4-methylphenyl)urea, sulfometuron methyl, trichloroacetic acid, tebuthiuron, terbacil, terbuchlor, terbuthylazine, terbutol, terbutryn, thifensulfuron methyl, thiobencarb, tri-allate, trialkoxydim, triasulfuron, tribenuron methyl, triclopyr, tridiphane, trifluralin, trimeturon, (2,4-dichlorophenoxy)acetic acid, 4-(2,4-dichlorophenoxy)butanoic acid, vernolate, and xylachlor.

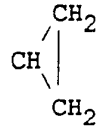
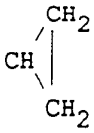
In certain instances, combinations with other herbicides having a similiar spectrum of control but a different mode of action will be particularly advantageous for resistance management.

Selective herbicidal properties of the subject compounds were discovered in greenhouse tests as described below.

INDEX TABLE A

CMPD	A	X	R^1	R^2	R^3	R^4	R^5	n	m.p.(°C)
1	A-4	NCH_3	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
2	A-4	NC_2H_5	C_2H_5	C_2H_5	CH_3	CH_3		2	90-96
3	A-4	O	C_2H_5	C_2H_5	CH_3	CH_3		2	108-110
4	A-4	NC_6H_5	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
5	A-4	NCH_2CF_3	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
6	A-4	$NCH_2CO_2C_2H_5$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
7	A-4	NCH_2CH_2CN	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
8	A-4	$NC(O)N(C_2H_5)_2$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
9	A-4	NC_2H_5	CH_3	CH_3	CH_3	CH_3		2	oil
10	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
11	A-4	$NCH_2CH_2CH_2CH_3$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
12	A-4	$NCH_2CH(CH_3)_2$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
13	A-4	$NCH_2C_6H_5$	C_2H_5	C_2H_5	CH_3	CH_3		2	118-120
14	A-1	S	C_2H_5	C_2H_5	$C(O)CH_3$	H	Cl	2	128-130
15	A-4	NCH_2CF_3	C_2H_5	C_2H_5	Cl	CH_3		2	103-105
16	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	Cl	CH_3		2	oil
17	A-4	$NCH_2CH_2CH_2CH_3$	C_2H_5	C_2H_5	Cl	CH_3		2	oil
18	A-4	NC_2H_5	C_2H_5	C_2H_5	Cl	CH_3		2	88-90
19	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	oil
20	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	oil
21	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	oil
22	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	oil

CMPD	A	X	R^1	R^2	R^3	R^4	R^5	n	m.p.(°C)
23	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	oil
24	A-2	O	C_2H_5	C_2H_5	CH_3	CH_3	H	2	oil
25	A-4	NCH_2CH_2Cl	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
26	A-4	NCH_2CH_2Br	C_2H_5	C_2H_5	CH_3	CH_3		2	70-72
27	A-6	S	C_2H_5	C_2H_5		H	Br	2	110-111
28	A-4	$NCH_2CH=CH_2$	C_2H_5	C_2H_5	CH_3	CH_3		2	102-104
29	A-4	$NCH=CH_2$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
30	A-4	NCH_3	C_2H_5	C_2H_5	C_2H_5	CH_3		2	oil
31	A-3	NCH_3	C_2H_5	C_2H_5	CHF_2	CH_3		1	oil
32	A-3	NCH_3	C_2H_5	C_2H_5	CHF_2	CH_3		2	89-91
33	A-4	$NCH_2CH_2OCH_3$	C_2H_5	C_2H_5	CH_3	CH_3		2	83-85
34	A-4	NCH_2CF_3	C_2H_5	C_2H_5	C_2H_5	C_2H_5		2	oil
35	A-4	NCH_3	C_2H_5	C_2H_5	C_2H_5	C_2H_5		2	oil
36	A-4	NC_2H_5	C_2H_5	C_2H_5	C_2H_5	C_2H_5		2	oil
37	A-4	NCH_3	C_2H_5	C_2H_5	CH_3	C_2H_5		2	oil
38	A-4	NCH_2CF_3	C_2H_5	C_2H_5	C_2H_5	CH_3		2	95-96
39	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	C_2H_5	C_2H_5		2	oil
40	A-6	S	C_2H_5	C_2H_5		H	NO_2	2	115-118
41	A-4	$NCH(CH_3)_2$	C_2H_5	C_2H_5	CH_3	CH_3		2	oil
42	A-4		C_2H_5	C_2H_5	CH_3	CH_3		2	97-99
43	A-17		C_2H_5	C_2H_5	CH_3	H	CH_3	2	86-88
44	A-4	NCH_2CF_3	C_2H_5	C_2H_5	CH_3	C_2H_5		2	oil
45	A-15		C_2H_5	C_2H_5	H	H	H	2	oil
46	A-17		C_2H_5	C_2H_5	CH_3	Br	CH_3	2	93-95
47	A-15		C_2H_5	C_2H_5	CH_3	CH_3	$\overset{O}{\underset{OCH_3}{\parallel}}$	2	86-89
48	A-17		C_2H_5	C_2H_5	H	I	H	2	109-111
49	A-17		C_2H_5	C_2H_5	C_2H_5	H	C_2H_5	2	70-71

CMPD	A	X	R^1	R^2	R^3	R^4	R^5	n	m.p.(°C)
50	A-17		C_2H_5	C_2H_5	H	H	H	2	110-112
51	A-15		C_2H_5	C_2H_5	CH_3	CH_3	C_2H_5	2	oil
52	A-1	NH	C_2H_5	C_2H_5	CH_3	C_2H_5	CH_3	2	oil
53	A-17		C_2H_5	C_2H_5	CH_3	H		2	73-76
54	A-17		C_2H_5	C_2H_5		H	CH_3	2	93-95
55	A-17		C_2H_5	C_2H_5	CH_3	H	C_6H_5	2	117-119
56	A-4	$NCH(CH_3)_2$	C_2H_5	C_2H_5	C_2H_5	CH3		2	oil
57	A-4	$NCH(CH_3)_2$	C_2H_5	C_2H_5	CH_3	C_2H_5		2	oil
58	A-2	NCH_3	C_2H_5	C_2H_5	CH_3	CH_3	H	2	oil
59	A-4	NCH_2CF_3	C_2H_5	C_2H_5	Cl	C_2H_5		2	78-80
60	A-3	NCH_3	C_2H_5	C_2H_5	CH_2Br	CH_3		2	oil
61	A-3	NCH_3	C_2H_5	C_2H_5	Br	Br		2	93-94
62	A-3	NCH_3	C_2H_5	C_2H_5	Br	Br		1	oil
63	A-12	S	C_2H_5	C_2H_5			CO_2CH_3	2	105-107
64	A-12	S	C_2H_5	C_2H_5			CO_2CH_3	1	oil
65	A-9	S	C_2H_5	C_2H_5	$CO_2C_2H_5$			1	oil
66	A-9	S	C_2H_5	C_2H_5	$CO_2C_2H_5$			2	oil
67	A-6	NCH_3	C_2H_5	C_2H_5		Br	Br	1	oil
68	A-6	NCH_3	C_2H_5	C_2H_5		Br	Br	2	oil
69	A-16		C_2H_5	C_2H_5	CH_3	H	H	2	oil
70	A-16		C_2H_5	C_2H_5	CH_3	H	CH_3	2	oil
71	A-16		C_2H_5	C_2H_5	C_2H_5	H	CH_3	2	70-72
72	A-19		C_2H_5	C_2H_5	H		H	2	111-113
73	A-16		C_2H_5	C_2H_5	C_2H_5	H	H	2	oil
74	A-4	NC_2H_5	C_2H_5	C_2H_5	Cl		C_2H_5	2	67-68
92	A-17		C_2H_5	C_2H_5	CH_3	C_2H_5	CH_3	2	64-66
93	A-4	NCH_2CH_3	C_2H_5	C_2H_5	Cl	CH_3		1	oil

CMPD	A	X	R^1	R^2	R^3	R^4	R^5	n	m.p.(°C)
94	A-17		C_2H_5	C_2H_5	CH_3	H	$CH(CH_3)2$	2	64-66
95	A-17		C_2H_5	C_2H_5	CH_3	H	$CH_2CH(CH_3)_2$	2	oil
96	A-17		C_2H_5	C_2H_5	CH_3	H	C_2H_5	2	oil
97	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	C_2H_5	CH_3		2	oil
98	A-4	NCH_2CF_3	C_2H_5	C_2H_5	OCH_3	CH_3		2	oil
99	A-4	NCH_3	C_2H_5	C_2H_5	Cl	CH_3		2	oil
100	A-4	NCH_3	C_2H_5	C_2H_5	OCH_3	CH_3		2	oil
101	A-7	NCH_3	C_2H_5	C_2H_5	Cl		CHF_2	2	106-107
102	A-7	NCH_3	C_2H_5	C_2H_5	Cl		CHF_2	1	oil
103	A-7	NCH_3	C_2H_5	C_2H_5	CHF_2		$CH_2CH_2CH_3$	2	97-98

Compound	Spectra Data
1	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 2.45 (s, 3H); 2.57 (s, 3H); 3.6 (bq, 4H); 3.75 (s, 3H); 8.8 (s, 1H)
4	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 254 (s, 3H); 2.59 (s, 3H); 3.4-3.8 (m, 4H); 7.3-7.6 (m, 5H); 8.85 (s, 1H)
5	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 2.47 (s, 3H); 2.64 (s, 3H); 3.6 (m, 4H); 4.6 (q, 2H); 8.83 (s, 1H)
6	(NMR, $CDCl_3$): δ 1.1-1.4 (m, 9H); 2.46 (s, 3H); 2.55 (s, 3H); 3.4-3.7 (m, 4H); 4.22 (q, 2H); 4.8 (s, 2H); 8.82 (s, 1H)
7	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 2.45 (s, 3H); 2.68 (s, 3H); 2.96 (t, 2H); 3.6 (m, 4H); 4.29 (t, 2H); 8.83 (s, 1H) IR, Nujol): 2237 cm^{-1}
8	(NMR, $CDCl_3$): δ 1.30 (m, 12H); 2.49 (s, 3H); 2.68 (s, 3H); 3-3.7 (m, 8H); 8.84 (s, 1H)
9	(NMR, $CDCl_3$): δ 1.4 (t, 3H); 2.46 (s, 3H); 2.58 (s, 3H); 3.2 (bs, 3H); 3.3 (bs, 3H); 4.05 (q, 2H); 8.79 (s, 1H)
10	(NMR, $CDCl_3$): δ 0.92 (t, 3H); 1.29 (t, 6H); 1.8 (m, 2H); 2.45 (s, 3H); 2.57 (s, 3H); 3.6 (m, 4H); 3.95 (t, 2H); 8.8 (s, 1H)
11	(NMR, $CDCl_3$): δ 0.94 (t, 3H); 1.29 (m, 8H); 1.79 (m, 2H); 2.45 (s, 3H); 2.57 (s, 3H); 3.58 (m, 4H); 4 (t, 2H); 8.81 (s, 1H)

Compound	Spectra Data
12	(NMR, $CDCl_3$): δ 0.9 (d, 6H); 1.29 (t, 6H); 2.2 (m, 1H); 2.45 (s, 3H); 2.57 (s, 3H); 3.58 (m, 4H); 3.8 (d, 2H); 8.8 (s, 1H)
16	(NMR, $CDCl_3$): δ 0.93 (t, 3H); 1.29 (t, 6H); 1.87 (m, 2H); 2.5 (s, 3H); 3.6 (m, 4H); 4.07 (t, 2H); 8.84 (s, 1H)
17	(NMR, $CDCl_3$): δ 0.98 (t, 3H); 1.3 (m, 8H); 1.8 (m, 2H); 2.5 (s, 3H); 3.6 (m, 4H); 4.1 (t, 2H); 8.84 (s, 1H)
18	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 1.43 (t, 3H); 2.5 (s, 3H); 3.6 (m, 4H); 4.15 (q, 2H); 8.84 (s, 1H)
19	(NMR, $CDCl_3$): δ 1.31 (t, 6H); 2.54 (s, 3H); 2.61 (s, 3H); 3.6 (m, 4H); 7.2-7.5 (m, 4H); 8.82 (s, 1H)
20	(NMR, $CDCl_3$): δ 1.31 (t, 6H); 2.54 (s, 3H); 2.59 (s, 3H); 3.6 (m, 4H); 7.34 (d, 2H); 7.48 (d, 2H); 8.82 (s, 1H)
21	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 2.53 (s, 3H); 2.57 (s, 3H); 3.6 (m, 4H); 7.1-7.4 (m, 4H); 8.82 (s, 1H)
22	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 2.5 (s, 3H); 2.54 (s, 3H); 3.6 (bs, 4H); 7.2-7.6 (m, 4H); 8.87 (s, 1H)
23	(NMR, $CDCl_3$): δ 1.31 (t, 6H); 2.54 (s, 3H); 2.62 (s, 3H); 3.6 (m, 4H); 7.1-7.6 (m, 4H); 8.82 (s, 1H)
24	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 2.17 (d, 3H); 2.65 (s, 3H); 3.6 (bs, 4H); 7.1 (bs, 1H); 8.82 (s, 1H)
25	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 2.46 (s, 3H); 2.63 (s, 3H); 3.58 (bs, 4H); 3.85 (t, 2H); 4.3 (t, 2H); 8.82 (s, 1H)
29	(NMR, $CDCl_3$): δ 1.28 (m, 6H); 2.5 (s, 3H); 2.64 (s, 3H); 3.4-3.7 (m, 4H); 5.07 (d, 1H); 5.85 (d, 1H); 6.93 (dd, 1H); 8.82 (s, 1H)
30	(NMR, $CDCl_3$): δ 1.2-1.4 (m, 9H); 2.45 (s, 3H); 3 (q, 2H); 3.43-3.7 (m, 4H); 3.77 (s, 3H); 8.81 (s, 1H)
31	(NMR, $CDCl_3$): δ 1.25 (m, 6H); 2.36 (s, 3H); 3.58 (m, 4H); 4.09 (s, 3H); 6.99 (t, 1H); 8.9 (s, 1H)
34	(NMR, $CDCl_3$): δ 1.2-1.4 (m, 12H); 2.92 (q, 2H); 3.05 (q, 2H); 3.6 (m, 4H); 4.61 (q, 2H); 8.83 (s, 1H)

Compound	Spectra Data
35	(NMR, $CDCl_3$): δ 1.1-1.4 (m, 12H); 2.82 (q, 2H); 2.98 (q, 2H); 3.4-3.7 (m, 4H); 3.71 (s, 1H)
36	(NMR, $CDCl_3$): δ 1.15-1.4 (m, 12H); 1.44 (t, 3H); 2.82-3.1 (m, 4H); 3.6 (m, 4H); 4.05 (q, 2H); 8.81 (s, 1H)
37	(NMR, $CDCl_3$): δ 1.18-1.4 (m, 9H); 2.58 (s, 3H); 2.9 (q, 2H); 3.6 (m, 4H); 3.76 (s, 3H); 8.8 (s, 1H)
39	(NMR, $CDCl_3$): δ 0.95 (t, 3H); 1.1-1.4 (m, 12H); 1.88 (m, 2H); 2.82-3.1 (m, 4H); 3.6 (m, 4H); 3.95 (t, 2H); 8.81 (s, 1H)
41	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 1.45 (d, 6H); 2.46 (s, 3H); 2.58 (s, 3H); 3.6 (m, 4H); 4.4 (m, 1H); 8.82 (s, 1H)
44	(NMR, $CDCl_3$): δ 1.28 (m, 9H); 2.64 (s, 3H); 2.9 (q, 2H); 3.58 (m, 4H); 4.63 (q, 2H): 8.84 (s, 1H)
45	(NMR, $CDCl_3$): δ 1.24 (t, 6H); 3.5 (q, 4H); 6.42 (bs, 2H); 7.3 (bs, 2H); 9.08 (s, 1H)
51	0.94 (t, 3H); 1.21 (t, 6H); 1.88 (s, 3H); 2.23 (q, 2H); 2.27 (s, 3H); 3.5 (m, 4H), 6.87 (s, 1H), 8.74 (s, 1H)
52	(NMR, $CDCl_3$): δ 1.05 (t, 3H); 1.2 (m, 6H); 2.08 (s, 3H); 2.19 (s, 3H); 2.39 (q, 2H); 3.5 (m, 4H); 7.87 (bs, 1H); 8.69 (s, 1H)
56	(NMR, $CDCl_3$): δ 1.2-1.3 (m, 9H); 1.47 (d, 6H); 2.47 (s, 3H); 3.02 (q, 2H); 3.5-3.7 (m, 4H); 4.43 (m, 1H); 8.82 (s, 1H)
57	(NMR, $CDCl_3$): δ 3.5-3.7 (m, 4H); 4.43 (m, 1H); 8.81 (s, 1H)
58	(NMR, $CDCl_3$): δ 1.3 (m, 6H); 2.23 (s, 3H); 2.53 (s, 3H); 3.48 (s, 3H); 3.6 (m, 4H); 5.32 (s, 1H); 8.78 (s, 1H)
60	(NMR, $CDCl_3$): δ 1.29 (m, 6H); 2.28 (s, 3H); 3.6 (m, 4H); 4.2 (s, 3H); 4.69 (s, 2H); 8.87 (s, 1H)
62	(NMR, $CDCl_3$): δ 1.25 (bs, 6H); 3.58 (bs, 4H); 4.2 (s, 3H); 8.7 (s, 1H). (IR, Nujol): 1720 cm^{-1}, 1081 cm^{-1}
64	(NMR, $CDCl_3$): δ 1.28 (t, 6H); 3.6 (bs, 4H); 4.09 (s, 3H); 8.9 (s, 1H)
65	(NMR, $CDCl_3$): δ 1.3 (m, 6H); 1.4 (t, 3H); 3.5 (q, 4H); 4.4 (q. 2H); 8.8 (s, 1H)

Compound	Spectra Data
66	(NMR, $CDCl_3$): δ 1.25 (bd, 6H); 1.38 (t, 3H); 3.58 (bs, 4H); 4.45 (q, 2H); 8.82 (s, 1H)
67	(NMR, $CDCl_3$): δ 1.28 (t, 6H); 3.6 (bd, 4H); 4.05 (s, 3H); 8.9 (s, 1H). (IR, neat): 1744 cm^{-1}; 1073 cm^{-1};
68	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 3.6 (bd, 4H); 4.15 (s, 3H);8.8 (s, 1H). (IR, Nujol): 1728 cm^{-1}; 1376 cm^{-1}; 1170 cm^{-1}
69	(NMR, $CDCl_3$): δ 1.3 (t, 6H); 2.65 (s, 3H); 3.55 (bs, 4H); 6.95 (s, 1H); 7.4 (s, 1H); 8.9 (s, 1H)
70	(NMR, $CDCl_3$): δ 1.29 (t, 5H); 2.14 (s, 3H); 2.64 (s, 3H); 3.55 (bs, 4H); 7.07 (s, 1H); 8.76 (s, 1H)
73	(NMR, $CDCl_3$): δ 1.28 (t, 6H); 1.35 (t, 3H); 3.04 (q, 2H); 3.5 (bs, 4H); 6.97 (s, 1H); 7.40 (s, 1H); 8.88 (s, 1H)
93	(NMR, $CDCl_3$): δ 1.28 (m, 6H); 1.43 (t, 3H); 2.33 (s, 3H); 3.4-3.8 (m, 4H); 4.15 (q, 2H); 8.9 (s, 1H)
95	(NMR, $CDCl_3$): δ 0.86 (d, 6H); 1.28 (t, 6H); 1.87 (m, 1H); 2.43 (d, 2H); 2.62 (s, 3H); 3.58 (m, 4H); 6.04 (s, 1H); 8.81 (s, 1H)
96	(NMR, $CDCl_3$): δ 1.18 (t, 3H); 1.28 (t, 6H); 2.6 (m, 5H); 3.58 (m, 4H); 6.08 (s, 1H); 8.83 (s, 1H)
97	(NMR, $CDCl_3$): δ 0.95 (t, 3H); 1.29 (m, 9H); 1.9 (m, 2H); 2.46 (s, 3H); 3 (q, 2H); 3.6 (m, 4H); 3.94 (t, 2H); 8.82 (s, 1H)
98	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 2.43 (s, 3H); 3.6 (m, 4H); 4.31 (s, 3H); 4.51 (q, 2H); 8.86 (s, 1H)
99	(NMR, $CDCl_3$): δ 1.30 (t, 6H); 2.50 (s, 3H); 3.6 (m, 4H); 3.82 (s, 3H); 8.84 (s, 1H)
100	(NMR, $CDCl_3$): δ 1.29 (t, 6H); 2.42 (s, 3H); 3.45-3.75 (m, 7H); 4.21 (s, 3H); 8.83 (s, 1H)
102	(NMR, $CDCl_3$): δ 1.27 (bs, 6H); 3.6 (bs, 4H); 4.1 (s, 3H); 6.7 (t, 1H); 8.95 (s, 1H)

INTERMEDIATES TABLE

CMPD	A	X	R^1	R^2	R^3	R^4	R^5	n	m.p.(°C)
75	A-4	NCH_3	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
76	A-4	NC_2H_5	C_2H_5	C_2H_5	CH_3	CH_3		0	67-69
77	A-4	NC_6H_5	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
78	A-4	NCH_2CF_3	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
79	A-4	$NCH_2C_6H_5$	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
80	A-4	$NCH_2CO_2C_2H_5$	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
81	A-4	NC_2H_5	CH_3	CH_3	CH_3	CH_3		0	oil
82	A-4	NCH_2CH_2CN	C_2H_5	C_2H_5	CH_3	CH_3		0	95-97
83	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	CH_3	CH_3		0	81-83
84	A-4	$NCH_2CH_2CH_2CH_3$	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
85	A-4	$NCH_2CH(CH_3)_2$	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
86	A-4	NCH_2CF_3	C_2H_5	C_2H_5	Cl	CH_3		0	112-114
87	A-4	O	C_2H_5	C_2H_5	CH_3	CH_3		0	oil
88	A-1	S	C_2H_5	C_2H_5	$C(O)CH_3$	H	Cl	0	103-105
89	A-1	NC_2H_5	C_2H_5	C_2H_5	Cl	CH_3		0	88-90
90	A-4	$NCH_2CH_2CH_3$	C_2H_5	C_2H_5	Cl	CH_3		0	oil
91	A-4	$NCH_2CH_2CH_2CH_3$	C_2H_5	C_2H_5	Cl	CH_3		0	oil

Compound	Spectra Data
75	(NMR, $CDCl_3$): δ 1.2 (t, 6H); 2.24 (s, 3H); 2.30 (s, 3H); 3.5 (q, 4H); 3.76 (s, 3H); 8.7 (s, 1H)
77	(NMR, $CDCl_3$): δ 1.2 (m, 6H); 2.34 (s, 3H); 2.39 (s, 3H); 3.43 (q, 4H); 7.45 (m, 5H); 8.72 (s, 1H)
78	(NMR, $CDCl_3$): δ 1.1-1.2 (m, 6H); 2.26 (s, 3H); 2.37 (s, 3H); 3.3-3.6 (q, 4H); 4.6 (q, 2H); 8.7 (s, 1H)
79	(NMR, $CDCl_3$): δ 1.1 (m, 6H); 2.25 (s, 3H); 2.29 (s, 3H); 3.47 (q, 4H); 5.26 (s, 2H); 7-7.4 (m, 5H); 8.69 (s, 1H)
80	(NMR, $CDCl_3$): δ 1-1.35 (m, 9H); 2.26 (s, 3H); 2.29 (s, 3H); 3.5 (bq, 4H); 4.23 (q, 2H); 4.81 (s, 2H); 8.69 (s, 1H)
81	(NMR, $CDCl_3$): δ 1.4 (t, 3H); 2.26 (s, 3H); 2.32 (s, 3H); 3.17 (bs, 6H); 4.07 (q, 2H); 8.66 (s, 1H)

Compound	Spectra Data
84	(NMR, $CDCl_3$): δ 0.94 (t, 3H); 1.15 (m, 6H); 1.3 (m, 2H); 1.8 (m, 2H); 2.25 (s, 3H); 2.3 (s, 3H); 3.47 (q, 4H); 4 (t, 2H); 8.89 (s, 1H)
85	(NMR, $CDCl_3$): δ 0.9 (d, 6H); 1.18 (t, 6H); 2.2 (m, 1H); 2.25 (s, 3H); 2.29 (s, 3H); 3.43 (q, 4H); 3.8 (d, 2H); 8.69 (s, 1H)
87	(NMR, $CDCl_3$): δ 1.2 (m, 6H); 2.27 (s, 3H); 2.48 (s, 3H); 3.48 (q, 4H); 8.72 (s, 1H)
89	(NMR, $CDCl_3$): δ 1.2 (m, 6H); 1.4 (t, 3H); 2.28 (s, 3H); 3.5 (m, 4H); 4.17 (q, 2H); 8.7 (s, 1H)
90	(NMR, $CDCl_3$): δ 0.94 (t, 3H); 1.2 (m, 6H); 1.87 (m, 2H); 2.28 (s, 3H); 3.45 (q, 4H); 4.07 (t, 2H); 8.7 (s, 1H)
91	(NMR, $CDCl_3$): δ 0.95 (t, 3H); 1.2 (m, 6H); 1.3 (m, 2H); 1.8 (m, 2H); 2.28 (s, 3H); 3.45 (q, 4H); 4.1 (t, 2H); 8.7 (s, 1H)

TEST A

Seeds of barnyardgrass (Echinochloa crusgalli), cheatgrass (Bromus secalinus), cocklebur (Xanthium pensylvanicum), crabgrass (Digitaria spp.), giant foxtail (Setaria faberii), morningglory (Ipomoea spp.), sorghum (Sorghum bicolor), velvetleaf (Abutilon theophrasti), and wild oat (Avena fatua) were planted into a sandy loam soil and treated preemergence with test chemicals dissolved in a non-phytotoxic solvent. At the same time, these crop and weed species were also treated postemergence with test chemicals. Plants ranged in height from two to eighteen cm and were in the two to three leaf stage for the postemergence treatment. Treated plants and untreated controls were maintained in a greenhouse for approximately eleven days, after which all treated plants were compared to untreated controls and visually evaluated for injury. Plant response ratings, summarized in Table A, are based on a 0 to 10 scale where 0 is no effect and 10 is complete control. A dash (-) response means no test results.

Table A	COMPOUND					
Rate (2000 g/ha)	1	2	3	4	6	13
POSTEMERGENCE						
Barnyardgrass	8	8	8	9	7	7
Cheatgrass	8	8	3	4	0	2
Cocklebur	4	5	1	2	0	0
Crabgrass	8	7	9	9	7	2
Giant foxtail	8	8	6	9	2	7
Morningglory	7	2	9	2	7	7
Sorghum	8	8	7	1	5	3
Velvetleaf	7	7	8	7	5	5
Wild oat	7	7	7	5	2	2

Table A	COMPOUND					
Rate (2000 g/ha)	1	2	3	4	6	13
PREEMERGENCE						
Barnyardgrass	10	10	10	10	9	9
Cheatgrass	10	9	9	8	9	8
Cocklebur	5	8	0	2	0	0
Crabgrass	10	10	10	5	9	9
Giant foxtail	10	10	9	10	10	10
Morningglory	9	10	9	8	1	0
Sorghum	10	10	10	9	9	9
Velvetleaf	9	10	10	1	0	0
Wild oat	10	9	10	9	9	9

TEST B

Seeds of barley (Hordeum vulgare), barnyardgrass (Echinochloa crusgalli), bedstraw (Galium aparine), blackgrass (Alopecurus myosuroides), cheatgrass (Bromus secalinus), chickweed (Stellaria media), cocklebur (Xanthium pensylvanicum), corn (Zea mays), cotton (Gossypium hirsutum), crabgrass (Digitaria spp.), giant foxtail (Setaria faberii), lambsquarters (Chenopodium album), morningglory (Ipomoea hederacea), rape (Brassica napus), rice (Oryza sativa), sorghum (Sorghum bicolor), soybean (Glycine max), sugar beet (Beta vulgaris), velvetleaf (Abutilon theophrasti), wheat (Triticum aestivum), wild buckwheat (Polygonum convolvulus), and wild oat (Avena fatua) and purple nutsedge (Cyperus rotundus) tubers were planted and treated preemergence with test chemicals dissolved in a non-phytotoxic solvent. At the same time, these crop and weed species were also treated with postemergence applications of test chemicals. Plants ranged in height from two to eighteen cm (one to four leaf stage) for postemergence treatments. Treated plants and controls were maintained in a greenhouse for twelve to sixteen days, after which all species were compared to controls and visually evaluated. Plant response ratings, summarized in Table B, are based on a scale of 0 to 10 where 0 is no effect and 10 is complete control. A dash (-) response means no test result.

Table B	COMPOUND	
Rate (2000 g/ha)	27	40
POSTEMERGENCE		
Barley	2	0
Barnyardgrass	7	0
Bedstraw	2	0
Blackgrass	2	0
Cheatgrass	0	0
Chickweed	2	0
Cocklebur	2	0
Corn	4	0
Cotton	1	4
Crabgrass	4	0
Giant foxtail	1	0
Lambsquarters	1	0
Morningglory	1	0
Nutsedge	0	0
Rape	5	0
Rice	8	0
Sorghum	1	0
Soybean	3	1
Sugar beet	5	0
Velvetleaf	1	0
Wheat	2	0
Wild buckwheat	1	-
Wild oat	0	0

Table B	COMPOUND	
Rate (2000 g/ha)	27	40
PREEMERGENCE		
Barley	0	0
Barnyardgrass	10	0
Bedstraw	7	0
Blackgrass	9	0
Cheatgrass	4	0
Chickweed	3	0
Cocklebur	0	0
Corn	7	0
Cotton	2	0
Crabgrass	9	0
Giant foxtail	9	0
Lambsquarters	9	0
Morningglory	0	0
Nutsedge	3	0
Rape	1	0
Rice	2	0
Sorghum	8	0
Soybean	0	0
Sugar beet	2	0
Velvetleaf	1	0
Wheat	0	0
Wild buckwheat	10	0
Wild oat	9	0

Table B

	COMPOUND																													
Rate (400 g/ha)	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
POSTEMERGENCE																													
Barley	6	4	4	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	6	
Barnyardgrass	9	9	9	9	9	5	6	9	9	9	9	4	6	9	9	3	9	0	0	8	8	8	9	8	6	6	8	9	9
Bedstraw	6	5	2	4	5	5	4	1	0	1	0	3	0	0	0	3	0	3	3	2	5	7	3	5	4	0	2	5	5
Blackgrass	6	8	9	5	8	0	2	2	9	6	2	0	0	9	7	10	10	0	0	7	7	7	5	9	5	0	5	9	8
Cheatgrass	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	0	0	0	2	3
Chickweed	2	5	-	3	3	0	2	-	-	0	0	0	0	0	2	0	0	0	0	0	1	2	2	0	2	0	3	0	4
Cocklebur	1	1	1	2	0	1	1	-	1	0	0	0	-	0	1	0	1	0	1	1	1	0	0	0	1	0	1	0	1
Corn	9	8	8	2	0	0	1	4	4	3	0	0	0	0	0	0	4	0	1	0	0	0	4	0	6	2	6	5	7
Cotton	4	2	2	1	4	0	5	5	4	1	0	5	0	2	5	5	5	0	0	0	0	2	0	3	3	0	4	5	5
Crabgrass	6	8	8	1	1	0	0	1	3	6	0	0	4	2	7	5	8	0	1	7	8	3	4	6	6	0	8	9	9
Giant foxtail	5	6	0	3	1	0	0	1	7	3	0	0	3	2	2	1	7	0	0	2	7	0	1	3	6	2	8	9	9
Lambsquarters	1	2	6	3	7	0	4	6	0	0	2	0	0	0	0	0	-	2	1	-	2	-	1	-	1	0	4	1	1
Morningglory	1	5	5	9	5	0	3	3	1	5	1	1	1	8	6	3	7	2	2	5	3	2	1	0	3	0	2	2	3
Nutsedge	0	-	-	0	4	0	0	-	-	3	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	6
Rape	4	1	0	0	0	0	1	0	0	2	0	0	0	0	0	2	3	0	2	0	5	2	0	2	0	0	0	0	0
Rice	5	8	9	3	5	0	1	2	5	2	0	0	0	3	3	2	4	0	0	0	4	2	4	3	6	6	8	2	8
Sorghum	5	5	3	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	3	0	3	4	8
Soybean	4	1	5	2	3	0	4	2	1	3	2	3	0	3	4	2	7	1	0	1	2	2	1	3	7	0	3	3	7
Sugar beet	5	8	2	0	0	2	0	0	0	2	1	0	0	2	0	2	3	0	3	2	0	2	2	4	0	0	0	0	0
Velvetleaf	2	5	5	7	4	0	3	1	0	0	0	0	2	2	0	0	2	1	1	3	5	2	1	2	3	0	6	0	2
Wheat	6	6	5	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	2	2	6
Wild buckwheat	-	-	-	1	0	0	-	-	-	1	0	4	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1
Wild oat	6	3	3	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	1	0	0	0	1

Table B

	COMPOUND																												
Rate (400 g/ha)	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
POSTEMERGENCE																													
Barley	4	0	0	2	3	0	3	2	0	0	2	2	0	3	3	0	0	0	3	2	0	0	0	0	0	0	0	2	0
Barnyardgrass	9	9	9	8	9	9	9	9	9	0	7	9	0	9	9	9	3	0	8	9	0	0	9	8	0	9	9	8	9
Bedstraw	5	4	2	-	3	3	5	6	5	0	4	5	0	3	1	2	0	0	3	-	0	0	4	0	3	7	0	6	-
Blackgrass	9	0	2	1	9	8	9	5	8	0	6	7	0	3	6	1	-	0	2	9	0	0	7	9	0	8	0	2	3
Cheatgrass	3	0	2	4	4	2	5	4	3	0	0	3	0	1	1	1	2	2	0	2	2	0	0	0	2	0	0	2	0
Chickweed	1	0	1	1	0	0	4	3	1	-	1	4	0	2	0	0	0	4	5	7	-	-	7	0	-	-	-	-	0
Cocklebur	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	4	2	0	5	2	1	0
Corn	8	3	4	5	5	6	7	8	6	0	4	6	0	6	4	2	2	0	3	7	1	0	4	1	0	9	7	2	4
Cotton	9	2	2	0	6	5	3	1	0	0	3	2	0	1	2	2	2	0	2	0	0	0	3	3	1	6	4	5	6
Crabgrass	9	9	9	9	8	9	9	9	9	0	2	6	0	5	7	2	2	0	8	9	2	0	9	9	0	9	9	3	7
Giant foxtail	9	9	9	9	9	9	9	9	9	0	6	7	0	4	5	0	2	0	9	8	0	0	8	9	0	9	8	2	4
Lambsquarters	1	1	-	3	2	0	-	3	0	0	2	1	0	-	3	2	0	0	0	1	0	0	0	5	0	9	0	4	1
Morningglory	3	2	2	1	2	9	5	5	3	0	2	6	0	5	0	0	0	0	3	2	2	1	5	3	0	5	2	2	3
Nutsedge	0	2	0	0	0	5	2	0	0	0	0	0	0	3	0	0	0	0	0	5	0	0	5	5	0	8	2	3	7
Rape	0	1	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	5	1	1
Rice	8	7	6	8	7	8	8	7	5	0	5	5	0	3	5	3	2	0	9	8	0	0	8	9	2	9	7	5	5
Sorghum	8	5	7	1	7	6	6	6	4	0	6	7	0	4	6	2	2	0	6	8	0	0	7	3	1	7	6	2	2
Soybean	6	2	2	7	6	3	6	5	6	0	6	2	0	5	4	2	0	0	4	1	0	0	4	2	1	7	3	1	4
Sugar beet	0	2	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	1	2	2	0
Velvetleaf	1	1	1	1	2	5	2	1	1	0	2	2	0	2	0	0	0	0	2	0	0	0	2	3	0	6	2	1	1
Wheat	7	0	0	0	5	2	6	2	2	0	2	6	0	7	3	0	0	0	4	8	0	0	0	4	0	0	0	0	0
Wild buckwheat	1	0	0	0	-	0	2	4	0	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	4	2	0	7	1
Wild oat	2	0	0	2	0	0	5	0	1	0	0	2	0	1	0	3	0	0	3	2	0	0	0	0	0	0	0	0	0

Table B

	COMPOUND													
Rate (400 g/ha)	61	62	63	64	65	66	67	68	69	70	71	72	73	74
POSTEMERGENCE														
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Barnyardgrass	7	7	0	0	0	0	3	1	0	2	0	0	0	9
Bedstraw	3	3	0	1	0	0	0	1	0	0	0	0	0	5
Blackgrass	-	4	0	0	0	0	0	0	0	3	0	0	0	9
Cheatgrass	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Chickweed	3	0	0	2	0	0	0	3	0	0	0	0	0	-
Cocklebur	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Corn	0	3	0	0	0	0	0	0	0	2	0	0	0	7
Cotton	0	1	0	0	0	0	0	2	0	5	0	0	0	2
Crabgrass	1	3	0	0	0	0	0	3	0	2	0	0	0	9
Giant foxtail	0	3	0	0	0	0	0	0	0	2	0	0	0	8
Lambsquarters	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Morningglory	2	2	0	0	0	0	2	0	0	1	0	0	0	7
Nutsedge	0	0	0	0	0	0	0	0	0	2	0	0	0	5
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rice	0	4	0	0	0	0	0	2	0	2	0	0	0	7
Sorghum	3	6	0	0	0	0	0	0	0	2	0	0	0	3
Soybean	0	2	0	0	0	0	2	2	0	4	0	0	0	1
Sugar beet	3	0	0	0	0	0	0	0	0	0	0	0	0	2
Velvetleaf	0	1	0	0	0	0	0	0	0	2	0	0	0	2
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wild buckwheat	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Wild oat	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B

	COMPOUND																												
Rate (400 g/ha)	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PREEMERGENCE																													
Barley	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	9
Barnyardgrass	10	10	10	9	10	3	10	10	10	10	10	7	9	9	9	9	9	5	5	10	10	10	10	10	10	7	10	10	10
Bedstraw	0	5	7	8	0	0	6	0	6	10	3	0	4	10	3	0	9	5	2	2	3	3	6	10	2	0	4	3	5
Blackgrass	9	10	10	8	10	0	6	10	9	10	9	9	2	10	10	10	10	8	5	8	9	9	9	10	10	7	10	8	9
Cheatgrass	9	10	5	4	5	0	2	1	3	8	7	0	7	9	4	5	5	1	2	3	4	6	2	6	6	2	9	6	9
Chickweed	10	10	-	-	-	0	10	10	10	10	5	3	0	9	10	5	10	5	5	4	4	7	2	5	9	0	9	5	9
Cocklebur	0	3	3	3	0	0	0	0	-	7	0	0	0	0	10	0	0	0	0	0	0	0	0	0	-	0	4	0	2
Corn	8	9	7	1	8	1	2	1	10	6	5	1	0	0	0	0	7	2	1	3	7	2	2	6	8	3	2	7	9
Cotton	1	6	9	0	0	0	4	1	0	0	0	1	0	0	0	0	2	0	0	0	2	0	0	1	2	0	0	0	8
Crabgrass	10	10	9	9	8	9	10	9	9	10	10	9	10	10	10	10	10	10	9	10	10	10	10	10	10	9	10	10	10
Giant foxtail	9	10	1	8	9	2	10	10	9	10	9	7	9	10	10	9	9	7	7	10	9	10	10	10	10	2	10	10	10
Lambsquarters	10	10	10	9	9	0	10	10	10	10	9	-	-	10	10	10	10	5	6	8	2	8	7	9	8	0	9	9	9
Morningglory	1	5	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	5
Nutsedge	0	0	0	7	4	0	6	0	0	0	-	0	0	0	9	0	5	0	0	0	0	0	0	9	7	0	0	0	4
Rape	2	5	6	2	0	0	0	0	0	1	1	0	0	0	5	0	2	0	0	2	0	0	1	0	1	0	3	2	6
Rice	8	4	7	0	2	0	6	3	7	1	0	0	0	0	0	0	3	0	0	0	2	2	4	1	0	0	1	2	7
Sorghum	7	5	3	2	8	0	7	3	1	8	4	1	0	6	9	6	4	0	2	4	4	4	3	5	8	2	6	9	9
Soybean	1	3	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	4	0	1	1	2	0	0	1	8
Sugar beet	5	5	8	2	1	0	0	2	0	2	2	0	0	0	6	0	9	2	2	5	6	5	7	5	6	0	2	7	6
Velvetleaf	5	8	3	0	2	1	3	1	0	0	0	1	0	5	2	0	4	0	1	0	0	1	2	0	3	0	0	1	5
Wheat	0	0	2	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	2	2	1	0	4	0	0	3	1	5
Wild buckwheat	-	0	-	-	-	0	4	0	0	-	0	0	0	10	10	10	9	0	0	0	0	0	0	4	5	2	5	5	7
Wild oat	9	10	9	9	9	0	9	3	8	9	7	4	4	10	9	3	10	2	2	7	7	2	3	9	8	0	9	6	9

Table B

COMPOUND

Rate (400 g/ha)	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
PREEMERGENCE																													
Barley	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2	3	0	0
Barnyardgrass	10	10	9	10	10	10	10	10	10	0	10	9	0	7	5	9	9	1	10	10	0	3	10	9	7	10	10	0	10
Bedstraw	8	7	2	5	0	5	7	9	5	0	2	3	-	8	0	5	0	-	-	9	-	-	9	8	7	-	1	0	2
Blackgrass	9	9	5	9	10	10	10	9	9	0	9	7	0	9	10	9	5	0	8	9	0	0	9	0	2	10	10	9	8
Cheatgrass	7	8	5	7	7	7	9	9	8	0	7	5	0	7	2	3	2	0	2	7	0	0	2	2	3	3	9	3	7
Chickweed	7	3	0	4	7	8	9	9	7	0	8	-	-	3	-	-	-	0	7	5	0	0	3	4	5	9	10	7	3
Cocklebur	1	0	0	0	0	0	1	0	1	0	-	2	0	0	2	3	0	0	0	0	0	0	0	0	0	0	1	0	0
Corn	9	7	7	7	9	8	8	9	9	0	10	8	0	5	5	2	0	0	3	5	0	2	3	1	1	4	4	2	1
Cotton	2	9	2	5	5	7	8	6	5	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4
Crabgrass	10	10	10	10	10	10	10	10	10	0	10	9	0	10	9	9	8	5	10	10	0	3	10	10	9	10	10	9	9
Giant foxtail	10	10	9	10	10	10	10	10	10	0	10	9	0	10	6	10	9	1	10	9	2	4	10	10	9	10	10	7	9
Lambsquarters	8	10	3	6	9	9	9	10	9	0	8	7	0	8	4	8	5	0	10	8	-	0	10	10	9	10	10	10	8
Morningglory	6	4	0	5	3	5	5	1	2	0	2	0	0	0	0	0	0	0	2	0	0	2	1	1	2	4	5	0	0
Nutsedge	0	0	0	2	5	5	5	7	3	0	4	6	0	8	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
Rape	5	3	0	1	3	5	4	9	4	0	1	1	0	3	0	1	1	0	2	0	6	0	2	0	3	7	9	0	7
Rice	2	1	2	3	2	4	6	6	2	0	4	0	0	2	0	0	0	0	2	7	0	1	2	0	0	1	2	0	0
Sorghum	9	9	6	9	9	9	9	9	9	0	2	8	0	6	0	5	0	0	10	8	0	1	7	3	2	9	9	0	4
Soybean	3	2	2	3	2	4	6	6	5	0	8	0	0	2	0	2	0	0	0	2	0	0	1	0	0	2	3	0	0
Sugar beet	6	3	0	0	5	7	7	9	3	0	5	5	0	0	0	0	1	0	8	0	-	0	10	3	2	7	4	0	2
Velvetleaf	1	1	0	2	1	3	5	7	1	0	1	0	0	0	1	0	0	0	2	2	0	0	2	1	1	1	2	0	2
Wheat	0	1	0	2	0	1	1	1	0	0	3	2	0	2	0	0	2	0	2	6	0	0	0	2	0	4	0	0	0
Wild buckwheat	8	10	0	5	7	1	7	10	6	0	5	6	0	-	0	0	0	-	-	8	4	-	10	10	10	-	4	0	0
Wild oat	9	9	4	7	9	9	8	9	9	0	10	6	0	8	9	9	3	0	5	9	0	0	7	6	0	7	6	2	9

Table B

	COMPOUND													
Rate (400 g/ha)	61	62	63	64	65	66	67	68	69	70	71	72	73	74
PREEMERGENCE														
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Barnyardgrass	3	5	0	0	0	0	5	8	0	0	0	0	0	10
Bedstraw	0	0	0	0	0	-	0	0	0	0	0	0	0	5
Blackgrass	9	10	2	2	0	2	0	9	0	0	0	0	0	9
Cheatgrass	2	0	0	0	0	0	0	0	0	0	0	0	0	8
Chickweed	0	8	0	0	0	0	0	3	0	0	0	0	0	10
Cocklebur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corn	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Cotton	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Crabgrass	9	10	0	7	0	0	9	9	0	0	0	0	0	9
Giant foxtail	9	10	0	0	0	0	4	8	0	0	0	0	0	10
Lambsquarters	0	10	0	0	0	0	0	7	0	0	0	0	0	10
Morningglory	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Nutsedge	0	0	0	0	0	0	0	0	0	0	-	0	0	2
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Rice	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sorghum	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Soybean	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Sugar beet	0	0	0	0	0	0	0	1	0	0	0	0	0	7
Velvetleaf	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wheat	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Wild buckwheat	0	0	0	0	0	0	0	0	0	0	-	0	0	10
Wild oat	0	5	0	0	0	0	0	2	0	0	0	0	0	9

Table B	COMPOUND
Rate (200 g/ha)	60
POSTEMERGENCE	
Barley	0
Barnyardgrass	0
Bedstraw	3
Blackgrass	0
Cheatgrass	0
Chickweed	-
Cocklebur	0
Corn	0
Cotton	0
Crabgrass	2
Giant foxtail	0
Lambsquarters	0
Morningglory	0
Nutsedge	0
Rape	0
Rice	0
Sorghum	0
Soybean	0
Sugar beet	0
Velvetleaf	0
Wheat	0
Wild buckwheat	5
Wild oat	0

Table B	COMPOUND
Rate (200 g/ha)	60
PREEMERGENCE	
Barley	0
Barnyardgrass	3
Bedstraw	0
Blackgrass	0
Cheatgrass	0
Chickweed	0
Cocklebur	0
Corn	0
Cotton	0
Crabgrass	3
Giant foxtail	2
Lambsquarters	0
Morningglory	0
Nutsedge	0
Rape	0
Rice	0
Sorghum	0
Soybean	0
Sugar beet	0
Velvetleaf	0
Wheat	0
Wild buckwheat	-
Wild oat	0

Table B

COMPOUND

Rate (100 g/ha)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	28	29	30
POSTEMERGENCE																													
Barley	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Barnyardgrass	3	5	8	1	2	0	0	2	0	6	0	2	0	0	5	1	1	8	0	0	1	1	0	2	1	0	2	2	9
Bedstraw	2	1	0	0	1	0	1	0	0	0	0	0	2	0	0	0	0	0	2	2	2	-	-	1	3	2	0	3	1
Blackgrass	0	2	2	2	0	0	2	0	1	0	0	0	0	0	0	0	7	-	0	0	1	1	2	0	1	0	0	2	5
Cheatgrass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Chickweed	1	2	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Cocklebur	0	0	0	0	0	0	0	1	-	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Corn	2	3	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	2
Cotton	0	0	0	0	2	0	-	1	3	2	0	1	0	0	4	2	1	4	0	0	0	0	0	0	0	5	2	0	7
Crabgrass	0	5	6	0	0	0	0	0	0	0	0	0	0	0	1	5	2	2	0	0	2	1	1	1	0	3	7	6	6
Giant foxtail	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	4	0	0	0	0	0	0	2	0	2	1	5
Lambsquarters	1	-	2	0	0	0	0	2	0	0	0	0	0	0	0	-	0	4	0	0	0	-	1	0	0	0	0	0	1
Morningglory	1	4	3	2	0	0	1	1	0	2	0	3	0	0	7	2	2	3	2	1	1	1	1	0	0	2	2	2	2
Nutsedge	0	0	0	-	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
Rice	0	0	3	0	0	0	1	0	0	0	0	0	0	0	3	2	2	3	0	0	0	0	0	0	0	0	1	0	5
Sorghum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Soybean	1	1	2	1	3	0	2	1	0	2	0	1	0	0	3	3	2	5	1	1	1	1	1	0	0	4	2	0	4
Sugar beet	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Velvetleaf	0	1	3	2	3	0	1	0	0	0	0	0	0	0	0	-	0	0	1	1	0	1	0	0	0	0	1	0	2
Wheat	0	2	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wild buckwheat	-	-	-	0	-	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild oat	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B

	COMPOUND																													
Rate (100 g/ha)	31	32	33	34	35	36	37	38	39	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	61
POSTEMERGENCE																													
Barley	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnyardgrass	9	8	0	0	7	2	8	7	2	6	5	0	0	4	1	0	0	4	8	0	0	6	0	0	7	2	1	0	0
Bedstraw	1	3	1	1	2	2	2	3	2	2	3	0	2	0	1	0	0	0	-	0	0	2	0	2	5	0	-	2	3
Blackgrass	3	0	0	1	0	1	1	3	2	0	2	0	0	1	0	0	0	0	3	0	0	2	2	0	2	0	0	1	2
Cheatgrass	0	0	0	0	0	0	2	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chickweed	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	3	-	-	-	0	1
Cocklebur	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	0
Corn	0	0	0	0	3	1	4	2	2	4	2	0	0	2	0	0	0	2	2	0	0	2	0	0	4	4	0	0	0
Cotton	1	0	2	0	2	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0
Crabgrass	8	6	1	4	2	2	4	5	-	0	2	0	2	0	0	0	0	9	7	0	0	8	5	0	8	3	0	3	0
Giant foxtail	7	8	0	2	1	2	2	5	4	2	4	0	0	0	0	0	0	6	7	0	0	5	3	0	7	1	0	0	0
Lambsquarters	0	0	0	-	0	0	0	-	-	-	0	0	-	0	0	0	0	0	0	0	0	7	0	0	2	0	0	1	0
Morningglory	1	1	1	1	1	5	3	0	2	1	6	0	4	0	0	0	0	0	0	0	0	2	1	0	5	2	3	2	2
Nutsedge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Rape	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rice	2	1	1	2	2	2	2	3	2	3	3	0	2	2	0	0	0	5	4	0	0	7	5	0	6	1	0	1	0
Sorghum	1	2	0	0	1	0	2	2	0	-	2	0	0	3	0	0	0	1	3	0	0	4	1	0	2	3	0	0	0
Soybean	2	0	1	3	3	2	3	2	1	3	2	0	3	3	0	0	0	1	0	0	0	1	0	0	5	1	1	1	0
Sugar beet	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
Velvetleaf	0	0	0	1	0	0	0	1	0	2	0	0	2	0	0	0	0	1	0	0	0	0	0	0	2	1	3	1	0
Wheat	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Wild buckwheat	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	-	0	2	0	0
Wild oat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B COMPOUND

Rate (100 g/ha)	62	63	64	65	66	67	68	69	70	71	72	73	74
POSTEMERGENCE													
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnyardgrass	0	0	0	0	0	0	0	0	2	0	0	0	6
Bedstraw	1	0	0	0	0	0	0	0	0	0	0	0	4
Blackgrass	2	0	0	0	0	0	0	0	0	0	0	0	2
Cheatgrass	0	0	0	0	0	0	0	0	0	0	0	0	0
Chickweed	0	0	0	0	0	0	0	0	0	0	0	0	-
Cocklebur	0	0	0	0	0	0	0	0	2	0	0	0	0
Corn	0	0	0	0	0	0	0	0	1	0	0	0	2
Cotton	0	0	0	0	0	0	0	0	-	0	0	0	2
Crabgrass	0	0	0	0	0	0	0	-	2	0	0	0	4
Giant foxtail	0	0	0	0	0	0	0	0	1	0	0	0	2
Lambsquarters	0	0	0	0	0	0	0	0	0	0	0	0	1
Morningglory	2	0	0	0	0	2	0	0	1	0	0	0	5
Nutsedge	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0
Rice	0	0	0	0	0	0	0	0	2	0	0	0	3
Sorghum	0	0	0	0	0	0	0	0	2	0	0	0	1
Soybean	0	0	0	0	0	2	0	0	2	0	0	0	4
Sugar beet	0	0	0	0	0	0	0	0	-	0	0	0	0
Velvetleaf	0	0	0	0	0	0	0	0	2	0	0	0	1
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild buckwheat	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild oat	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B

COMPOUND

Rate (100 g/ha)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	28	29	30
PREEMERGENCE																													
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnyardgrass	6	6	10	2	9	1	6	2	6	9	9	0	1	0	8	6	2	5	1	0	2	6	3	5	7	9	3	8	9
Bedstraw	0	0	7	-	0	0	0	0	4	10	-	3	0	0	3	3	0	6	0	0	0	0	0	0	0	0	2	0	0
Blackgrass	2	3	10	4	8	0	3	4	6	10	10	10	5	-	10	7	9	10	2	3	5	5	1	6	3	7	9	4	9
Cheatgrass	0	2	0	2	0	0	1	1	1	5	0	0	0	0	3	0	2	2	0	0	0	0	1	0	0	2	2	3	5
Chickweed	0	2	-	-	0	0	10	0	4	8	0	0	0	0	9	0	0	10	0	0	0	0	0	0	1	5	4	7	-
Cocklebur	0	2	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0
Corn	0	2	0	0	2	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	3	0
Cotton	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Crabgrass	8	10	9	5	6	2	5	2	4	10	9	6	8	6	9	9	9	9	7	9	8	9	9	5	9	9	10	9	10
Giant foxtail	3	7	0	2	6	0	1	3	1	9	9	6	0	6	9	7	6	9	2	6	3	3	2	2	3	7	6	9	10
Lambsquarters	10	10	9	0	8	-	10	10	10	9	0	8	0	0	10	5	10	10	0	0	2	2	0	0	2	5	5	7	9
Morningglory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Nutsedge	0	0	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	4	7	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Rice	2	0	2	0	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Sorghum	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	2	8
Soybean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sugar beet	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	0	6	0	2	0	0	5
Velvetleaf	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	2	0	0	0	0	0	0	0	1	0	0	2
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild buckwheat	-	0	-	-	-	0	0	0	-	-	-	3	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0
Wild oat	7	8	5	6	4	0	3	2	2	7	0	3	0	0	8	9	2	4	0	0	0	0	2	0	2	5	0	4	7

Table B

COMPOUND

Rate (100 g/ha)	31	32	33	34	35	36	37	38	39	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	61
PREEMERGENCE																													
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Barnyardgrass	9	9	5	8	8	9	9	10	9	7	7	0	2	2	8	2	0	8	7	0	2	9	5	2	9	4	0	7	0
Bedstraw	0	0	0	0	0	-	3	7	0	0	0	0	0	0	0	-	-	0	2	-	0	10	5	2	-	0	-	-	0
Blackgrass	2	9	0	8	5	8	8	9	7	9	8	0	6	2	2	0	0	3	7	0	0	2	0	2	6	5	0	2	6
Cheatgrass	0	0	2	2	6	6	4	7	6	6	5	0	0	0	0	0	0	2	7	0	0	2	0	2	3	6	0	0	0
Chickweed	0	2	0	0	2	4	3	8	0	0	-	0	-	-	0	0	0	0	-	0	0	2	0	0	3	5	0	0	0
Cocklebur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0
Corn	0	0	3	2	2	2	2	8	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Cotton	0	2	-	-	2	5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crabgrass	9	10	9	9	9	9	10	10	10	10	8	0	10	6	8	5	4	10	7	0	0	9	8	8	10	7	5	8	2
Giant foxtail	9	9	9	9	9	9	10	9	9	9	7	0	9	3	4	4	0	9	8	0	0	8	5	9	9	3	7	5	3
Lambsquarters	0	8	0	5	-	-	9	9	7	2	5	0	4	0	0	0	0	8	2	-	0	10	2	4	9	8	5	-	0
Morningglory	0	1	0	2	0	2	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0
Nutsedge	0	0	0	0	0	0	2	0	0	10	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	0	1	0	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rice	5	0	0	0	2	0	3	0	0	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
Sorghum	6	7	2	2	4	2	8	8	3	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	6	0	0	0	0
Soybean	0	0	0	0	2	2	3	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Sugar beet	0	0	0	0	2	3	6	5	1	2	4	0	0	0	0	0	0	0	0	3	0	-10	0	0	1	-	-	0	0
Velvetleaf	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Wild buckwheat	7	0	-	0	0	0	0	6	3	0	0	0	5	-	0	0	-	0	0	-	-	10	10	0	3	-	0	0	0
Wild oat	3	7	0	2	7	4	4	9	5	8	4	0	2	0	6	0	0	0	5	0	0	4	0	0	5	2	0	2	0

Table B	COMPOUND												
Rate (100 g/ha)	62	63	64	65	66	67	68	69	70	71	72	73	74
PREEMERGENCE													
Barley	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnyardgrass	2	0	0	0	0	0	1	0	0	0	0	0	5
Bedstraw	0	0	0	-	0	0	0	0	0	0	0	0	-
Blackgrass	6	0	0	0	0	0	9	0	0	0	0	0	3
Cheatgrass	0	0	0	0	0	0	0	0	0	0	0	0	2
Chickweed	0	0	0	0	0	0	0	0	0	0	0	0	9
Cocklebur	0	0	0	0	0	0	0	0	0	0	0	0	0
Corn	0	0	0	0	0	0	0	0	0	0	0	0	1
Cotton	0	0	0	0	0	0	0	0	0	0	0	0	0
Crabgrass	6	0	4	0	0	6	8	0	0	0	0	0	9
Giant foxtail	3	0	0	0	0	2	2	0	0	0	0	0	9
Lambsquarters	4	0	0	-	0	0	0	0	0	0	0	0	8
Morningglory	0	0	0	0	0	0	0	0	0	0	0	0	4
Nutsedge	0	0	0	0	0	0	0	0	0	0	0	0	0
Rape	0	0	0	-	0	0	0	0	0	0	0	0	0
Rice	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorghum	0	0	0	0	0	0	0	0	0	0	0	0	2
Soybean	0	0	0	0	0	0	0	0	0	0	0	0	0
Sugar beet	0	0	0	0	0	0	0	0	0	0	0	0	2
Velvetleaf	0	0	0	0	0	0	0	0	0	0	0	0	0
Wheat	0	0	0	0	0	0	0	0	0	0	0	0	0
Wild buckwheat	0	0	0	-	0	0	0	0	0	0	0	0	8
Wild oat	0	0	0	0	0	0	0	0	0	0	0	0	3

Table B	COMPOUND
Rate (50 g/ha)	60
POSTEMERGENCE	
Barley	0
Barnyardgrass	0
Bedstraw	2
Blackgrass	0
Cheatgrass	0
Chickweed	-
Cocklebur	0
Corn	0
Cotton	0
Crabgrass	0
Giant foxtail	0
Lambsquarters	0
Morningglory	0
Nutsedge	0
Rape	0
Rice	0
Sorghum	0
Soybean	0
Sugar beet	0
Velvetleaf	0
Wheat	0
Wild buckwheat	3
Wild oat	0

Table B	COMPOUND
Rate (50 g/ha)	60
PREEMERGENCE	
Barley	0
Barnyardgrass	0
Bedstraw	0
Blackgrass	0
Cheatgrass	0
Chickweed	0
Cocklebur	0
Corn	0
Cotton	0
Crabgrass	0
Giant foxtail	0
Lambsquarters	0
Morningglory	0
Nutsedge	0
Rape	0
Rice	0
Sorghum	0
Soybean	0
Sugar beet	-
Velvetleaf	0
Wheat	0
Wild buckwheat	0
Wild oat	0

TEST C

The compounds evaluated in this test were formulated in a non-phytoxic solvent and applied to the soil surface before plant seedlings emerged (preemergence application), to water that covered the soil surface (flood application), and to plants that were in the one-to-four leaf stage (postemergence application). A sandy loam soil was used for the preemergence and postemergence tests, while a silt loam soil was used in the flood test. Water depth was approximately 2.5 cm for the flood test and was maintained at this level for the duration of the test.

Plant species in the preemergence and postemergence tests consisted of barley (Hordeum vulgare), bedstraw (Galium aparine), blackgrass (Alopecurus myosuroides), chickweed (Stellaria media), corn (Zea mays), cotton (Gossypium hirsutum), crabgrass (Digitaria sanguinalis), downy brome (Bromus tectorum), giant foxtail (Setaria faberii), lambsquarters (Chenopodium album), morningglory (Ipomoea hederacea), pigweed (Amaranthus retroflexus), rape (Brassica napus), ryegrass (Lolium multiflorum), sorghum (Sorghum bicolor), soybean (Glycine max), speedwell (Veronica persica), sugar beet (Beta vulgaris), velvetleaf (Abutilon theophrasti), wheat (Triticum aestivum), wild buckwheat (Polygonum convolvulus), and wild oat (Avena fatua). All plant species were planted one day before application of the compound for the preemergence portion of this test. Plantings of these species were adjusted to produce plants of appropriate size for the post-emergence portion of the test. Plant species in the flood test consisted of barnyardgrass (Echinochloa crusgalli), rice (Oryza sativa), umbrella sedge (Cyperus difformis) and duck salad (Heteranthera limosa).

All plant species were grown using normal greenhouse practices. Visual evaluations of injury expressed on treated plants, when compared to untreated controls, were recorded approximately fourteen to twenty one days after application of the test compound. Plant response ratings, summarized in Table C, were recorded on a 0 to 10 scale where 0 is no effect and 10 is complete control. A dash (-) response means no test result.

Table C	COMPOUND	
Rate (1000 g/ha)	1	2
POSTEMERGENCE		
Barley Igri	-	-
Bedstraw	-	-
Blackgrass	-	-
Chickweed	-	-
Corn	-	-
Cotton	-	-
Crabgrass	-	-
Downy brome	-	-
Duck salad	5	3
Giant foxtail	-	-
Lambsquarters	-	-
Morningglory	-	-
Pigweed	-	-
Rape	-	-
Ryegrass	-	-
Sorghum	-	-
Soybean	-	-
Speedwell	-	-
Sugar beet	-	-
Velvetleaf	-	-
Wheat	-	-
Wild buckwheat	-	-
Wild oat	-	-
Barnyardgrass	9	9
Rice Japonica	8	8
Umbrella sedge	0	0

Table C	COMPOUND	
Rate (1000 g/ha)	1	2
PREEMERGENCE		
Barley Igri	3	2
Bedstraw	10	10
Blackgrass	10	10
Chickweed	10	10
Corn	8	7
Cotton	7	10
Crabgrass	10	10
Downy brome	7	10
Duck salad	-	-
Giant foxtail	10	10
Lambsquarters	10	10
Morningglory	10	10
Pigweed	10	10
Rape	4	0
Ryegrass	10	10
Sorghum	10	10
Soybean	5	6
Speedwell	10	10
Sugar beet	10	10
Velvetleaf	10	10
Wheat	6	5
Wild buckwheat	10	10
Wild oat	10	10
Barnyardgrass	-	-
Rice Japonica	-	-
Umbrella sedge	-	-

Table C	COMPOUND								
Rate (500 g/ha)	1	2	7	10	11	15	18	26	41
POSTEMERGENCE									
Barley Igri	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-
Blackgrass	-	-	-	-	-	-	-	-	-
Chickweed	-	-	-	-	-	-	-	-	-
Corn	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	-	-	-	-	-	-
Crabgrass	-	-	-	-	-	-	-	-	-
Downy brome	-	-	-	-	-	-	-	-	-
Duck salad	4	0	0	9	9	9	9	0	2
Giant foxtail	-	-	-	-	-	-	-	-	-
Lambsquarters	-	-	-	-	-	-	-	-	-
Morningglory	-	-	-	-	-	-	-	-	-
Pigweed	-	-	-	-	-	-	-	-	-
Rape	-	-	-	-	-	-	-	-	-
Ryegrass	-	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-	-
Soybean	-	-	-	-	-	-	-	-	-
Speedwell	-	-	-	-	-	-	-	-	-
Sugar beet	-	-	-	-	-	-	-	-	-
Velvetleaf	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Wild buckwheat	-	-	-	-	-	-	-	-	-
Wild oat	-	-	-	-	-	-	-	-	-
Barnyardgrass	9	9	6	10	10	10	10	9	9
Rice Japonica	8	8	7	9	9	8	8	9	8
Umbrella sedge	0	0	0	9	9	9	9	7	8

Table C	COMPOUND								
Rate (500 g/ha)	1	2	7	10	11	15	18	26	41
PREEMERGENCE									
Barley Igri	2	0	2	2	2	2	2	3	5
Bedstraw	10	10	10	9	5	8	9	2	10
Blackgrass	10	10	10	8	6	9	9	10	10
Chickweed	10	10	10	7	2	5	8	6	7
Corn	6	6	0	5	6	8	10	0	6
Cotton	6	6	7	0	-	8	7	0	7
Crabgrass	10	10	10	10	10	10	10	10	10
Downy brome	3	4	5	5	5	5	7	6	6
Duck salad	-	-	-	-	-	-	-	-	-
Giant foxtail	10	10	10	10	10	10	10	10	10
Lambsquarters	10	10	10	10	10	8	10	9	10
Morningglory	10	7	0	7	2	7	8	0	0
Pigweed	10	10	10	7	8	8	9	8	8
Rape	0	0	7	4	3	7	7	2	8
Ryegrass	10	10	7	8	8	9	9	9	9
Sorghum	10	10	9	10	10	10	10	10	10
Soybean	1	4	0	2	0	2	4	0	3
Speedwell	10	10	10	10	10	8	10	6	10
Sugar beet	10	9	9	8	5	7	9	6	7
Velvetleaf	8	8	8	7	6	8	9	5	5
Wheat	5	4	2	2	2	1	2	4	6
Wild buckwheat	10	9	8	8	0	5	8	0	6
Wild oat	10	10	10	8	6	7	9	9	9
Barnyardgrass	-	-	-	-	-	-	-	-	-
Rice Japonica	-	-	-	-	-	-	-	-	-
Umbrella sedge	-	-	-	-	-	-	-	-	-

Table C

COMPOUND

Rate (250 g/ha)	1	2	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
POSTEMERGENCE																			
Barley Igri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chickweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crabgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Downy brome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duck salad	0	0	0	9	9	9	8	0	0	2	2	0	2	7	7	0	1	2	0
Giant foxtail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lambsquarters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morningglory	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pigweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ryegrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soybean	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speedwell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sugar beet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velvetleaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild buckwheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild oat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barnyardgrass	8	8	5	10	10	10	10	9	9	8	9	9	9	9	9	9	9	9	9
Rice Japonica	8	8	6	9	8	8	8	8	7	7	8	8	8	8	8	7	8	8	8
Umbrella sedge	0	0	0	9	9	9	9	0	0	3	8	5	9	9	9	3	8	0	0

Table C

	COMPOUND																		
Rate (250 g/ha)	1	2	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
PREEMERGENCE																			
Barley Igri	0	0	0	0	0	0	2	2	1	0	1	0	1	2	2	0	2	1	1
Bedstraw	5	10	10	5	2	6	8	0	7	5	1	5	10	10	7	0	10	4	0
Blackgrass	10	10	8	7	4	9	9	10	10	10	4	10	10	9	9	10	10	9	9
Chickweed	10	10	10	5	0	3	7	5	10	5	4	9	5	10	7	7	5	9	5
Corn	5	4	0	5	5	6	8	0	6	2	2	2	5	6	1	4	5	7	6
Cotton	3	5	5	0	0	8	2	0	8	0	2	4	3	7	0	4	0	2	0
Crabgrass	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Downy brome	-	4	2	2	3	3	5	3	6	2.	2	6	6	7	6	2	5	3	1
Duck salad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant foxtail	9	10	10	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10
Lambsquarters	10	10	7	9	5	8	10	8	10	8	3	10	10	9	9	10	8	9	9
Morningglory	8	7	0	2	0	3	7	0	10	7	0	0	0	4	0	0	0	2	3
Pigweed	9	9	6	7	8	8	8	5	9	8	0	7	6	7	2	7	8	7	8
Rape	0	0	0	2	0	3	3	0	7	4	0	2	0	2	2	0	2	0	0
Ryegrass	10	7	3	3	3	6	8	3	10	8	2	10	10	9	4	9	4	7	6
Sorghum	10	10	4	9	9	10	10	10	10	9	5	10	10	7	10	6	10	10	10
Soybean	0	0	0	0	0	0	2	0	4	1	3	0	1	4	0	0	0	2	0
Speedwell	10	10	10	10	8	-	10	2	7	5	10	7	3	10	10	7	7	10	10
Sugar beet	9	9	7	7	2	7	9	3	8	5	3	7	2	8	6	2	6	10	3
Velvetleaf	7	7	5	5	4	7	8	2	8	8	0	8	7	9	0	6	3	7	8
Wheat	3	1	0	2	2	0	2	2	5	3	2	0	4	3	4	0	5	5	2
Wild buckwheat	5	9	7	5	0	5	7	0	5	0	0	3	2	6	4	0	3	1	0
Wild oat	8	7	4	7	2	7	9	9	10	9	0	7	7	7	5	7	7	9	9
Barnyardgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rice Japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umbrella sedge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table C

COMPOUND

Rate (125 g/ha)	1	2	3	5	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
POSTEMERGENCE																					
Barley Igri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chickweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crabgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Downy brome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duck salad	0	0	0	0	0	9	2	8	0	0	0	1	0	0	0	3	2	0	0	1	0
Giant foxtail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lambsquarters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morningglory	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pigweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ryegrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soybean	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speedwell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sugar beet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velvetleaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild buckwheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild oat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barnyardgrass	8	8	9	8	0	10	9	9	9	8	9	8	9	8	9	8	9	8	8	9	4
Rice Japonica	7	6	8	7	5	9	6	6	7	7	6	7	8	7	7	8	8	6	8	8	7
Umbrella sedge	0	0	0	9	0	9	9	9	8	0	0	2	0	0	6	0	7	0	0	0	0

Table C

Rate (125 g/ha)	1	2	3	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
PREEMERGENCE																				
Barley Igri	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Bedstraw	0	6	6	4	2	0	5	8	0	5	3	0	2	10	6	5	0	5	2	0
Blackgrass	2	10	10	5	5	3	8	9	9	10	10	2	9	7	9	9	7	9	9	9
Chickweed	5	8	9	9	3	0	0	6	2	9	3	1	5	5	9	6	2	2	9	2
Corn	0	0	6	0	3	4	5	5	0	3	0	2	2	5	4	0	1	5	4	1
Cotton	0	4	5	3	0	0	3	0	0	5	0	2	4	2	5	0	3	0	0	0
Crabgrass	10	10	10	9	10	10	10	10	10	9	10	9	10	10	10	10	10	10	10	10
Downy brome	0	4	3	0	0	0	2	3	2	4	0	0	3	4	5	4	2	2	2	0
Duck salad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant foxtail	9	10	4	8	10	10	10	10	10	10	10	6	10	10	10	8	8	10	10	9
Lambsquarters	5	10	8	6	3	0	3	8	2	8	7	0	9	7	9	7	2	2	9	5
Morningglory	6	2	0	0	0	0	3	5	0	4	2	0	0	0	0	0	0	0	2	1
Pigweed	6	9	7	5	6	7	7	7	5	7	7	0	4	5	7	0	4	4	5	2
Rape	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	0	0
Ryegrass	5	4	7	0	2	2	3	6	2	10	7	0	7	5	6	3	6	2	4	3
Sorghum	9	8	5	2	7	6	9	10	5	6	4	5	5	6	5	4	5	9	9	7
Soybean	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	0	0	0	0
Speedwell	10	10	10	10	5	5	-	10	0	5	2	2	3	0	10	9	2	3	10	9
Sugar beet	6	8	10	5	4	0	5	8	0	7	2	2	3	2	7	5	2	3	3	1
Velvetleaf	4	2	0	5	3	2	6	5	2	7	7	0	8	0	7	0	5	0	5	3
Wheat	0	0	5	0	0	0	0	1	0	2	0	1	0	2	2	2	0	4	3	0
Wild buckwheat	0	3	4	6	3	0	3	5	0	2	0	0	2	0	5	3	0	2	0	0
Wild oat	0	4	4	2	4	0	3	7	5	10	7	0	5	4	2	1	3	4	6	5
Barnyardgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rice Japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umbrella sedge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table C

COMPOUND

Rate (62 g/ha)	3	5	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
POSTEMERGENCE																			
Barley Igri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chickweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crabgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Downy brome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Duck salad	0	0	0	9	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
Giant foxtail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lambsquarters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morningglory	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pigweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ryegrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soybean	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Speedwell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sugar beet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Velvetleaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild buckwheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild oat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barnyardgrass	8	3	0	10	8	9	8	0	8	8	6	8	7	6	8	8	5	8	0
Rice Japonica	6	6	1	8	5	6	6	5	5	5	6	6	6	7	7	5	7	6	5
Umbrella sedge	0	0	0	9	9	9	8	0	0	0	0	0	0	0	0	0	0	0	0

Table C

COMPOUND

Rate (62 g/ha)	3	7	10	11	15	18	26	30	32	34	35	36	37	38	39	41	42	44
PREEMERGENCE																		
Barley Igri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bedstraw	0	0	0	0	2	5	0	2	3	0	0	2	5	5	0	0	0	0
Blackgrass	9	4	2	3	3	6	4	9	9	0	9	5	9	9	7	7	8	7
Chickweed	0	2	0	0	0	4	0	5	0	0	3	0	7	5	0	0	4	0
Corn	4	0	2	3	4	4	0	1	0	0	0	2	2	0	0	2	1	0
Cotton	3	0	0	0	0	0	0	4	0	0	1	0	2	0	2	0	0	0
Crabgrass	9	4	9	9	9	10	8	9	9	6	10	9	9	9	6	9	9	9
Downy brome	0	0	0	0	0	0	0	2	0	0	2	2	2	2	0	0	1	0
Duck salad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Giant foxtail	2	5	9	7	9	10	9	10	9	5	9	10	9	5	7	10	9	7
Lambsquarters	0	0	0	0	3	8	0	8	5	0	5	3	7	7	0	0	8	3
Morningglory	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	1	1
Pigweed	7	0	6	7	7	7	0	5	6	0	2	4	7	0	2	0	2	0
Rape	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ryegrass	4	0	0	0	0	3	0	6	5	0	3	2	4	2	2	0	2	0
Sorghum	4	0	2	3	4	5	0	4	4	4	5	5	4	4	3	5	5	3
Soybean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Speedwell	10	6	2	5	-	9	0	0	0	0	2	0	5	9	0	0	9	9
Sugar beet	5	5	0	0	3	5	0	5	0	0	2	0	6	3	0	2	1	1
Velvetleaf	0	4	0	0	5	5	0	5	5	0	4	4	5	0	4	0	2	2
Wheat	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Wild buckwheat	4	3	0	0	0	0	0	0	0	0	0	0	4	3	0	0	0	0
Wild oat	2	0	0	0	0	2	2	7	4	0	3	2	0	0	0	0	1	0
Barnyardgrass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rice Japonica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umbrella sedge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table C	COMPOUND												
Rate (31 g/ha)	3	5	10	30	32	34	35	36	37	38	39	42	44
POSTEMERGENCE													
Barley Igri	-	-	-	-	-	-	-	-	-	-	-	-	-
Bedstraw	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackgrass	-	-	-	-	-	-	-	-	-	-	-	-	-
Chickweed	-	-	-	-	-	-	-	-	-	-	-	-	-
Corn	-	-	-	-	-	-	-	-	-	-	-	-	-
Cotton	-	-	-	-	-	-	-	-	-	-	-	-	-
Crabgrass	-	-	-	-	-	-	-	-	-	-	-	-	-
Downy brome	-	-	-	-	-	-	-	-	-	-	-	-	-
Duck salad	0	0	-	0	0	0	0	0	0	0	0	0	0
Giant foxtail	-	-	-	-	-	-	-	-	-	-	-	-	-
Lambsquarters	-	-	-	-	-	-	-	-	-	-	-	-	-
Morningglory	-	-	-	-	-	-	-	-	-	-	-	-	-
Pigweed	-	-	-	-	-	-	-	-	-	-	-	-	-
Rape	-	-	-	-	-	-	-	-	-	-	-	-	-
Ryegrass	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-	-	-	-	-	-
Soybean	-	-	-	-	-	-	-	-	-	-	-	-	-
Speedwell	-	-	-	-	-	-	-	-	-	-	-	-	-
Sugar beet	-	-	-	-	-	-	-	-	-	-	-	-	-
Velvetleaf	-	-	-	-	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild buckwheat	-	-	-	-	-	-	-	-	-	-	-	-	-
Wild oat	-	-	-	-	-	-	-	-	-	-	-	-	-
Barnyardgrass	0	1	0	6	8	3	0	2	3	6	2	4	0
Rice Japonica	4	3	3	5	3	1	5	4	7	4	1	5	2
Umbrella sedge	0	0	-	0	0	0	0	0	0	0	0	0	0

Table C	COMPOUND										
Rate (31 g/ha)	3	30	32	34	35	36	37	38	39	42	44
PREEMERGENCE											
Barley Igri	0	0	0	0	0	0	0	0	0	0	0
Bedstraw	0	0	0	0	0	0	2	1	0	0	0
Blackgrass	4	9	9	0	5	2	3	4	3	3	3
Chickweed	0	4	0	0	0	0	2	0	0	0	-
Corn	0	0	0	0	0	0	0	0	0	0	0
Cotton	2	3	0	0	1	0	0	0	0	0	0
Crabgrass	8	9	6	2	9	9	8	6	5	9	8
Downy brome	0	0	0	0	0	0	0	0	0	0	0
Duck salad	-	-	-	-	-	-	-	-	-	-	-
Giant foxtail	0	7	5	0	7	5	5	2	5	8	2
Lambsquarters	0	7	0	0	2	0	0	3	0	0	-
Morningglory	0	0	0	0	0	0	0	0	0	0	0
Pigweed	5	4	4	0	0	0	2	0	0	0	0
Rape	0	0	0	0	0	0	0	0	0	0	0
Ryegrass	0	2	2	0	0	0	3	0	0	0	0
Sorghum	0	3	4	2	4	4	3	2	3	2	0
Soybean	0	0	0	0	0	0	0	0	0	0	0
Speedwell	7	0	0	0	0	0	1	3	0	8	9
Sugar beet	5	0	0	0	0	0	5	2	0	0	0
Velvetleaf	0	4	3	0	4	2	4	0	4	0	0
Wheat	0	0	0	0	0	0	0	0	0	0	0
Wild buckwheat	0	0	0	0	0	0	3	0	0	0	0
Wild oat	0	4	0	0	0	0	0	0	0	0	0
Barnyardgrass	-	-	-	-	-	-	-	-	-	-	-
Rice Japonica	-	-	-	-	-	-	-	-	-	-	-
Umbrella sedge	-	-	-	-	-	-	-	-	-	-	-

Table C	COMPOUND			Table C	COMPOUND
Rate (16 g/ha)	3	5	10	Rate (16 g/ha)	3
POSTEMERGENCE				PREEMERGENCE	
Barley Igri	-	-	-	Barley Igri	0
Bedstraw	-	-	-	Bedstraw	0
Blackgrass	-	-	-	Blackgrass	0
Chickweed	-	-	-	Chickweed	0
Corn	-	-	-	Corn	0
Cotton	-	-	-	Cotton	0
Crabgrass	-	-	-	Crabgrass	5
Downy brome	-	-	-	Downy brome	0
Duck salad	0	0	-	Duck salad	-
Giant foxtail	-	-	-	Giant foxtail	0
Lambsquarters	-	-	-	Lambsquarters	0
Morningglory	-	-	-	Morningglory	0
Pigweed	-	-	-	Pigweed	0
Rape	-	-	-	Rape	0
Ryegrass	-	-	-	Ryegrass	0
Sorghum	-	-	-	Sorghum	0
Soybean	-	-	-	Soybean	0
Speedwell	-	-	-	Speedwell	3
Sugar beet	-	-	-	Sugar beet	4
Velvetleaf	-	-	-	Velvetleaf	0
Wheat	-	-	-	Wheat	0
Wild buckwheat	-	-	-	Wild buckwheat	0
Wild oat	-	-	-	Wild oat	0
Barnyardgrass	0	0	0	Barnyardgrass	-
Rice Japonica	1	0	0	Rice Japonica	-
Umbrella sedge	0	0	-	Umbrella sedge	-

TEST D

Seeds of barnyardgrass (Echinochloa crusgalli), black nightshade (Solanum ptycanthum dunal), common ragweed (Ambrosia elatior), corn (Zea mays), cotton (Gossypium hirsutum), crabgrass (Digitaria spp.), fall panicum (Panicum dicholomiflorum), giant foxtail (Setaria faberii), green foxtail (Setaria viridis), johnsongrass (Sorghum halepense), lambsquarter (Chenopodium album), pigweed (Amaranthus retroflexus), signalgrass (Brachiaria platyphylla), smartweed (Polygonum pensylvanicum), soybean (Glycine max), wild proso (Panicum miliaceum) and wooly cupgrass (Eriochloa villosa) were planted into a silt loam soil. Test chemicals, dissolved in a non-phytotoxic solvent, were then applied to the soil surface within one day after the seeds were planted.

Treated plants and untreated controls were maintained in the greenhouse approximately 21 days, then treated plants were compared to untreated controls and visually evaluated. Plant response ratings, summarized in Table D, are reported on a 0 to 10 scale where 0 is no effect and 10 is complete control.

Table D	COMPOUND	
Rate (1000 g/ha)	3	10
PREEMERGENCE		
Barnyardgrass	10	10
Black Nightshade	-	10
Common Ragweed	-	9
Corn G4689A	10	9
Cotton	7	10
Crabgrass	10	10
Fall Panicum	10	10
Giant Foxtail	7	10
Green Foxtail	7	10
Johnson Grass	10	10
Lambsquarter	-	10
Pigweed	-	9
Signalgrass	10	10
Soybean	8	6
Wild Proso	10	10

Table D	COMPOUND											
Rate (500 g/ha)	1	2	3	10	15	18	26	30	35	36	37	41
PREEMERGENCE												
Barnyardgrass	10	10	10	10	10	10	10	10	10	10	10	10
Black Nightshade	-	-	-	10	10	10	10	10	10	10	10	10
Common Ragweed	-	-	-	7	9	10	8	9	5	8	10	10
Corn G4689A	7	9	8	7	8	9	6	6	6	7	8	7
Cotton	5	10	-	10	-	9	1	0	0	3	4	0
Crabgrass	10	10	10	10	10	10	10	10	10	10	10	10
Fall Panicum	10	10	10	10	10	10	10	-	10	10	-	10
Giant Foxtail	10	10	2	10	10	10	10	10	10	10	10	10
Green Foxtail	10	10	1	10	10	10	10	10	10	10	10	10
Johnson Grass	10	10	10	10	10	10	10	10	10	10	10	10
Lambsquarter	-	-	-	9	10	10	9	7	9	10	10	9
Pigweed	-	-	-	6	10	10	7	7	7	5	9	5
Signalgrass	10	10	10	10	10	10	10	10	10	10	10	10
Smartweed	-	-	-	-	-	-	10	9	7	7	9	9
Soybean	3	0	1	2	6	8	2	0	0	2	5	6
Wild Proso	10	10	10	10	10	10	10	10	10	10	10	10
Wooly Cupgrass	-	-	-	-	9	10	8	-	10	10	-	10

Table D	COMPOUND											
Rate (250 g/ha)	1	2	3	10	15	18	26	30	35	36	37	41
PREEMERGENCE												
Barnyardgrass	10	10	10	10	10	10	6	10	10	10	7	10
Black Nightshade	-	-	-	9	9	10	9	10	10	10	10	10
Common Ragweed	-	-	-	6	8	6	3	6	0	5	6	7
Corn G4689A	4	6	7	2	4	7	1	5	2	2	6	6
Cotton	-	7	0	10	-	0	0	0	0	0	3	0
Crabgrass	10	10	10	10	10	10	9	10	10	8	10	8
Fall Panicum	10	10	10	10	10	10	10	-	10	10	-	10
Giant Foxtail	10	10	1	10	10	10	10	10	10	10	10	10
Green Foxtail	10	10	1	10	10	10	10	10	10	10	10	10
Johnson Grass	10	10	10	10	10	10	6	7	10	10	10	10
Lambsquarter	-	-	-	8	8	10	7	9	9	9	10	9
Pigweed	-	-	-	5	6	6	4	6	5	3	8	5
Signalgrass	10	10	8	10	10	10	7	10	10	10	9	10
Smartweed	-	-	-	-	-	-	6	5	6	5	6	6
Soybean	-	-	-	0	0	3	0	0	0	0	1	0
Wild Proso	10	10	10	10	10	10	10	10	10	10	10	10
Wooly Cupgrass	-	-	-	-	8	10	7	-	9	9	-	10

Table D	COMPOUND											
Rate (125 g/ha)	1	2	3	10	15	18	26	30	35	36	37	41
PREEMERGENCE												
Barnyardgrass	10	9	10	5	10	10	5	8	8	9	8	8
Black Nightshade	-	-	-	8	9	9	9	9	9	9	9	9
Common Ragweed	-	-	-	0	7	5	0	1	0	0	6	0
Corn G4689A	2	1	6	1	2	5	0	1	0	0	0	1
Cotton	-	0	0	0	0	0	0	0	0	0	0	0
Crabgrass	10	10	10	9	10	10	6	10	8	7	10	7
Fall Panicum	10	10	10	10	10	10	10	-	10	10	-	10
Giant Foxtail	10	10	1	6	9	10	10	9	9	10	10	9
Green Foxtail	7	10	0	6	10	10	10	6	9	10	7	7
Johnson Grass	6	10	10	9	10	10	6	7	7	10	9	8
Lambsquarter	-	-	-	3	8	9	7	8	3	7	8	8
Pigweed	-	-	-	4	4	3	4	1	4	2	6	2
Signalgrass	8	9	0	10	10	10	5	10	7	10	7	9
Smartweed	-	-	-	-	-	-	3	2	3	5	6	5
Soybean	0	0	0	0	0	0	0	0	0	0	0	0
Wild Proso	9	10	10	8	10	10	8	9	9	9	10	8
Wooly Cupgrass	-	-	-	-	8	10	7	-	6	6	-	9

Table D	COMPOUND											
Rate (62 g/ha)	1	2	3	10	15	18	26	30	35	36	37	41
PREEMERGENCE												
Barnyardgrass	7	9	1	5	8	10	2	6	5	6	6	6
Black Nightshade	-	-	-	6	4	9	5	8	9	5	8	9
Common Ragweed	-	-	-	0	3	1	0	0	0	0	0	0
Corn G4689A	1	1	0	0	2	0	0	0	0	0	0	0
Cotton	0	0	-	-	0	0	0	0	0	0	0	0
Crabgrass	6	10	4	4	10	9	3	6	7	4	6	4
Fall Panicum	2	10	0	8	10	10	5	-	10	10	-	10
Giant Foxtail	5	6	0	1	9	10	6	6	9	6	9	8
Green Foxtail	4	6	0	0	9	10	5	4	6	6	6	6
Johnson Grass	1	2	10	1	10	6	2	1	5	5	2	4
Lambsquarter	-	-	-	0	1	7	5	7	0	0	4	6
Pigweed	-	-	-	0	0	2	3	1	3	2	0	2
Signalgrass	0	7	0	0	10	10	1	8	5	3	1	8
Smartweed	-	-	-	-	-	-	0	1	2	0	3	0
Soybean	0	0	0	0	0	0	0	0	0	0	0	0
Wild Proso	5	10	1	4	9	9	5	8	6	7	8	5
Wooly Cupgrass	-	-	-	-	8	9	5	-	6	5	-	4

Table D	COMPOUND									
Rate (31 g/ha)	1	2	15	18	26	30	35	36	37	41
PREEMERGENCE										
Barnyardgrass	0	0	4	6	0	2	0	0	5	1
Black Nightshade	-	-	4	7	3	2	0	0	5	8
Common Ragweed	-	-	0	0	0	0	0	0	0	0
Corn G4689A	0	1	0	0	0	0	0	0	0	0
Cotton	0	0	0	-	0	0	0	0	0	0
Crabgrass	0	3	5	6	0	3	0	0	5	0
Fall Panicum	0	0	6	10	0	-	9	0	-	5
Giant Foxtail	0	0	4	6	0	0	3	0	1	2
Green Foxtail	0	0	4	6	0	0	2	0	1	2
Johnson Grass	0	0	0	5	2	0	0	3	1	4
Lambsquarter	-	-	0	0	0	4	0	0	0	0
Pigweed	-	-	0	0	3	0	0	1	0	0
Signalgrass	0	0	8	9	0	0	1	0	0	5
Smartweed	-	-	-	-	0	0	0	0	0	0
Soybean	0	0	0	0	0	0	0	0	0	0
Wild Proso	0	0	3	9	0	0	0	4	2	4
Wooly Cupgrass	-	-	1	9	0	-	0	0	-	1

TEST E

Compounds evaluated in this test were formulated in a non-phytoxic solvent and applied to the soil surface before plant seedlings emerged (preemergence application) and to plants that were in the one-to-four leaf stage (postemergence application). A sandy loam soil was used for the preemergence test while a mixture of sandy loam soil and greenhouse potting mix in a 60:40 ratio was used for the postemergence test. Test compounds were applied within approximately one day after planting seeds for the preemergence test.

Plantings of these crops and weed species were adjusted to produce plants of appropriate size for the postemergence test. All plant species were grown using normal greenhouse practices. Crop and weed species include winter barley (Hordeum vulgare cv. 'Igri'), blackgrass (Alopecurus myosuroides), chickweed (Stellaria media), downy brome (Bromus tectorum), field violet (Viola arvensis), galium (Galium aparine), green foxtail (Setaria viridis), kochia (Kochia scoparia), lambsquarters (Chenopodium album), speedwell (Veronica persica), rape (Brassica napus), ryegrass (Lolium multiflorum), sugar beet (Beta vulgaris cv. 'US1'), sunflower (Helianthus annuus cv. 'Russian Giant'), spring wheat (Triticum aestivum cv. 'ERA'), winter wheat (Triticum aestivum cv. 'Talent'), wild buckwheat (Polygonum convolvulus), wild mustard (Sinapis arvensis), wild oat (Avena fatua), and wild radish (Raphanus raphanistrum).

Blackgrass, galium and wild oat were treated at two growth stages. The first stage (1) was when the plants had two to three leaves. The second stage (2) was when the plants had approximately four leaves or in the initial stages of tillering. Treated plants and untreated controls were maintained in a greenhouse for approximately 21 to 28 days, after which all treated plants were compared to untreated controls and visually evaluated. Plant response ratings, summarized in Table E, are based upon a 0 to 10 scale where 0 is no effect and 10 is complete control. A dash response (-) means no test result.

Table E	COMPOUND		Table E	COMPOUND	
Rate (1000 g/ha)	10	15	Rate (1000 g/ha)	10	15
POSTEMERGENCE			PREEMERGENCE		
Blackgrass (1)	2	8	Blackgrass (1)	10	10
Blackgrass (2)	2	7	Blackgrass (2)	10	10
Chickweed	2	0	Chickweed	10	10
Downy brome	3	2	Downy brome	10	8
Field violet	0	0	Field violet	10	4
Galium (1)	4	3	Galium (1)	10	10
Galium (2)	3	3	Galium (2)	10	10
Green foxtail	5	10	Green foxtail	10	10
Kochia	0	0	Kochia	10	10
Lambsquarters	7	2	Lambsquarters	10	-
Speedwell	0	3	Speedwell	10	8
Rape	2	3	Rape	9	10
Ryegrass	5	9	Ryegrass	10	10
Sugar beet	3	2	Sugar beet	9	9
Sunflower	2	5	Sunflower	5	4
Wheat (Spring)	3	3	Wheat (Spring)	5	4
Wheat (Winter)	2	2	Wheat (Winter)	5	3
Wild buckwheat	2	3	Wild buckwheat	9	2
Wild mustard	3	4	Wild mustard	10	10
Wild oat (1)	3	8	Wild oat (1)	10	10
Wild oat (2)	2	8	Wild oat (2)	10	10
Wild radish	-	2	Wild radish	7	5
Winter Barley	2	0	Winter Barley	2	5

Table E	COMPOUND					
Rate (500 g/ha)	10	15	18	26	30	41
POSTEMERGENCE						
Blackgrass (1)	0	3	-	-	-	-
Blackgrass (2)	0	3	-	-	-	-
Chickweed	0	0	-	-	-	-
Downy brome	0	0	-	-	-	-
Field violet	0	0	-	-	-	-
Galium (1)	0	0	-	-	-	-
Galium (2)	0	0	-	-	4	-
Green foxtail	2	7	-	-	-	-
Kochia	0	0	-	-	-	-
Lambsquarters	3	0	-	-	-	-
Speedwell	0	0	-	-	-	-
Rape	0	0	-	-	-	-
Ryegrass	2	4	-	-	-	-
Sugar beet	0	0	-	-	-	-
Sunflower	0	2	-	-	-	-
Wheat (Spring)	0	0	-	-	-	-
Wheat (Winter)	0	0	-	-	-	-
Wild buckwheat	0	0	-	-	-	-
Wild mustard	0	0	-	-	-	-
Wild oat (1)	0	3	-	-	-	-
Wild oat (2)	0	2	-	-	-	-
Wild radish	-	0	-	-	-	-
Winter Barley	0	0	-	-	-	-

Table E	COMPOUND					
Rate (500 g/ha)	10	15	18	26	30	41
PREEMERGENCE						
Blackgrass (1)	10	9	10	3	10	10
Blackgrass (2)	10	8	10	10	9	10
Chickweed	10	10	10	9	10	9
Downy brome	7	4	10	5	10	7
Field violet	10	2	10	6	8	10
Galium (1)	9	7	6	10	10	10
Galium (2)	10	7	10	10	10	10
Green foxtail	10	10	10	10	10	10
Kochia	10	6	-	-	10	-
Lambsquarters	10	-	-	10	10	9
Speedwell	10	6	10	9	8	10
Rape	6	8	8	9	9	9
Ryegrass	10	10	10	8	10	10
Sugar beet	8	6	8	5	7	7
Sunflower	3	2	8	10	10	10
Wheat (Spring)	2	2	0	0	7	4
Wheat (Winter)	2	1	5	4	9	6
Wild buckwheat	8	0	-	5	7	6
Wild mustard	7	8	10	10	10	10
Wild oat (1)	10	9	10	10	10	10
Wild oat (2)	10	8	10	10	10	10
Wild radish	5	2	9	8	8	10
Winter Barley	0	2	0	2	4	5

Table E	COMPOUND	
Rate (250 g/ha)	10	15
POSTEMERGENCE		
Blackgrass (1)	0	0
Blackgrass (2)	0	0
Chickweed	0	0
Downy brome	0	0
Field violet	0	0
Galium (1)	0	0
Galium (2)	0	0
Green foxtail	0	2
Kochia	0	0
Lambsquarters	0	0
Speedwell	0	0
Rape	0	0
Ryegrass	0	0
Sugar beet	0	0
Sunflower	0	0
Wheat (Spring)	0	0
Wheat (Winter)	0	0
Wild buckwheat	0	0
Wild mustard	0	0
Wild oat (1)	0	0
Wild oat (2)	0	0
Wild radish	-	0
Winter Barley	0	0

Table E	COMPOUND							
Rate (250 g/ha)	10	15	18	26	30	37	38	41
PREEMERGENCE								
Blackgrass (1)	8	6	9	3	9	7	8	6
Blackgrass (2)	8	5	10	5	9	10	6	10
Chickweed	10	8	10	8	7	7	3	7
Downy brome	5	2	0	3	9	7	6	5
Field violet	10	0	10	6	7	7	4	10
Galium (1)	7	3	4	9	10	0	9	7
Galium (2)	8	3	10	5	10	10	10	9
Green foxtail	10	10	10	10	10	10	10	10
Kochia	8	2	-	-	9	-	-	-
Lambsquarters	6	-	-	9	10	9	8	8
Speedwell	10	4	10	9	7	8	10	10
Rape	2	5	6	2	9	2	5	4
Ryegrass	9	8	10	4	10	10	10	10
Sugar beet	6	4	8	-	7	5	3	7
Sunflower	0	0	7	10	10	10	3	10
Wheat (Spring)	0	0	0	0	6	3	2	4
Wheat (Winter)	0	0	0	3	6	2	1	5
Wild buckwheat	3	0	-	5	5	2	0	3
Wild mustard	4	6	10	10	10	6	9	9
Wild oat (1)	7	4	5	9	7	8	10	7
Wild oat (2)	7	4	10	10	10	10	10	10
Wild radish	2	0	9	8	5	8	1	10
Winter Barley	0	0	0	0	4	0	2	5

Table E	COMPOUND								
Rate (125 g/ha)	10	15	18	26	30	32	37	38	41
PREEMERGENCE									
Blackgrass (1)	3	3	8	2	5	0	4	2	5
Blackgrass (2)	3	2	6	3	7	5	9	4	5
Chickweed	9	5	6	7	4	0	2	3	3
Downy brome	2	0	0	0	2	0	0	4	5
Field violet	7	0	4	3	0	2	3	4	8
Galium (1)	4	0	4	0	5	0	0	2	0
Galium (2)	4	0	5	3	6	0	4	2	0
Green foxtail	10	7	10	10	10	10	10	10	10
Kochia	3	0	-	-	8	-	-	-	-
Lambsquarters	3	-	-	6	5	0	7	6	5
Speedwell	8	2	10	6	2	0	5	9	10
Rape	0	2	5	0	3	0	0	0	2
Ryegrass	7	5	8	0	10	4	10	3	5
Sugar beet	4	3	8	0	4	0	5	3	7
Sunflower	0	0	0	10	10	-	4	0	3
Wheat (Spring)	0	0	0	0	5	1	0	1	4
Wheat (Winter)	0	0	0	1	3	0	0	0	4
Wild buckwheat	0	0	-	5	5	0	0	0	3
Wild mustard	0	3	10	6	9	3	0	7	8
Wild oat (1)	3	3	0	2	3	0	5	5	5
Wild oat (2)	3	2	9	0	7	1	8	8	7
Wild radish	0	0	8	4	2	0	0	1	7
Winter Barley	0	0	0	0	1	0	0	0	4

Table E	COMPOUND								
Rate (64 g/ha)	10	15	18	26	30	32	37	38	41
PREEMERGENCE									
Blackgrass (1)	0	0	6	0	3	0	0	0	3
Blackgrass (2)	0	0	4	-	4	0	2	0	4
Chickweed	3	2	5	2	3	0	2	0	3
Downy brome	0	0	0	0	0	0	0	2	4
Field violet	3	0	3	3	0	0	0	3	7
Galium (1)	2	0	0	0	0	0	0	0	0
Galium (2)	2	0	5	3	0	0	2	0	0
Green foxtail	7	4	10	10	10	9	10	10	10
Kochia	0	0	-	-	8	-	-	-	-
Lambsquarters	0	-	-	6	5	0	6	5	4
Speedwell	4	0	10	2	0	0	2	1	8
Rape	0	0	0	0	0	0	0	0	0
Ryegrass	4	2	0	0	1	2	3	0	4
Sugar beet	2	0	6	0	3	0	2	2	4
Sunflower	0	0	0	10	3	0	-	-	-
Wheat (Spring)	0	0	0	0	5	0	0	1	4
Wheat (Winter)	0	0	0	0	3	0	0	0	4
Wild buckwheat	0	0	0	5	2	0	0	0	3
Wild mustard	0	0	5	0	7	3	0	0	8
Wild oat (1)	0	0	0	0	2	0	0	0	0
Wild oat (2)	0	0	3	0	3	0	0	5	5
Wild radish	0	0	5	4	0	0	0	0	6
Winter Barley	0	0	0	0	1	0	0	0	3

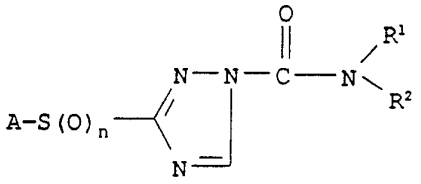
Table E	COMPOUND							
Rate (32 g/ha)	10	18	26	30	32	37	38	41
PREEMERGENCE								
Blackgrass (1)	0	3	0	0	0	0	0	0
Blackgrass (2)	0	0	0	0	0	0	0	2
Chickweed	0	-	0	0	0	0	0	2
Downy brome	0	0	0	0	0	0	0	3
Field violet	0	-	2	0	0	0	0	6
Galium (1)	0	0	0	0	0	0	0	0
Galium (2)	0	0	3	0	0	0	-	0
Green foxtail	4	4	10	5	3	10	10	8
Kochia	0	-	-	-	-	-	-	-
Lambsquarters	0	-	5	0	0	0	0	0
Speedwell	2	0	0	0	0	0	0	8
Rape	0	0	0	0	0	0	0	0
Ryegrass	0	0	0	1	2	0	0	2
Sugar beet	0	0	0	2	0	0	0	0
Sunflower	0	0	4	0	0	-	-	3
Wheat (Spring)	0	0	0	3	0	0	0	3
Wheat (Winter)	0	0	0	3	0	0	0	2
Wild buckwheat	0	0	0	0	0	0	0	3
Wild mustard	0	-	0	2	2	0	0	0
Wild oat (1)	0	0	0	2	0	0	0	0
Wild oat (2)	0	0	0	3	0	0	2	3
Wild radish	-	0	4	0	0	0	0	6
Winter Barley	0	0	0	1	0	0	0	1

Table E	COMPOUND		
Rate (16 g/ha)	32	37	38
PREEMERGENCE			
Blackgrass (1)	0	0	0
Blackgrass (2)	0	0	0
Chickweed	0	0	0
Downy brome	0	0	0
Field violet	0	0	0
Galium (1)	0	0	0
Galium (2)	0	0	0
Green foxtail	0	1	0
Lambsquarters	0	0	0
Speedwell	0	0	0
Rape	0	0	0
Ryegrass	0	0	0
Sugar beet	0	0	0
Sunflower	0	3	-
Wheat (Spring)	0	0	0
Wheat (Winter)	0	0	0
Wild buckwheat	0	0	0
Wild mustard	0	0	0
Wild oat (1)	0	0	0
Wild oat (2)	0	0	0
Wild radish	0	0	0
Winter Barley	0	0	0

CLAIMS

What is claimed is:

1. A compound of the formula:



I

wherein

A is a 5-membered heterocyclic ring containing 1 to 3 heteroatoms selected from the group 0-3 nitrogens, 0-1 oxygen and 0-1 sulfur, and is substituted with 1 to 4 substituents selected from R^3, R^4, R^5 and R^6;

R^1 is H; C_1-C_6 alkyl optionally substituted with C_1-C_3 alkoxy or 1 to 5 halogens; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl optionally substituted with 1 to 3 halogens; C_3-C_6 alkynyl; or C_1-C_3 alkoxy;

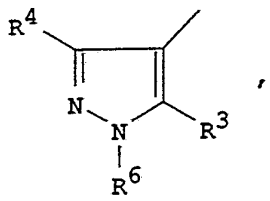
R^2 is C_1-C_6 alkyl optionally substituted with C_1-C_3 alkoxy or 1 to 5 halogens; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl optionally substituted with 1 to 3 halogens; or C_3-C_6 alkynyl;

R^1 and R^2 may be taken together to form $-(CH_2)_3-$, $-(CH_2)_4-$, $-(CH_2)_5-$ or $-(CH_2)_6-$, each ring optionally substituted with 1 to 3 substituents selected from halogen and C_1-C_3 alkyl;

R^3, R^4 and R^5 are independently H; halogen; C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_3-C_6 cycloalkyl; C_2-C_6 alkenyl; C_2-C_6 haloalkenyl; C_2-C_6 alkynyl; C_1-C_6 alkoxy; CN; CO_2R^{11}; $S(O)_pR^{12}$; $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; $C(O)R^{19}$, $C(OR^{20})(OR^{21})R^{22}$; $CR^{23}=NOR^{24}$; NO_2; $NR^{25}R^{26}$; or phenyl or benzyl, each ring optionally

substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^6 is H; C_1-C_6 alkyl optionally substituted with one or more halogen, C_1-C_6 alkoxy, CN, CO_2R^7, $S(O)_mR^8$, $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_2-C_6 alkenyl; C_2-C_6 haloalkenyl; C_2-C_6 alkynyl; CN; CO_2R^{11}; SO_2R^{12}; $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; or pyridine, pyrimidine, thiazole, thiophene or pyrazole, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; and when A is



then R^3 and R^6 may be taken together as $-(CH_2)_3-$ or $-(CH_2)_4-$;

R^7 and R^{11} are independently H, C_1-C_3 alkyl or allyl;

R^8 and R^{12} are independently C_1-C_3 alkyl;

R^9, R^{10}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17} and R^{18} are independently H or C_1-C_3 alkyl; R^9 and R^{10} may be taken together to form a 5- or 6-membered ring; R^{13} and R^{14} may be taken together to form a 5- or 6-membered ring; R^{15} and R^{16} may be taken together to form a 5- or 6-membered ring; and R^{17} and R^{18} may be taken together to form a 5- or 6-membered ring;

R^{19}, R^{22} and R^{23} are independently H or C_1-C_3 alkyl;

R^{20} and R^{21} are independently C_1-C_3 alkyl or may be taken together to form a 5- or 6-membered ring;

R^{24} is H or C_1-C_3 alkyl;

R^{25} and R^{26} are independently H, C_1-C_3 alkyl or may be taken together to form a 5- or 6-membered ring;

m, n and p are independently 0, 1 or 2;

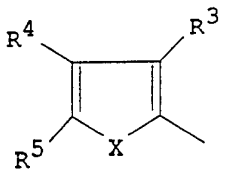
provided that

a) R^3, R^4 and R^5 are independently bonded to carbon, and R^6 is bonded to nitrogen; and

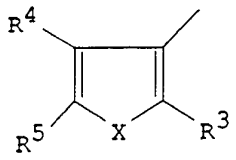
b) when $S(O)_n$ is bonded to nitrogen then n is 2.

2. A compound of Claim 1 wherein n is 1 or 2.

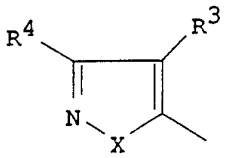
3. A compound of Claim 2 where A is



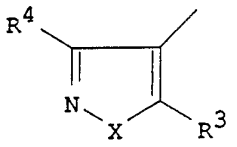
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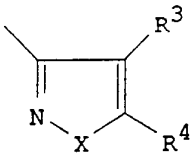
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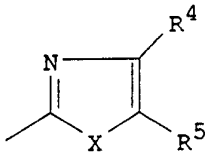
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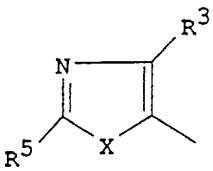
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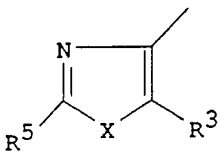
A-5



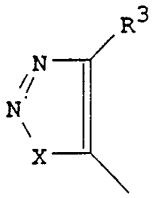
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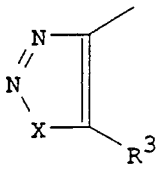
A-7



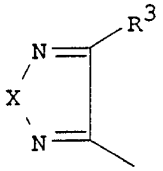
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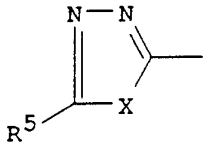
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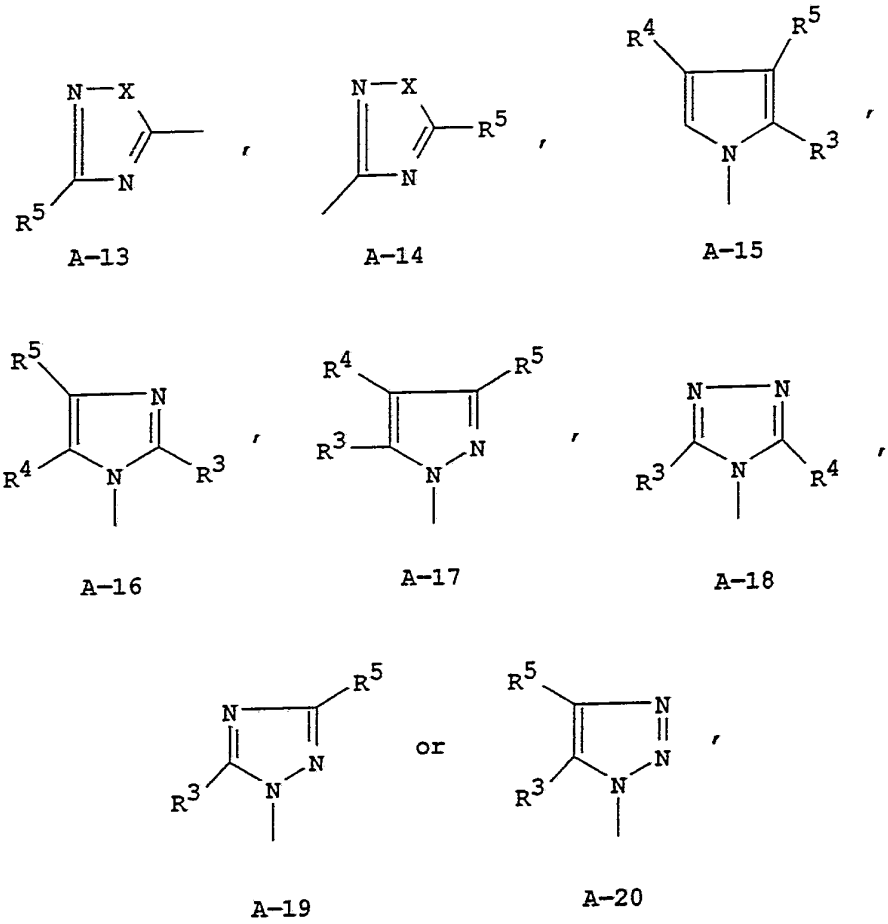
A-10



A-11



A-12



A-13 A-14 A-15

A-16 A-17 A-18

A-19 or A-20

wherein

X is NR^6, O or S.

4. A compound of Claim 3 where n is 2 and R^1 and R^2 are independently C_1-C_3 alkyl or C_2-C_3 alkenyl.

5. A compound of Claim 4 where A is selected from A-3, A-4, A-5 and A-17; and X is NR^6.

6. A compound of Claim 5 where

R^3, R^4 and R^5 are independently H; F; Cl; Br; C_1-C_3 alkyl optionally substituted with one or more F, Cl, Br or C_1-C_3 alkoxy; cyclopropyl; C_2-C_3 alkenyl; C_2-C_3 haloalkenyl; C_2-C_3 alkynyl; C_1-C_3 alkoxy; CN; $CO_2(C_1$-C_2 alkyl), $S(O)_p(C_1$-C_2 alkyl); $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; $C(O)R^{19}$, $C(OR^{20})(OR^{21})R^{22}$; CR^{23}=NOR^{24}; NO_2; $NR^{25}R^{26}$; or phenyl optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^6 is H, C_1-C_4 alkyl optionally substituted with one or more F, Cl, Br, C_1-C_3 alkoxy, CN, $CO_2(C_1$-C_2 alkyl), $S(O)_m(C_1$-C_2 alkyl), $C(O)NR^9R^{10}$ or $SO_2NR^{13}R^{14}$; C_2-C_4 alkenyl; C_2-C_4 haloalkenyl; C_2-C_4 alkynyl; CO_2R^{11}; $SO_2(C_1$-C_2 alkyl); $C(O)NR^{15}R^{16}$; $SO_2NR^{17}R^{18}$; phenyl or benzyl, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy; or pyridine, pyrimidine or thiazole, each ring optionally substituted with 1 to 3 substituents selected from halogen, C_1-C_3 alkyl, C_1-C_3 haloalkyl and C_1-C_3 alkoxy;

R^9, R^{10}, R^{13} and R^{14} are independently C_1-C_2 alkyl;

R^{11} is C_1-C_2 alkyl or allyl;

R^{15}, R^{16}, R^{17}, R^{18}, R^{25} and R^{26} are independently C_1-C_3 alkyl; and

R^{19}, R^{22} and R^{23} are independently H or C_1-C_2 alkyl.

7. A compound of Claim 6 where

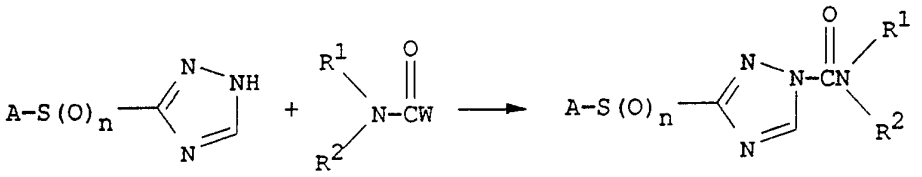
R^1 and R^2 are independently ethyl or allyl; and

R^5 is H, Cl, CH_3, C_2H_5 or CF_3.

8. A composition suitable for controlling the growth of undesired vegetation which comprises an effective amount of a compound of Claim 2 and at least one of the following: surfactant, solid or liquid inert diluent.

9. A method for controlling the growth of undesired vegetation which comprises applying to the locus to be protected an effective amount of a compound of Claim 2.

10. A process for making the compound of Claim 1 which comprises reacting the appropriate triazole with the appropriate carbamoyl halide according to the following equation:



II III I

wherein W is halogen.

INTERNATIONAL SEARCH REPORT

International Application No PCT/US 92/08822

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 C07D249/12; A01N43/653; C07D403/12; C07D413/12
C07D409/12; C07D417/12; A01N43/50; A01N43/56

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	C07D

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category °	Citation of Document,[11] with indication, where appropriate, of the relevant passages[12]	Relevant to Claim No.[13]
X	AT,A,331 072 (THE BOOTS COMPANY LTD.) 10 August 1976 see page 13, pyrrolidinyl compounds see claims	1,2,8,9
Y	CHEMICAL ABSTRACTS, vol. 111, 1989, Columbus, Ohio, US; abstract no. 232863x, page 798 ; see abstract & JP,A,01 106 883 (SUMITOMO CHEMICAL COMPANY LIMITED) cited in the application	1-10
Y	EP,A,0 422 369 (BAYER AG) 17 April 1991 see claims; examples	1-10

-/--

° Special categories of cited documents :[10]

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
04 JANUARY 1993	28. 01. 93
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	DE JONG B.S.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	EP,A,0 332 133 (CHUGAI SEIYAKU KABUSHIKI KAISHA) 13 September 1989 cited in the application see claims	1,8,9
A	EP,A,0 433 804 (BAYER AG) 26 June 1991 see claims	1,8,9

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO. US 9208822 SA 66020

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 04/01/93

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
AT-A-331072	10-08-76	AT-A- 326410	10-12-75
EP-A-0422369	17-04-91	DE-A- 3929673	14-03-91
		JP-A- 3099066	24-04-91
EP-A-0332133	13-09-89	JP-A- 2067209	07-03-90
		JP-A- 2001481	05-01-90
		JP-A- 2233665	17-09-90
		US-A- 5147445	15-09-92
		JP-A- 2131413	21-05-90
EP-A-0433804	26-06-91	DE-A- 3942222	27-06-91
		JP-A- 4001182	06-01-92