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(54) Title: DYEING COMPOSITION FOR KERATINOUS FIBRES WITH A CATIONIC DIRECT COLOURING AGENT AND A SILICONE (54) Titre: COMPOSITION DE TEINTURE POUR FIBRES KERATINIQUES AVEC UN COLORANT DIRECT CATIONIQUE ET UNE SILICONE (57) Abstract The invention concerns a dyeing composition for keratinous fibres, in particular for human keratinous fibres such as hair, comprising, in an appropriate dyeing medium, at least a cationic direct colouring agent of specific formula, and characterised in that it further contains at least a silicone selected among amine silicones, polyalkylene silicones, silicone gums and resins. The invention also concerns methods and devices using said composition. (57) Abrégé L'invention concerne une composition de teinture pour fibres kératiniques, en particulier pour fibres kératiniques humaines telles que les cheveux, comprenant, dans un milieu approprié pour la teinture, au moins un colorant direct cationique de formule donnée, et qui est caractérisée par le fait qu'elle contient en outre au moins une silicone choisie parmi les silicones aminées, les silicones polyoxyalkylénés, les gommes et les résines de silicone. L'invention concerne également les procédés et dispositifs de teinture la mettant en oeuvre.		

**COMPOSITION FOR DYEING KERATINOUS FIBRES WITH A
CATIONIC DIRECT DYE AND A SILICONE**

The invention relates to a composition for dyeing keratinous fibres, in particular human
5 keratinous fibres such as hair, comprising, in an appropriate dyeing medium, at least one cationic direct dye of a given formula, and at least one particular silicone.

The subject of the invention is also the
10 dyeing methods and devices using the said composition.

In the hair domain, it is possible to distinguish two types of dyeing.

The first is the semipermanent or temporary dyeing, or direct dyeing, which involves dyes capable
15 of bringing the natural colour of the hair a more or less marked colour modification which is resistant, where appropriate, to several shampoos. These dyes are called direct dyes; they can be used with or without oxidizing agent. In the presence of oxidizing
20 agent, the aim is to obtain a lightening dyeing. Lightening dyeing is performed by applying to the hair the fresh mixture of a direct dye and of an oxidizing agent and makes it possible in particular to obtain, by lightening of the melanine of the hair, an advantageous
25 effect such as a uniform colour in the case of grey hair or to make the colour stand out in the case of naturally pigmented hair.



The second is permanent dyeing or oxidation dyeing. The latter is performed with so-called "oxidation" dyes comprising oxidation dye precursors and couplers. The oxidation dye precursors, commonly
5 called "oxidation bases" are compounds which are initially colourless or faintly coloured which develop their dyeing power inside the hair in the presence of oxidizing agents added at the time of use, leading to the formation of coloured and dyeing compounds. The
10 formation of these coloured and dyeing compounds results either from an oxidative condensation of the "oxidation bases" with themselves, or an oxidative condensation of the "oxidation bases" with colour modifying compounds commonly called "couplers" and
15 generally present in the dyeing compositions used in oxidation dyeing.

To vary the shades obtained with the said oxidation dyes, or to increase their shimmer, direct dyes are sometimes added to them.

20 Among the cationic direct dyes available in the field of dyeing of keratinous fibres, especially human keratinous fibres, compounds are already known whose structure is developed in the text which follows; nevertheless, these dyes lead to colours which exhibit
25 characteristics which are still inadequate from the point of view of the intensity and homogeneity of the colour distributed along the fibre; it is said, in this case, that the colour is too selective, and from the



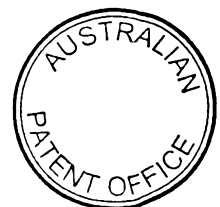
point of view of fastness, in terms of resistance to various attacks to which the hair may be subjected (light, adverse weather conditions, shampoos).

However, after major research studies carried out on this question, the applicant has just now discovered that it is possible to obtain novel compositions for dyeing keratinous fibres which are capable of giving intense and nevertheless only slightly selective colours which are quite resistant to the various attacks to which the hair may be subjected, by combining at least one particular silicone with at least one cationic direct dye known in the prior art and which have the respective formulae defined hereinafter.

This discovery forms the basis of the present invention.

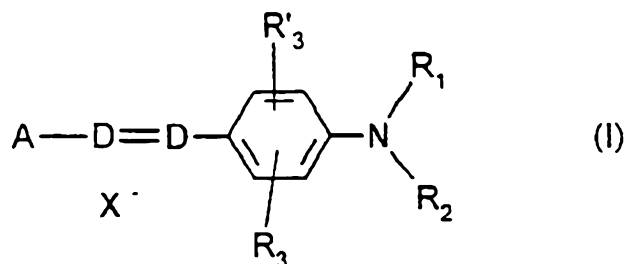
The first subject of the present invention is therefore a composition for dyeing keratinous fibres and in particular human keratinous fibres such as hair, containing in an appropriate dyeing medium, (i) at least one cationic direct dye whose structure corresponds to the formulae (I) to (IV) defined hereinafter, characterized in that it contains in addition (ii) at least one particular silicone.

(i) The cationic direct dye which can be used according to the present invention is a compound chosen from those of the following formulae (I), (II), (III), (III'), (IV):



a) the compounds of the following formula

(I):



in which:

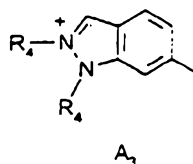
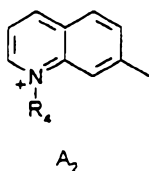
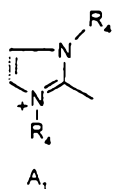
5 D represents a nitrogen atom or the -CH group,

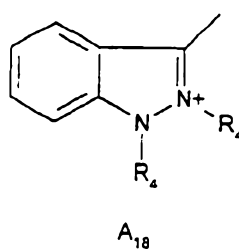
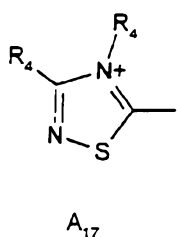
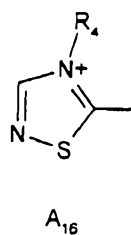
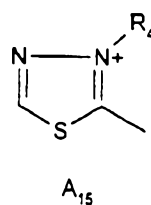
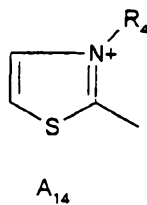
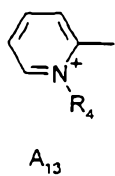
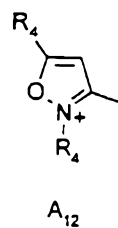
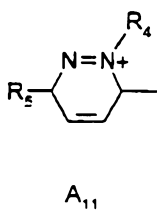
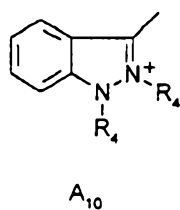
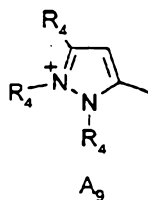
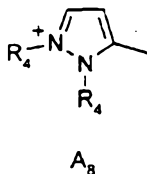
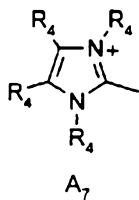
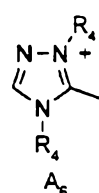
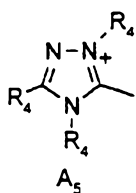
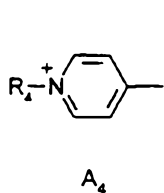
 R₁ and R₂, which are identical or different, represent a hydrogen atom; a C₁-C₄ alkyl radical which may be substituted with a -CN, -OH or -NH₂ radical or
10 form with a carbon atom of the benzene ring an optionally oxygen-containing or nitrogen-containing heterocycle which may be substituted with one or more C₁-C₄ alkyl radicals; a 4'-aminophenyl radical,

 R₃ and R'₃, which are identical or different,
15 represent a hydrogen or halogen atom chosen from chlorine, bromine, iodine and fluorine, a cyano, C₁-C₄ alkyl, C₁-C₄ alkoxy or acetyloxy radical,

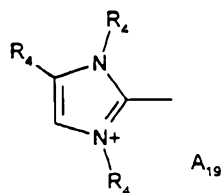
 X⁻ represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

20 A represents a group chosen from the following structures A₁ to A₁₉:

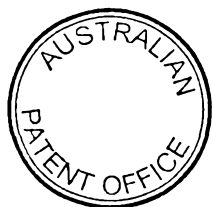




and



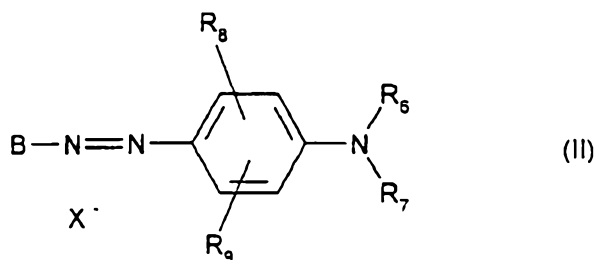
in which R_4 represents a C_1 - C_4 alkyl radical which may
5 be substituted with a hydroxyl radical and R_5 represents



a C₁-C₄ alkoxy radical, with the proviso that when D represents -CH, A represents A₄ or A₁₃ and R₃ is different from an alkoxy radical, then R₁ and R₂ do not simultaneously denote a hydrogen atom;

5 **b) the compounds of the following formula**

(II):



in which:

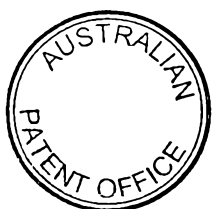
10 R₆ represents a hydrogen atom or a C₁-C₄ alkyl radical,

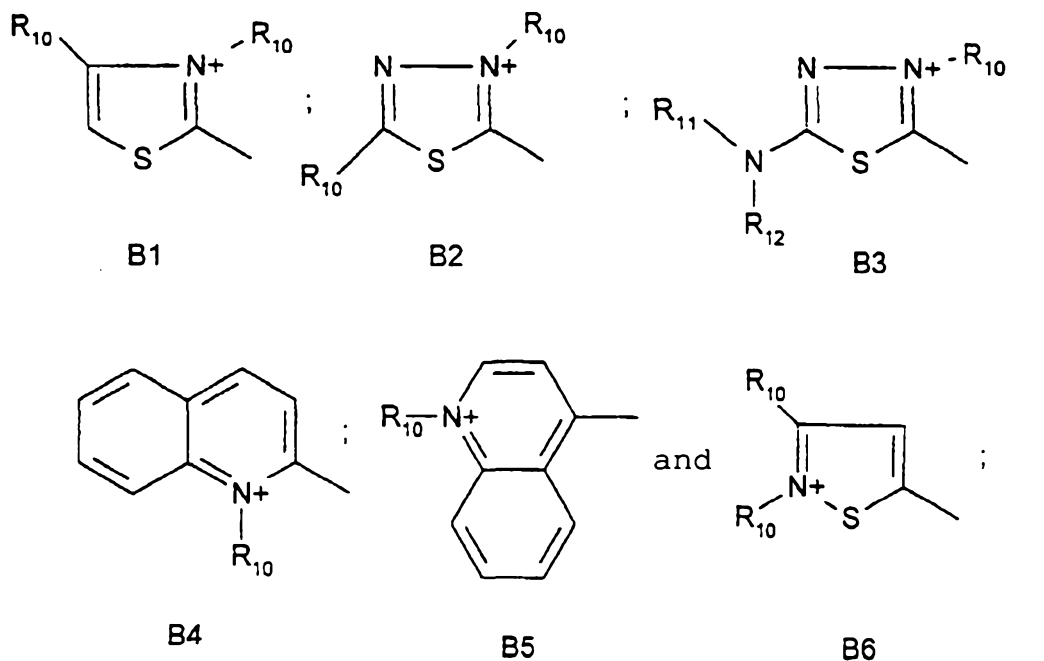
 R₇ represents a hydrogen atom, an alkyl radical which may be substituted with a -CN radical or with an amino group, a 4'-aminophenyl radical or forms with R₆ an optionally oxygen-containing and/or nitrogen-
15 containing heterocycle which may be substituted with a C₁-C₄ alkyl radical,

 R₈ and R₉, which are identical or different, represent a hydrogen atom, a halogen atom such as bromine, chlorine, iodine or fluorine, a C₁-C₄ alkyl or
20 C₁-C₄ alkoxy radical, a -CN radical,

 X⁻ represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

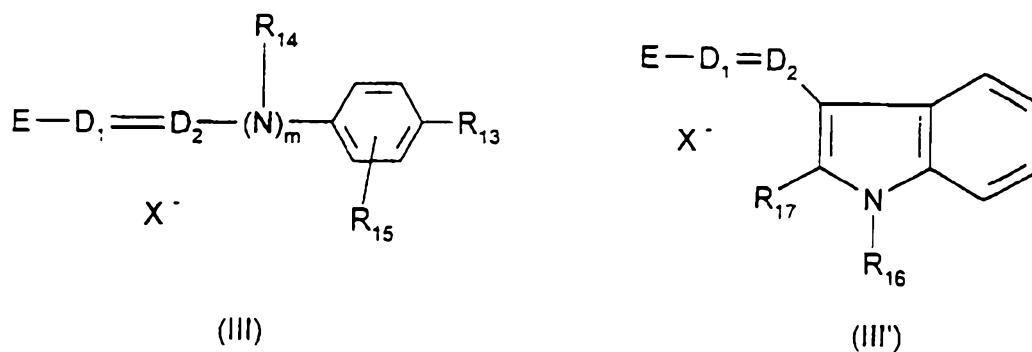
 B represents a group chosen from the following structures B1 to B6:





in which R_{10} represents a C_1 - C_4 alkyl radical, R_{11} and R_{12} , which are identical or different, represent a hydrogen atom or a C_1 - C_4 alkyl radical;

5 c) the compounds of the following formulae
(III) and (III'):



in which:

10 R_{13} represents a hydrogen atom, a C_1 - C_4 alkoxy radical, a halogen atom such as bromine, chlorine, iodine or fluorine or an amino radical,



R_{14} represents a hydrogen atom, a C_1 - C_4 alkyl radical or forms with a carbon atom of the benzene ring a heterocycle which is optionally oxygen-containing and/or substituted with one or more C_1 - C_4 alkyl groups,

5 R_{15} represents a hydrogen or halogen atom such as bromine, chlorine, iodine or fluorine,

R_{16} and R_{17} , which are identical or different, represent a hydrogen atom or a C_1 - C_4 alkyl radical,

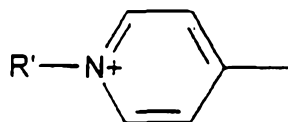
D_1 and D_2 , which are identical or different,
10 represent a nitrogen atom or the $-CH$ group,

$m = 0$ or 1 ,

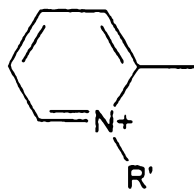
it being understood that when R_{13} represents an unsubstituted amino group, then D_1 and D_2 simultaneously represent a $-CH$ group and $m = 0$,

15 X^- represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

E represents a group chosen from the following structures E1 to E8:



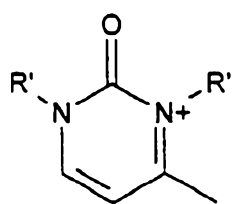
E1



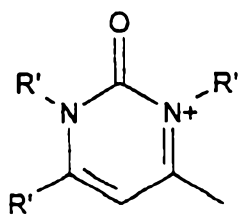
E2

20

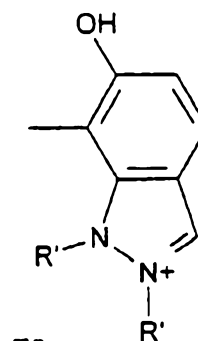




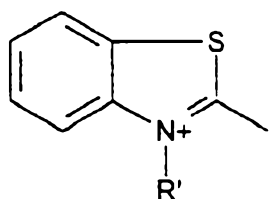
E3



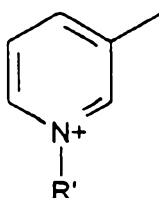
E4



E5

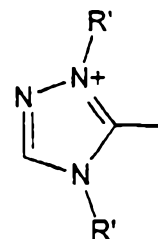


E6



E7

and



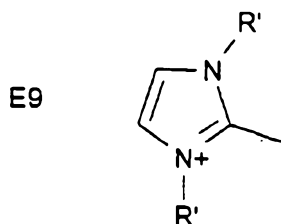
E8

in which R' represents a C₁-C₄ alkyl radical;

when m = 0 and D₁ represents a nitrogen atom,

then E may also denote a group having the following

5 structure E9:



E9

in which R' represents a C₁-C₄ alkyl radical,

d) the compounds of the following formula

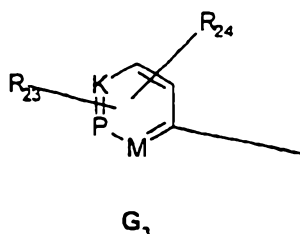
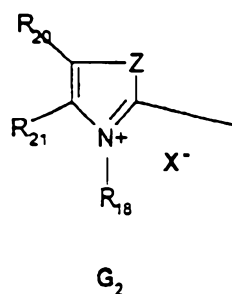
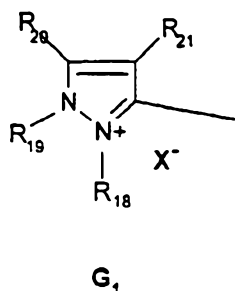
10 (IV):



in which:

the symbol G represents a group chosen from the following structures G₁ to G₃:





in which structures G_1 to G_3 ,

R_{18} denotes a C_1 - C_4 alkyl radical, a phenyl radical which
 5 may be substituted with a C_1 - C_4 alkyl radical or a
 halogen atom chosen from chlorine, bromine, iodine and
 fluorine;

R_{19} denotes a C_1 - C_4 alkyl radical or a phenyl radical;

R_{20} and R_{21} , which are identical or different, represent
 10 a C_1 - C_4 alkyl radical, a phenyl radical, or form
 together in G_1 a benzene ring which is substituted with
 one or more C_1 - C_4 alkyl, C_1 - C_4 alkoxy or NO_2 radicals, or
 form together in G_2 a benzene ring which is optionally
 substituted with one or more C_1 - C_4 alkyl, C_1 - C_4 alkoxy or
 15 NO_2 radicals;

R_{20} may denote, in addition, a hydrogen atom;

Z denotes an oxygen or sulphur atom or an $-NR_{19}$ group;

M represents a group $-CH$, $-CR$ (R denoting C_1 - C_4 alkyl),
 or $-NR_{22}(X^-)_r$;



K represents a group $-\text{CH}$, $-\text{CR}$ (R denoting $\text{C}_1\text{-C}_4$ alkyl), or $-\text{NR}_{22}(\text{X}^-)_r$;

P represents a group $-\text{CH}$, $-\text{CR}$ (R denoting $\text{C}_1\text{-C}_4$ alkyl), or $-\text{NR}_{22}(\text{X}^-)_r$; r denotes zero or 1;

5 R_{22} represents an O^- atom, a $\text{C}_1\text{-C}_4$ alkoxy radical or a $\text{C}_1\text{-C}_4$ alkyl radical;

R_{23} and R_{24} , which are identical or different, represent a hydrogen or halogen atom chosen from chlorine, bromine, iodine and fluorine, a $\text{C}_1\text{-C}_4$ alkyl radical, a

10 $\text{C}_1\text{-C}_4$ alkoxy radical or an $-\text{NO}_2$ radical;

X^- represents an anion which is preferably chosen from chloride, iodide, methylsulphate, ethylsulphate, acetate and perchlorate;

with the proviso that

15 if R_{22} denotes O^- , then r denotes zero;

if K or P or M denote $-\text{N}-(\text{C}_1\text{-C}_4 \text{ alkyl})\text{X}^-$, then R_{23} or R_{24} is different from a hydrogen atom;

if K denotes $-\text{NR}_{22}(\text{X}^-)_r$, then $\text{M} = \text{P} = -\text{CH}$, $-\text{CR}$;

if M denotes $-\text{NR}_{22}(\text{X}^-)_r$, then $\text{K} = \text{P} = -\text{CH}$, $-\text{CR}$;

20 if P denotes $-\text{NR}_{22}(\text{X}^-)_r$, then $\text{K} = \text{M}$ and denote $-\text{CH}$ or $-\text{CR}$;

if Z denotes a sulphur atom with R_{21} denoting $\text{C}_1\text{-C}_4$ alkyl, then R_{20} is different from a hydrogen atom;

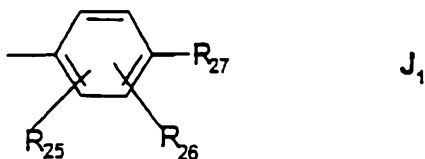
if Z denotes $-\text{NR}_{22}$ with R_{19} denoting $\text{C}_1\text{-C}_4$ alkyl, then at

25 least one of the R_{18} , R_{20} or R_{21} radicals of the group having the structure G_2 is different from a $\text{C}_1\text{-C}_4$ alkyl radical;

the symbol J represents:



-(a) a group having the following structure J₁:



in which structure J₁,

- 5 R₂₅ represents a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical, a radical -OH, -NO₂, -NHR₂₈, -NR₂₉R₃₀, -NHCO(C₁-C₄alkyl), or forms with R₂₆ a 5- or 6-membered ring containing or otherwise one
10 or more heteroatoms chosen from nitrogen, oxygen or sulphur;

- R₂₆ represents a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C₁-C₄ alkyl or C₁-C₄ alkoxy radical, or forms with R₂₇ or R₂₈ a
15 5- or 6-membered ring containing or otherwise one or more heteroatoms chosen from nitrogen, oxygen or sulphur;

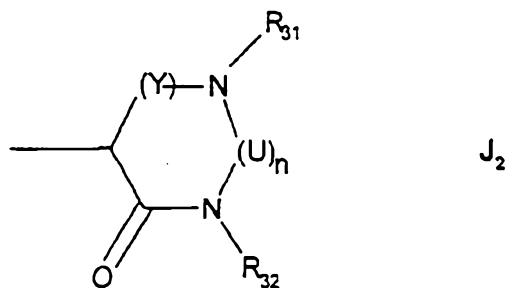
R₂₇ represents a hydrogen atom, an -OH radical, an -NHR₂₈ radical, an -NR₂₉R₃₀ radical;

- 20 R₂₈ represents a hydrogen atom, a C₁-C₄ alkyl radical, a C₁-C₄ monohydroxyalkyl radical, a C₂-C₄ polyhydroxyalkyl radical, a phenyl radical;

- R₂₉ and R₃₀, which are identical or different, represent a C₁-C₄ alkyl radical, a C₁-C₄ monohydroxyalkyl radical,
25 a C₂-C₄ polyhydroxyalkyl radical;



-(b) a 5- or 6- membered nitrogen-containing heterocycle group which is capable of containing other heteroatoms and/or carbonyl-containing groups and which may be substituted with one or more C₁-C₄ alkyl, amino
 5 or phenyl radicals,
 and in particular a group having the following structure J₂:



in which structure J₂,

10 R₃₁ and R₃₂, which are identical or different, represent
 a hydrogen atom, a C₁-C₄ alkyl radical, a phenyl
 radical;

Y denotes the -CO- radical or the radical $\text{—}\overset{\text{CH}_3}{\underset{|}{\text{C}}}=\text{}$;

n = 0 or 1, with, when n denotes 1, U denotes the -CO-
 15 radical.

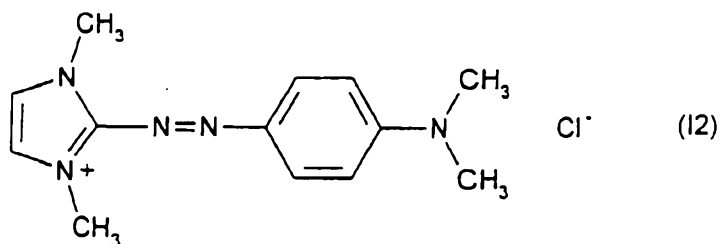
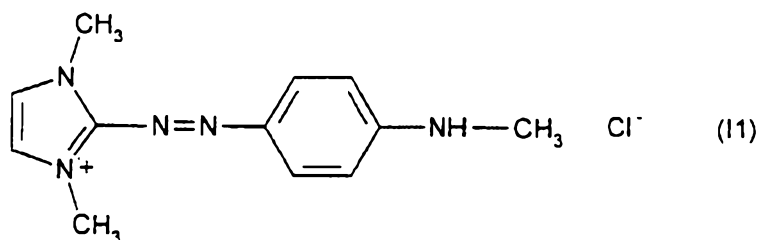
In the structures (I) to (IV) defined above,
 the C₁-C₄ alkyl or alkoxy group preferably denotes
 methyl, ethyl, butyl, methoxy or ethoxy.

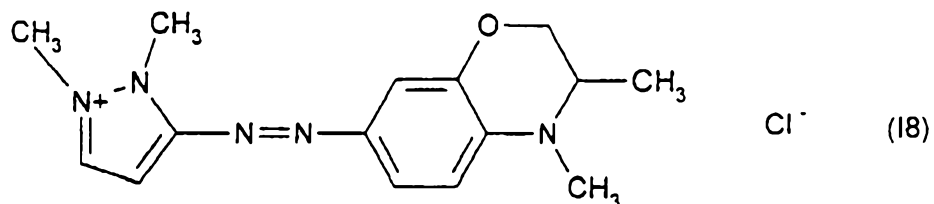
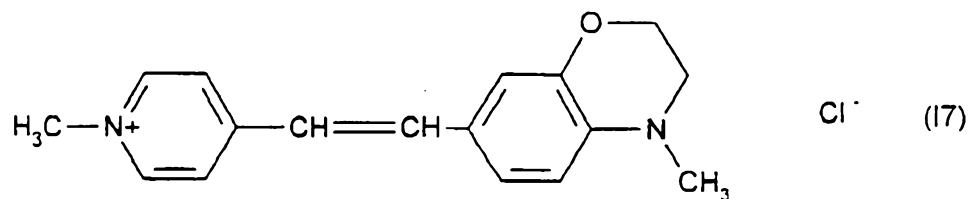
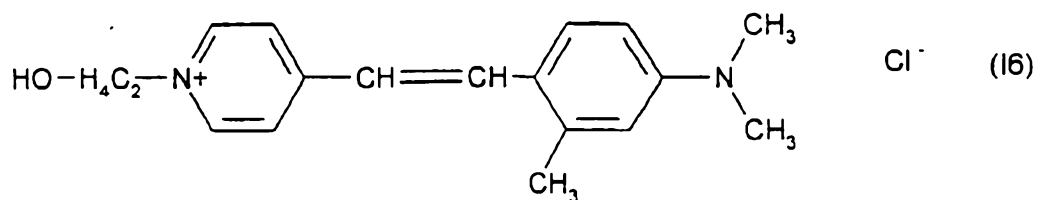
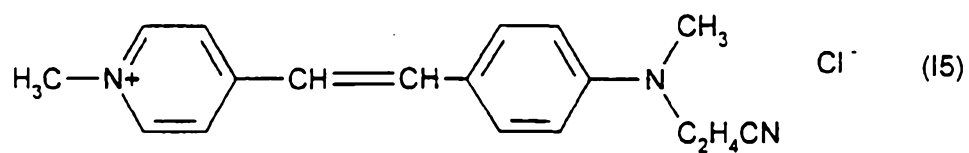
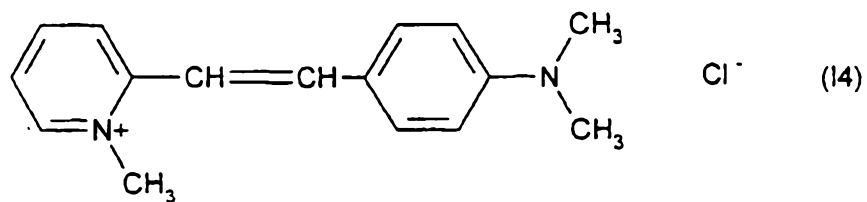
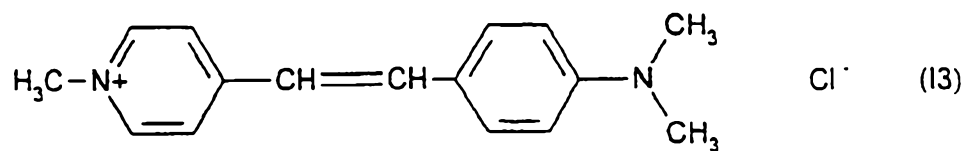
The cationic direct dyes of formulae (I),
 20 (II), (III) and (III') which can be used in the dyeing
 compositions in accordance with the invention are known
 compounds which are described, for example, in patent
 applications WO 95/01772, WO 95/15144 and

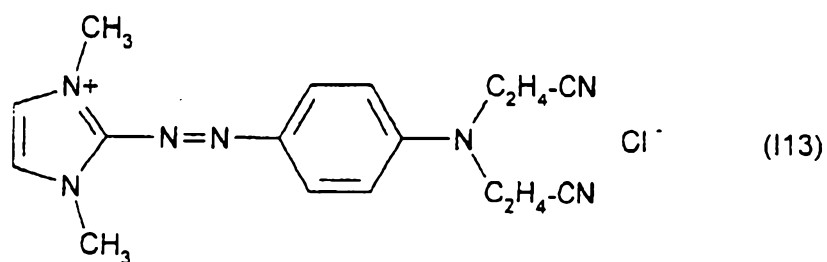
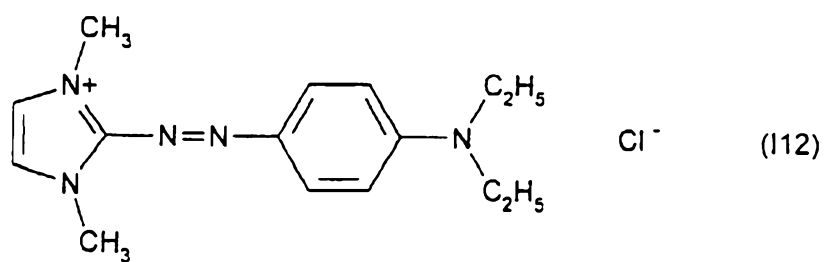
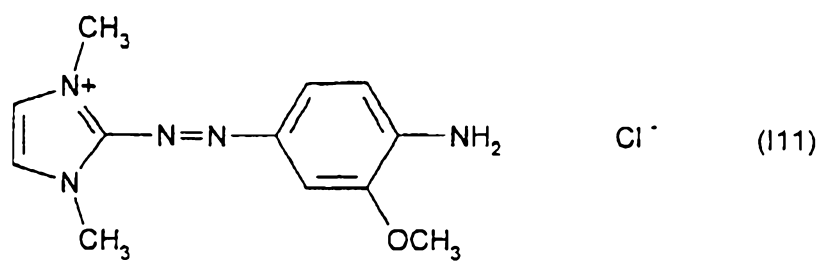
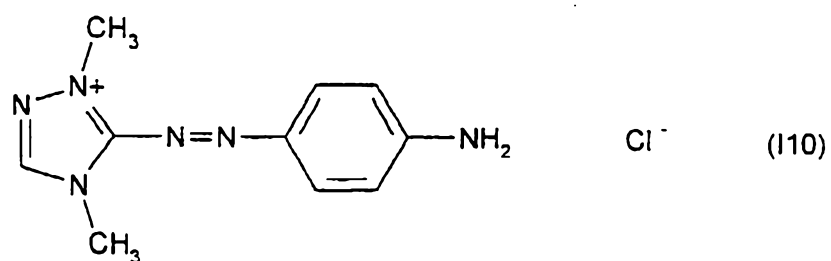
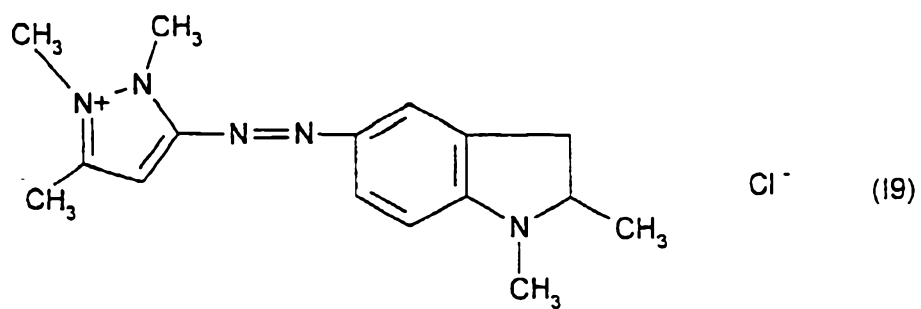


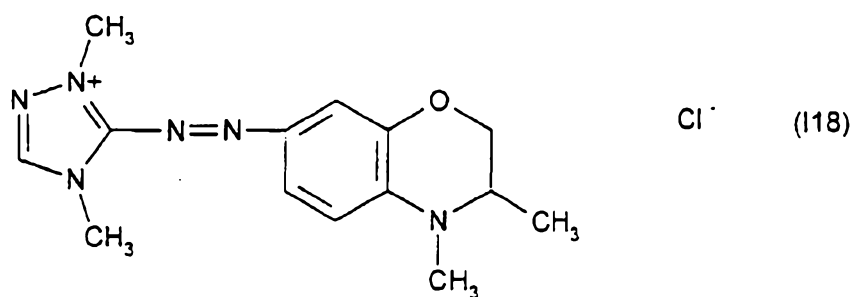
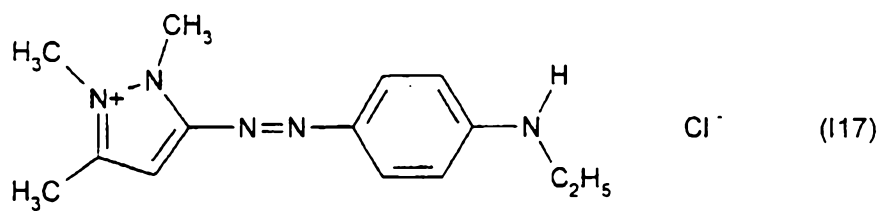
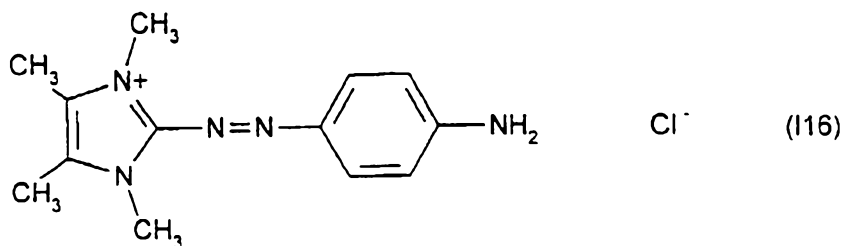
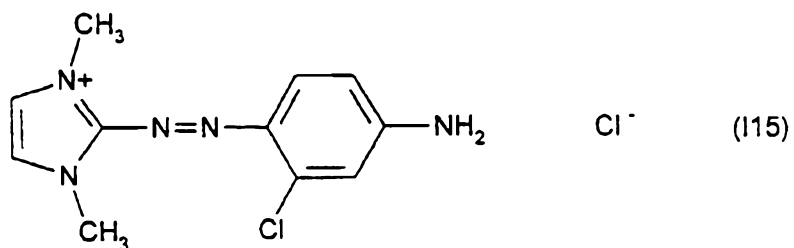
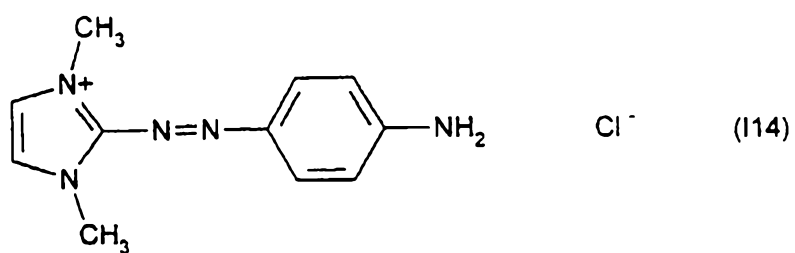
EP-A-0,714,954. Those of formula (IV) which can be used in the dyeing compositions in accordance with the invention are known compounds which are described, for example, in patent applications FR-2,189,006,
 5 FR-2,285,851 and FR-2,140,205 and its certificates of addition.

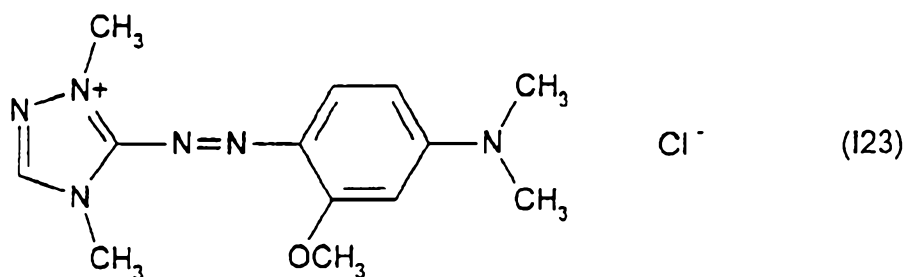
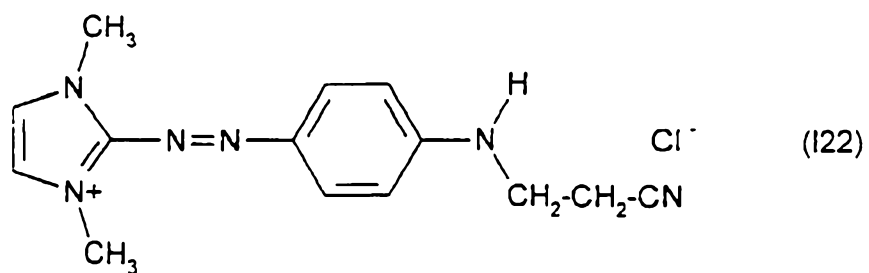
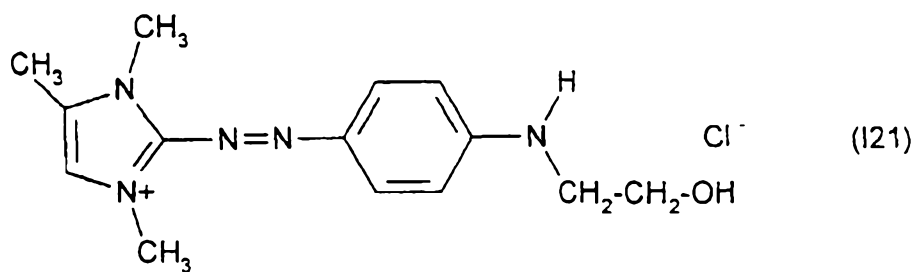
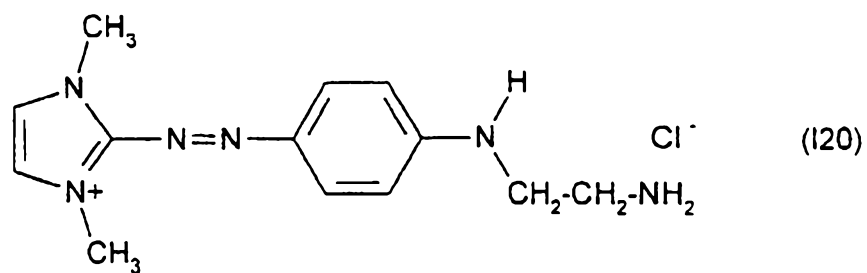
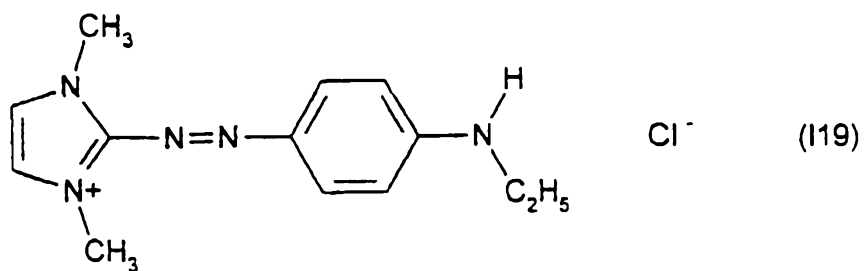
Among the cationic direct dyes of formula (I) which can be used in the dyeing compositions in accordance with the invention, there may be mentioned
 10 more particularly the compounds corresponding to the following structures (I1) to (I54):

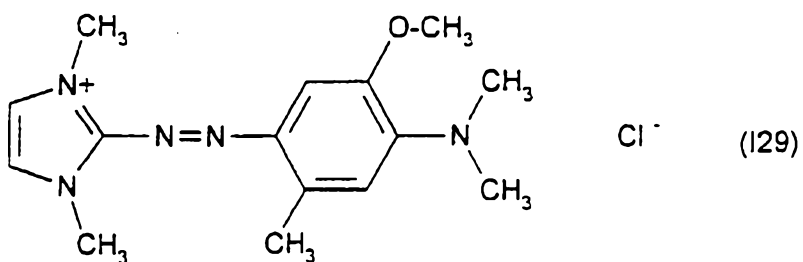
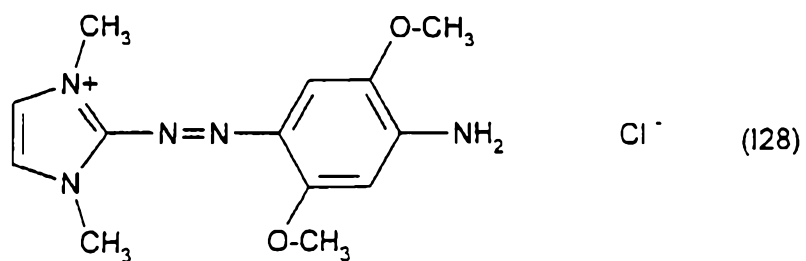
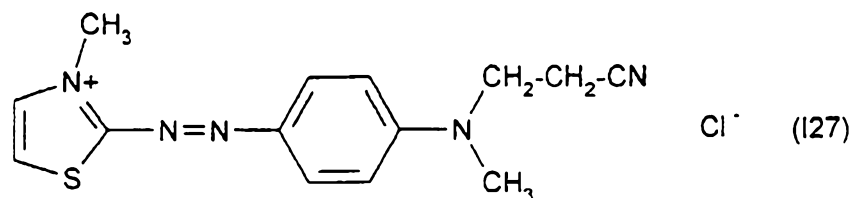
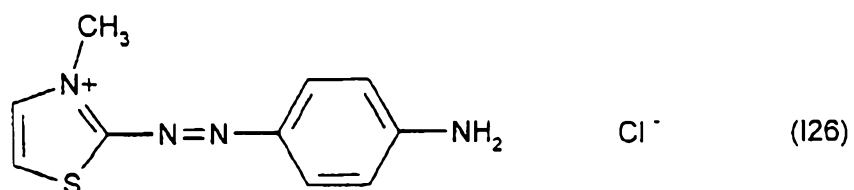
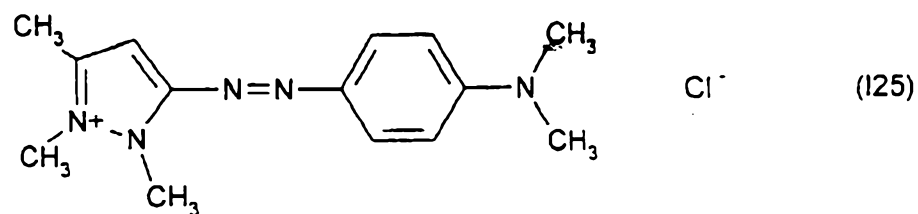
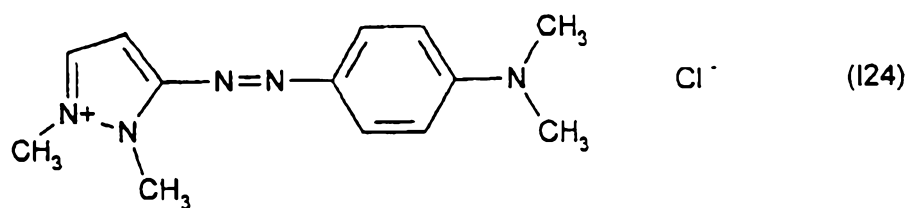


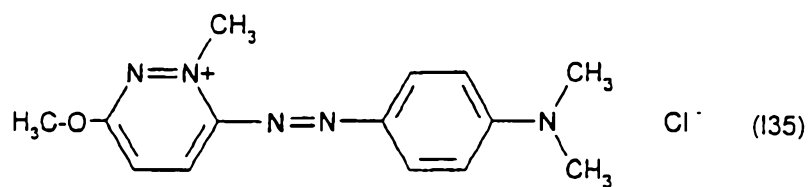
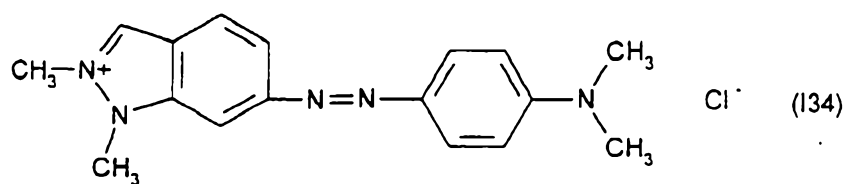
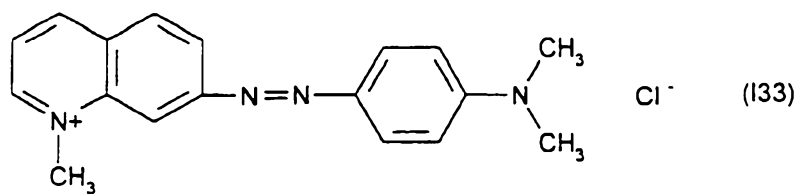
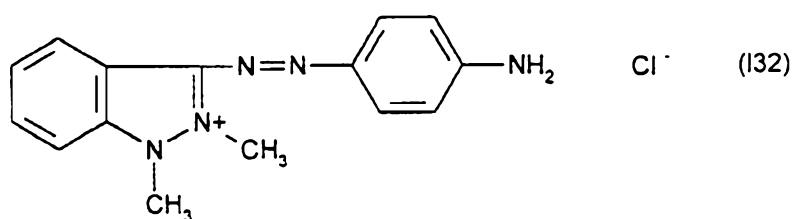
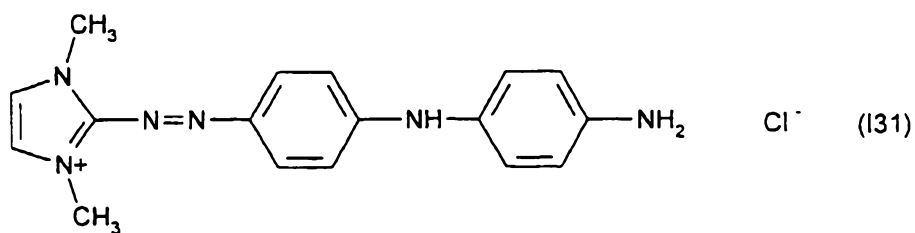
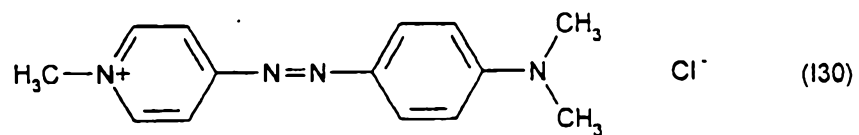


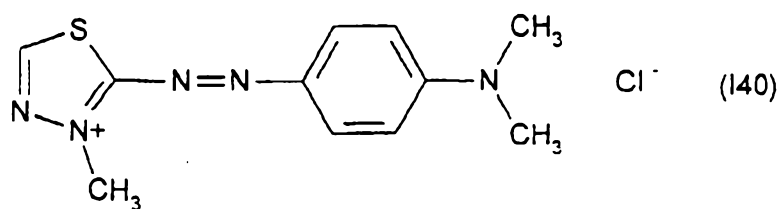
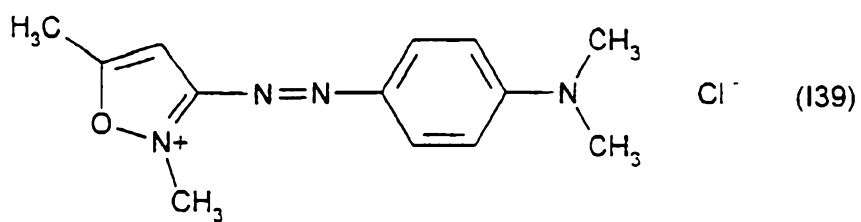
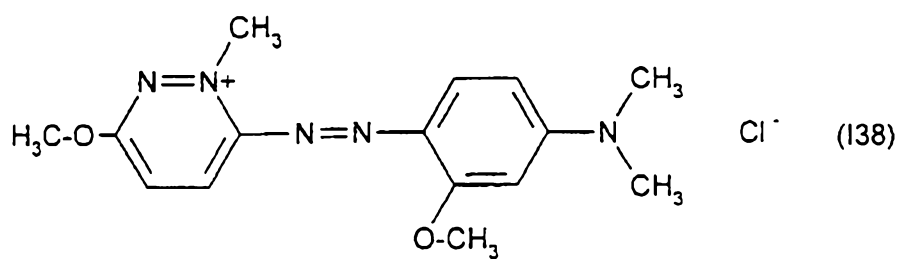
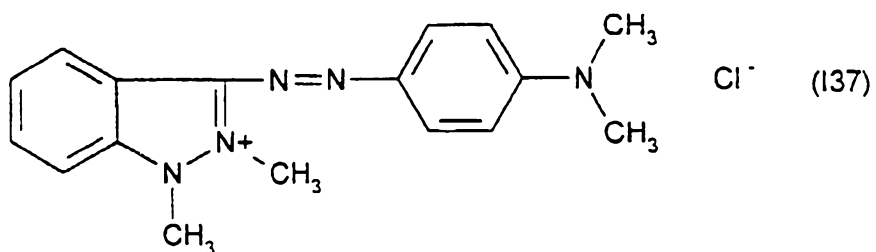
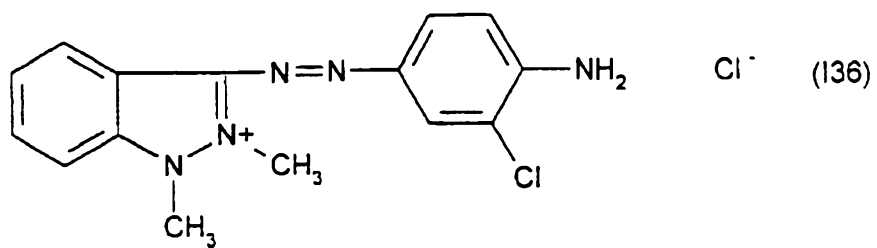


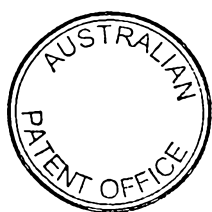
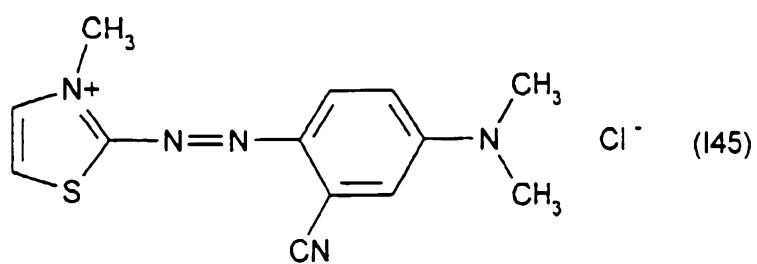
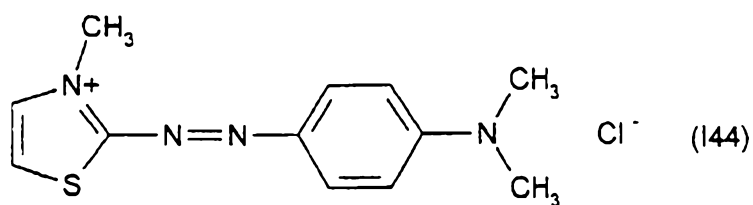
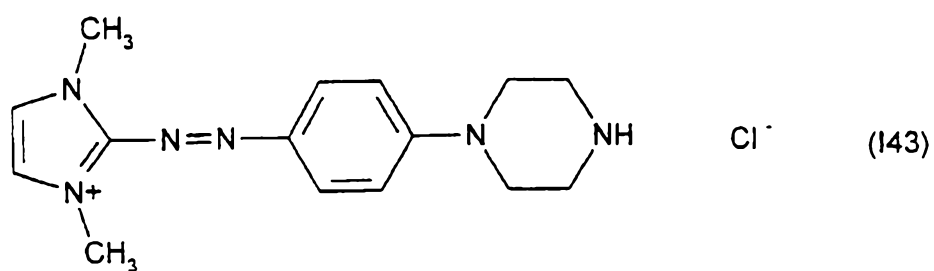
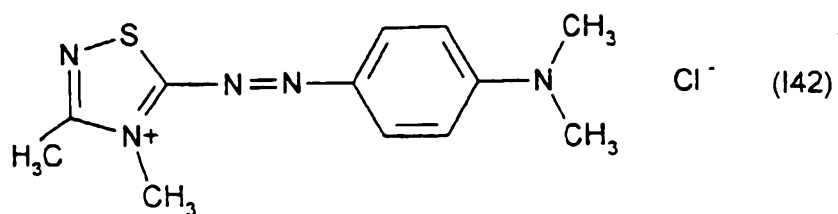
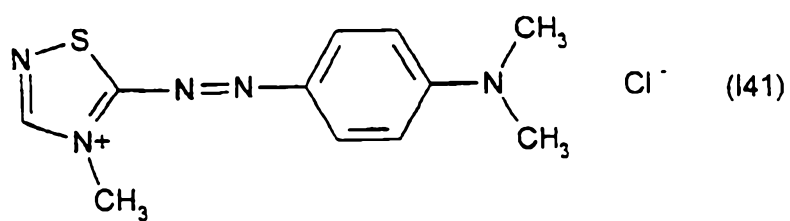


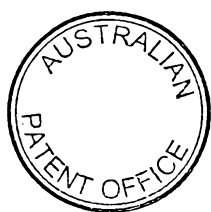
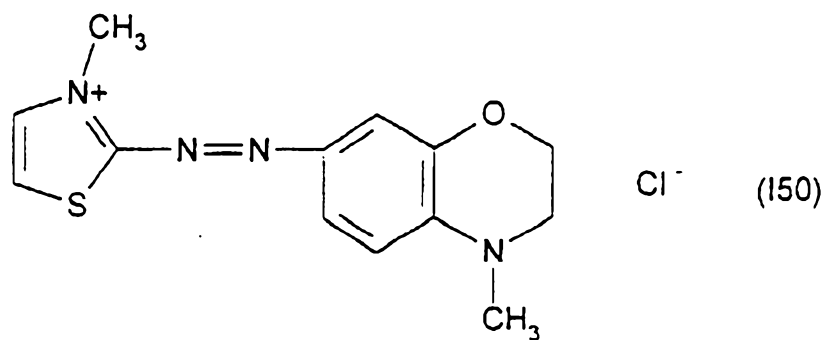
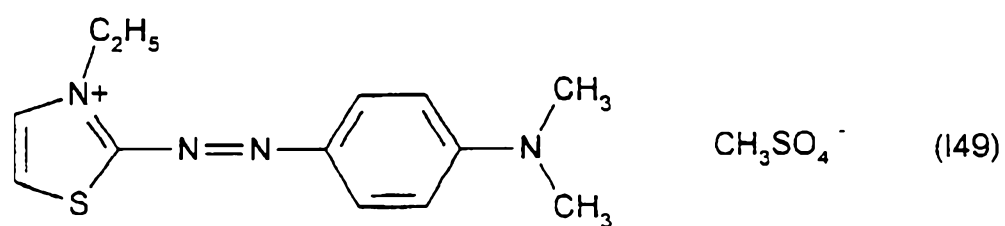
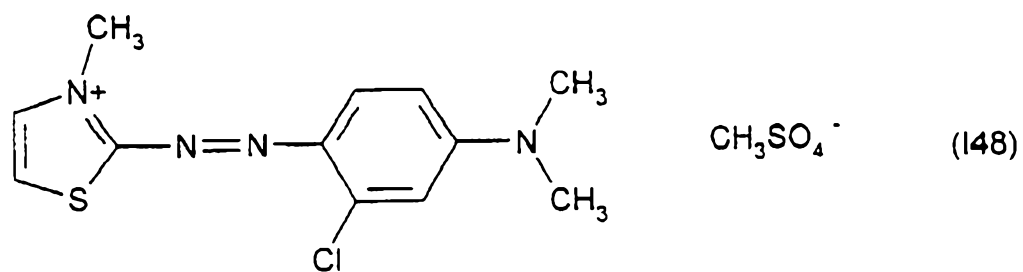
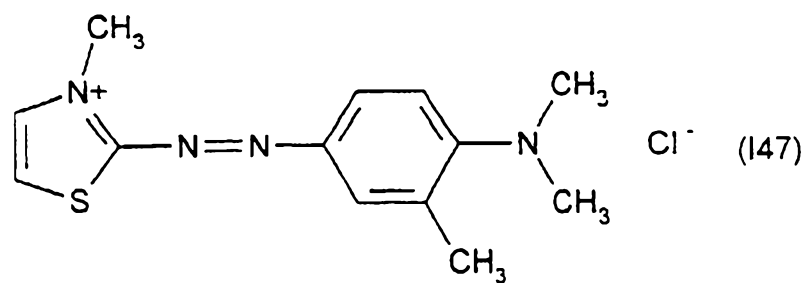
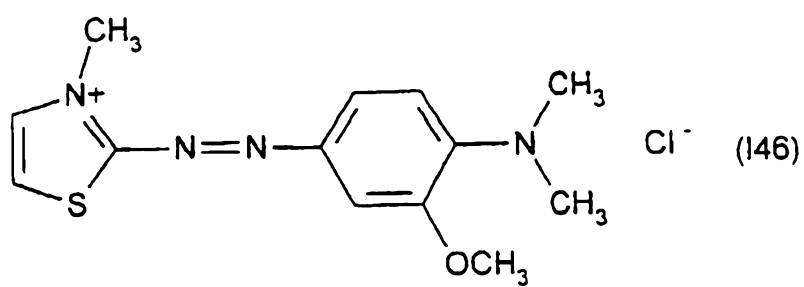


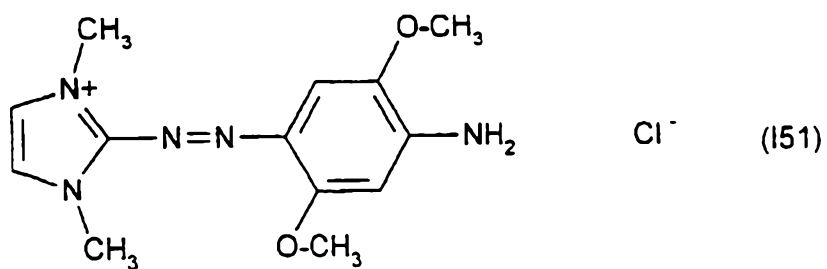




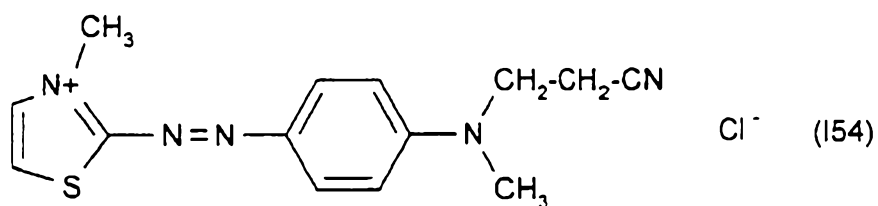
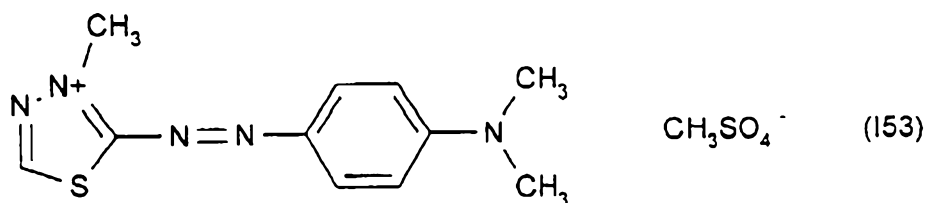
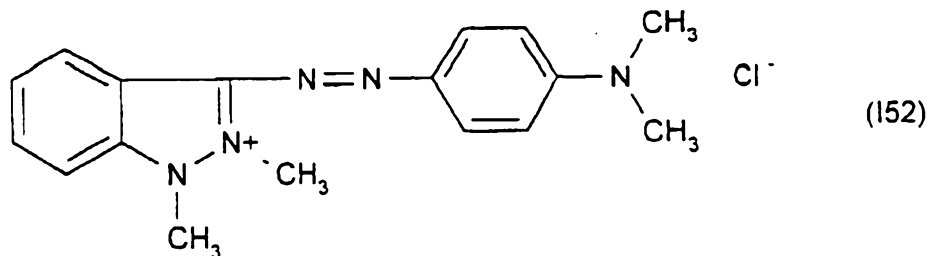








, and

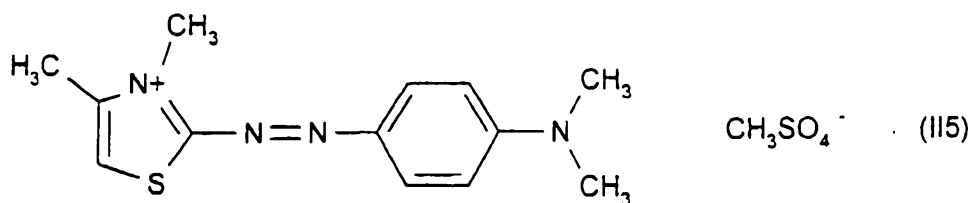
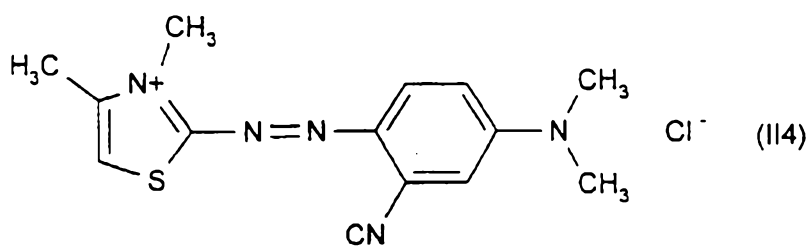
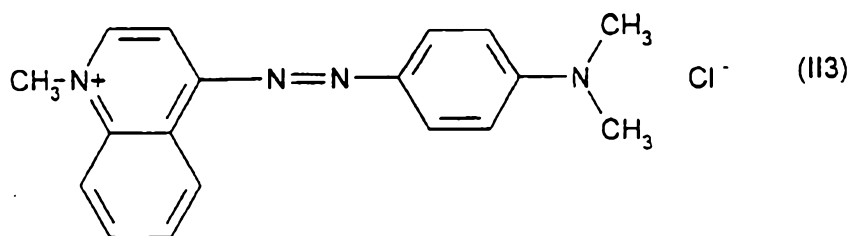
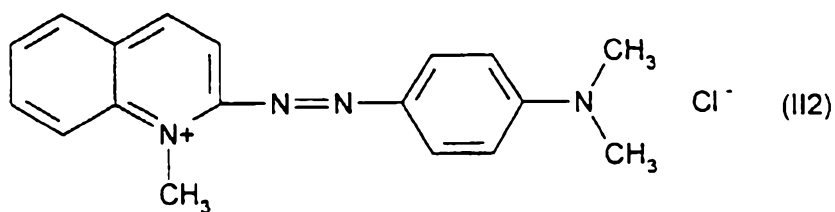
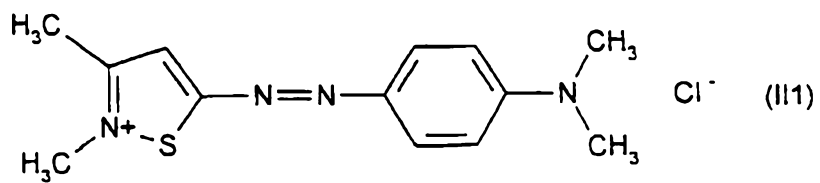


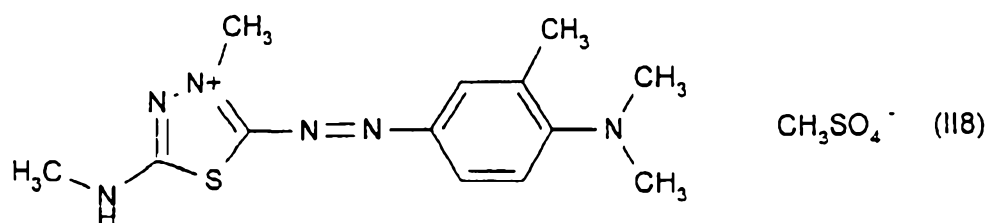
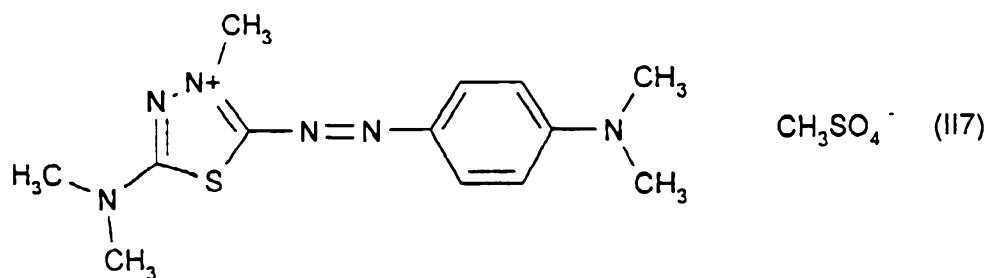
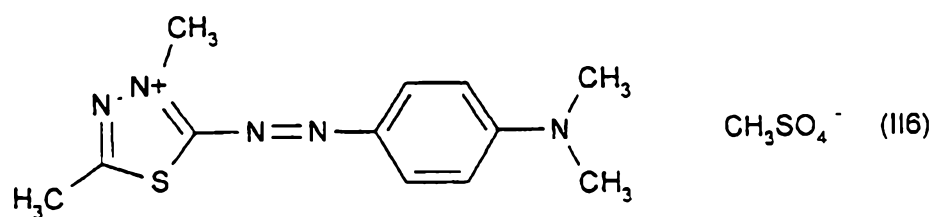
Among the compounds having the structures (I1) to (I54) which are described above, the compounds 5 corresponding to the structures (I1), (I2), (I14) and (I31) are most particularly preferred.

Among the cationic direct dyes of formula (II) which can be used in the dyeing compositions in accordance with the invention, there may be mentioned

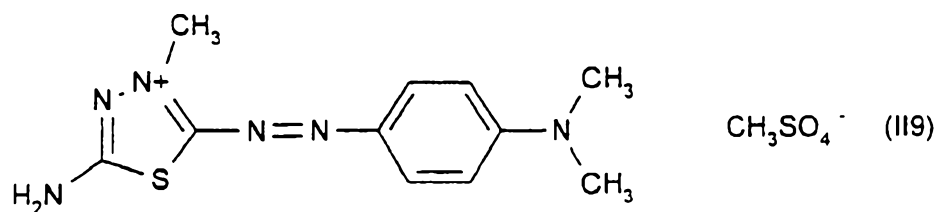


more particularly the compounds corresponding to the following structures (II1) to (II9):

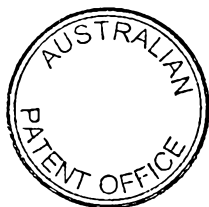


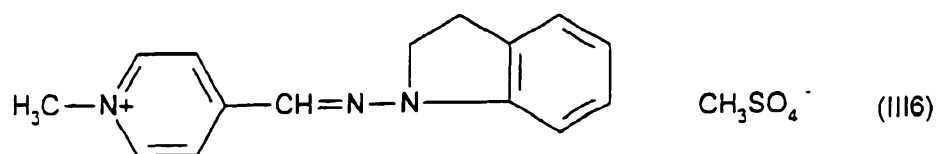
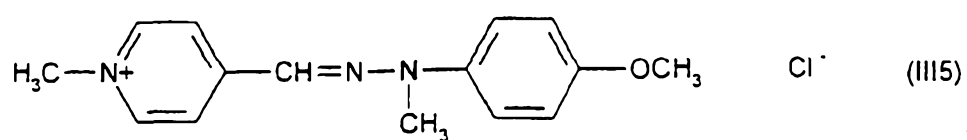
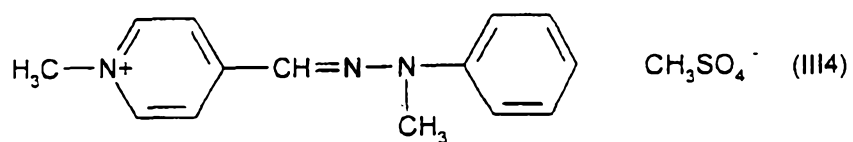
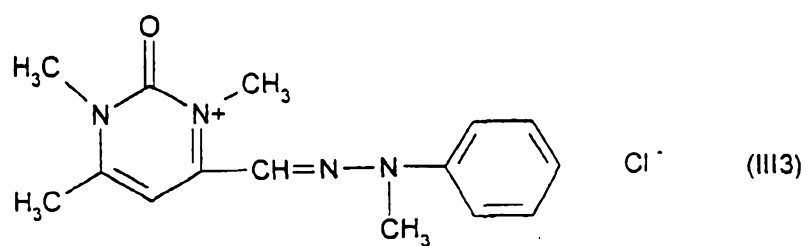
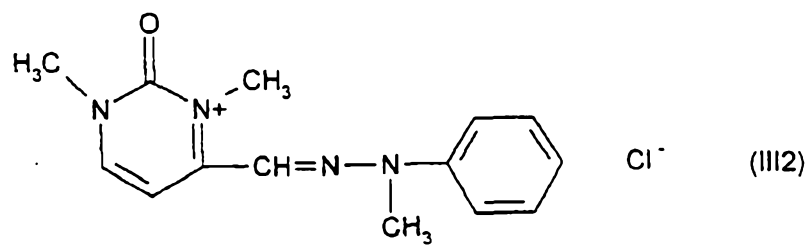
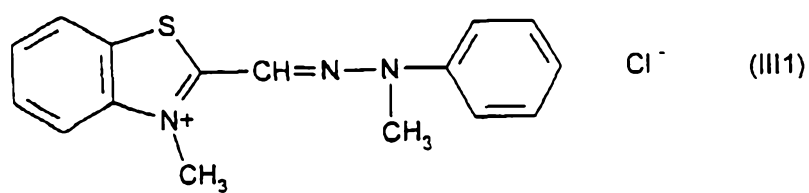


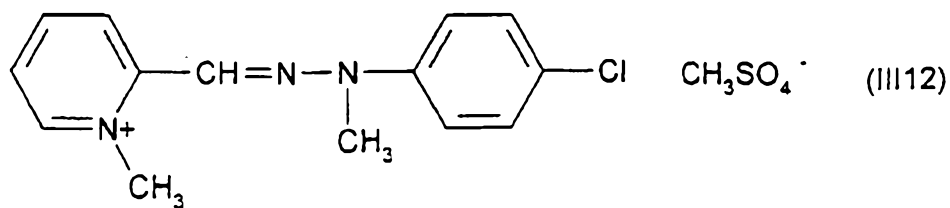
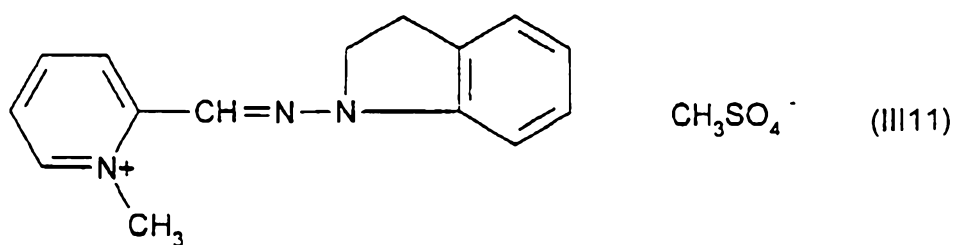
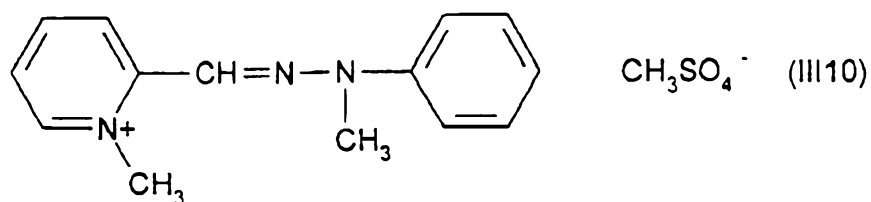
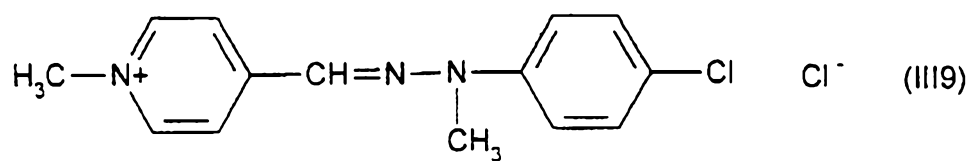
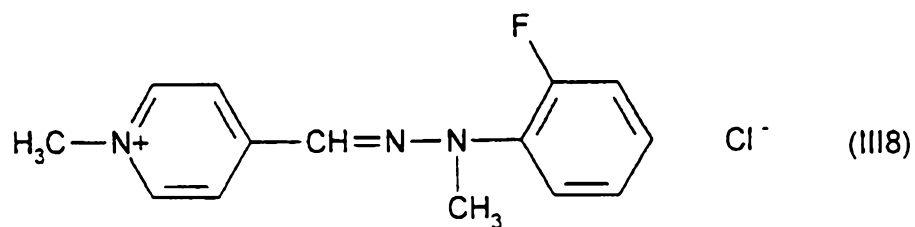
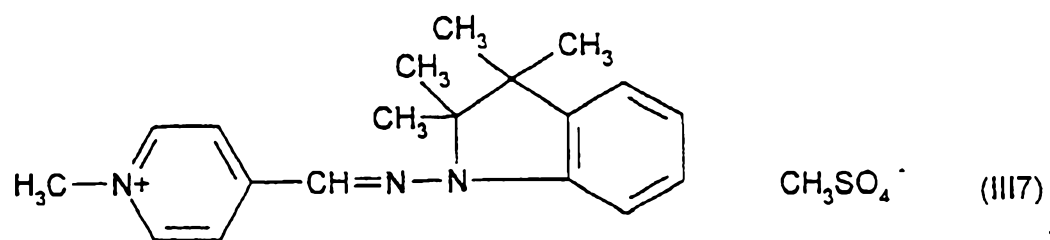
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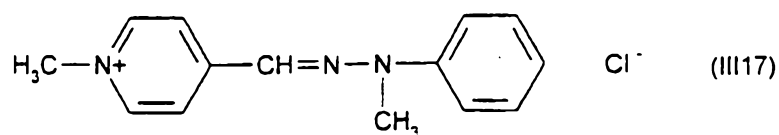
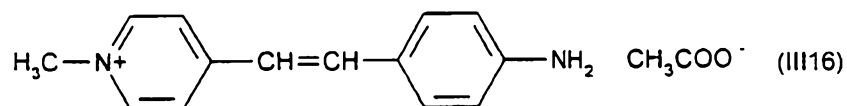
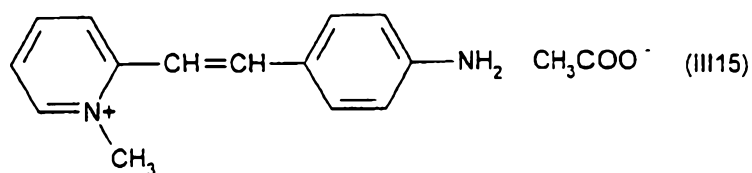
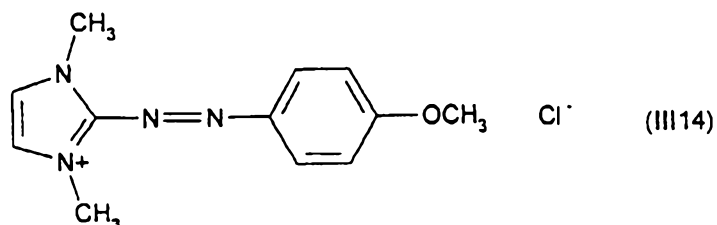
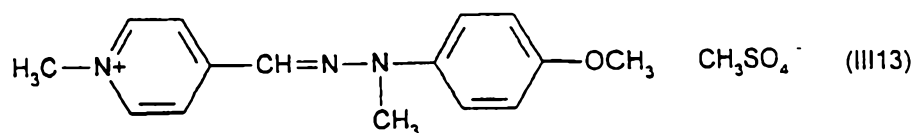


Among the cationic direct dyes of formula (III) which can be used in the dyeing compositions in accordance with the invention, there may be mentioned
 5 more particularly the compounds corresponding to the following structures (III1) to (III18):

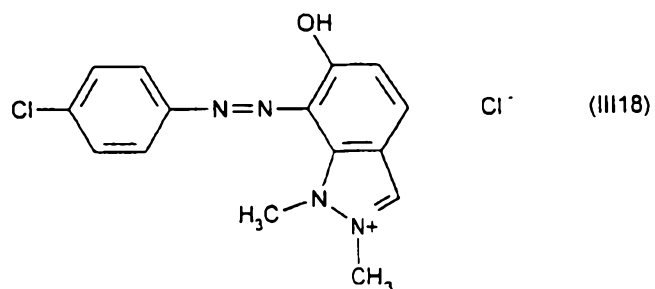








; and

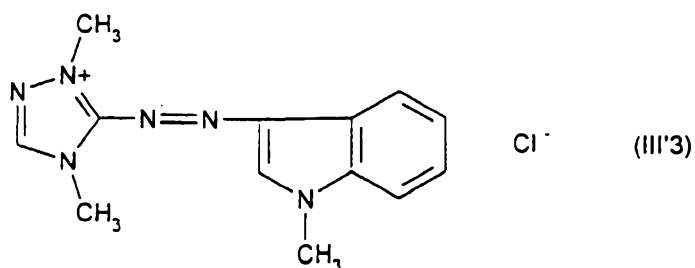
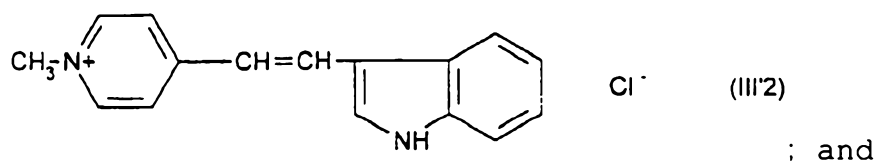
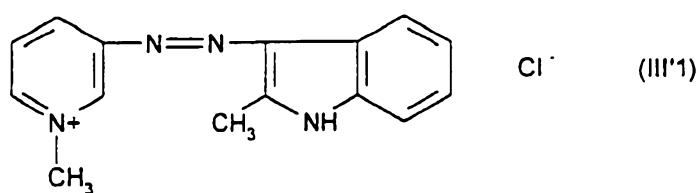


Among the particular compounds having the structures (III1) to (III18) which are described above,



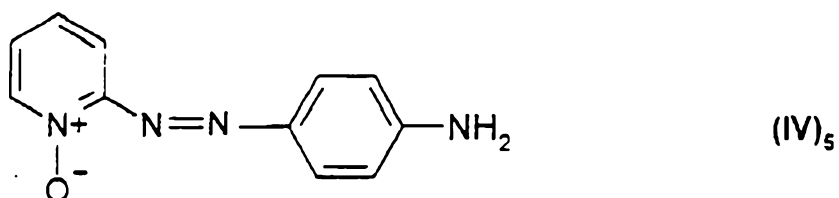
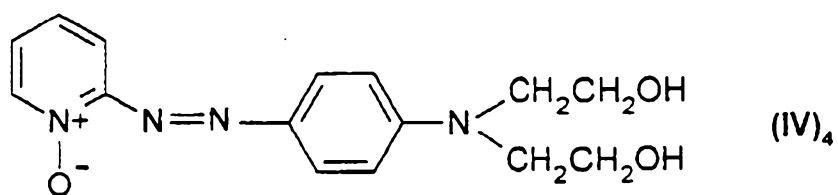
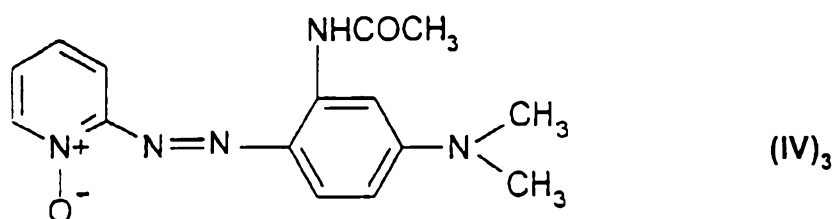
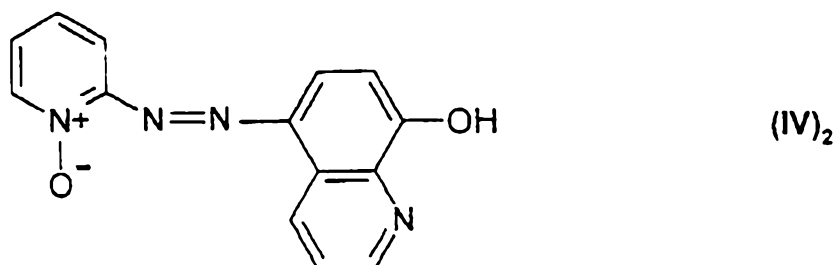
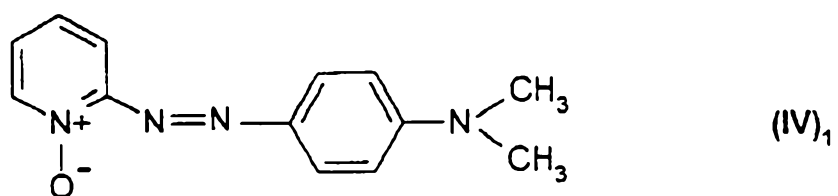
the compounds corresponding to the structures (III4), (III5) and (III13) are most particularly preferred.

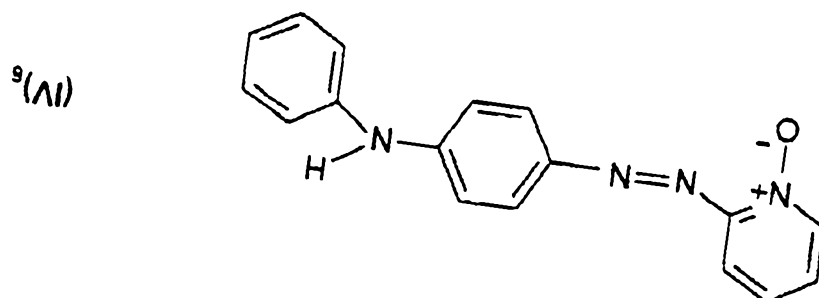
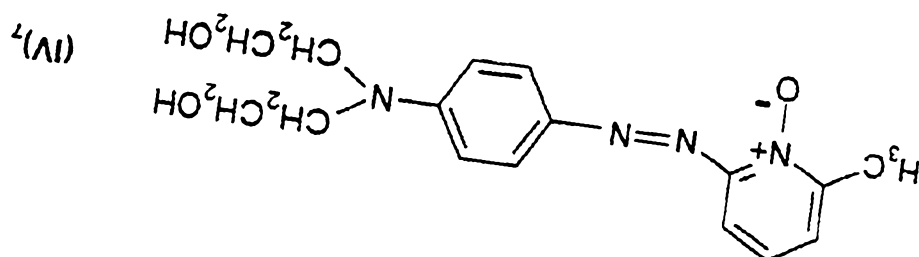
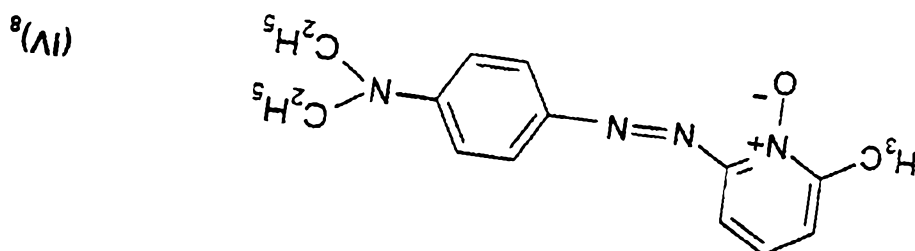
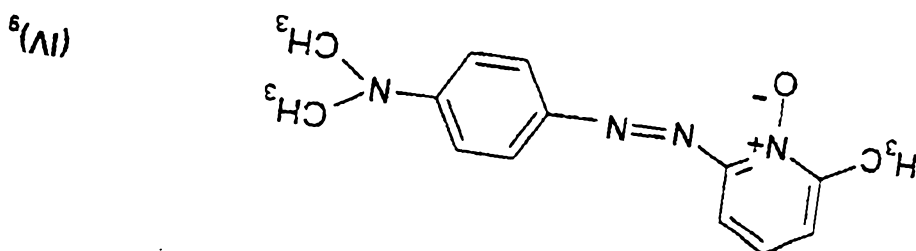
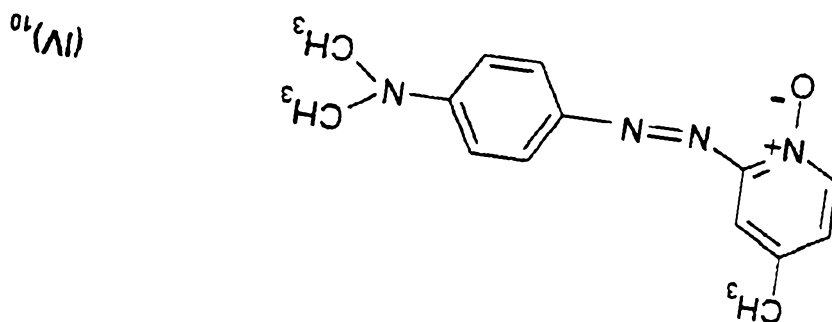
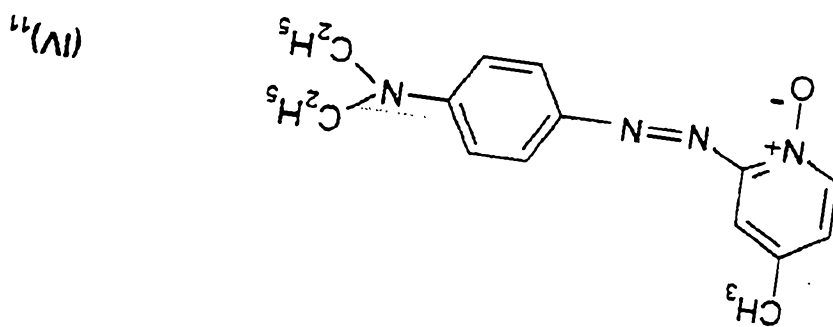
Among the cationic direct dyes of formula (III') which can be used in the dyeing compositions in accordance with the invention, there may be mentioned more particularly the compounds corresponding to the following structures (III'1) to (III'3):

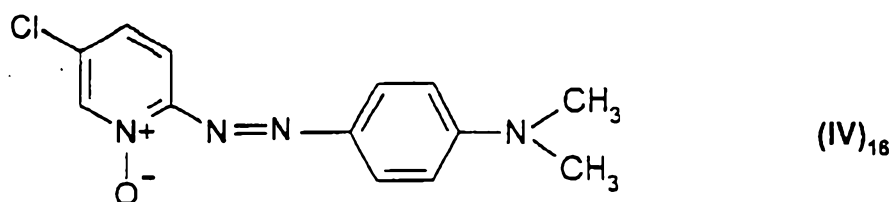
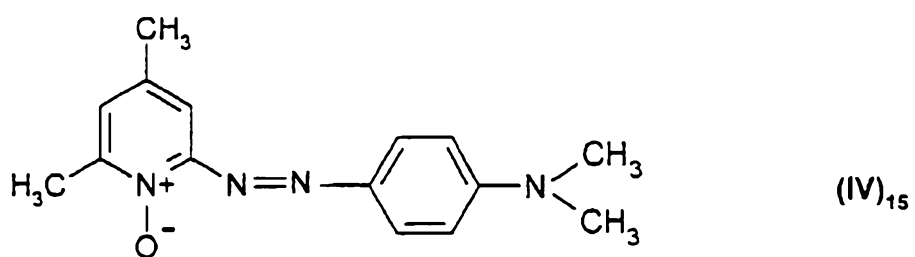
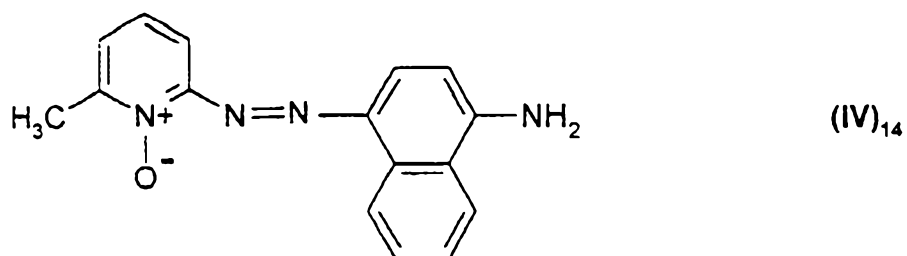
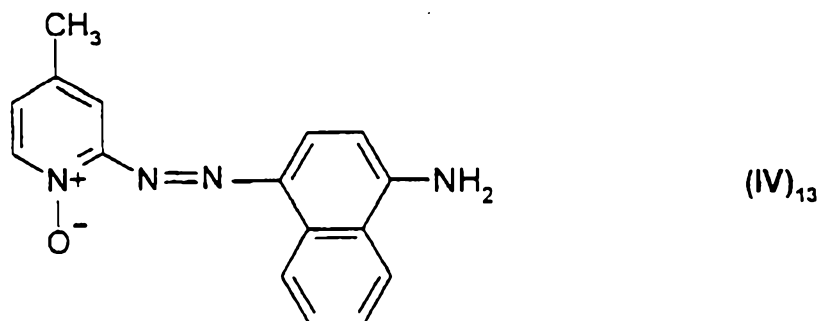
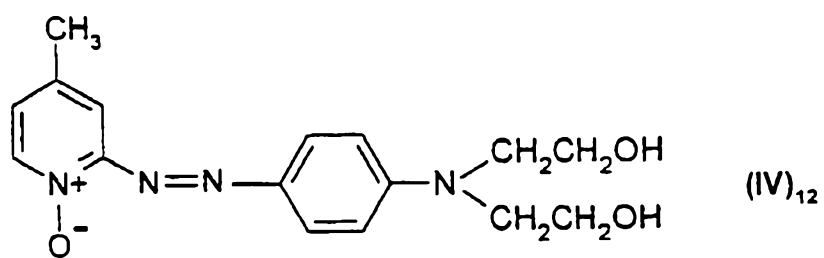


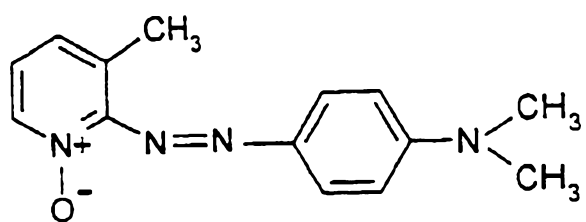
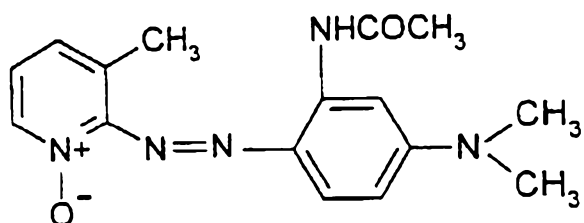
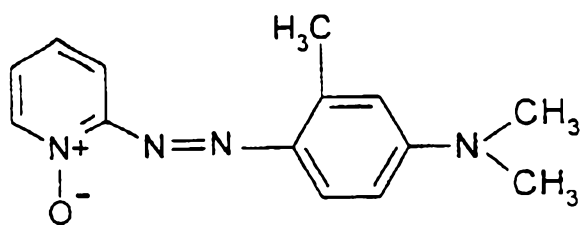
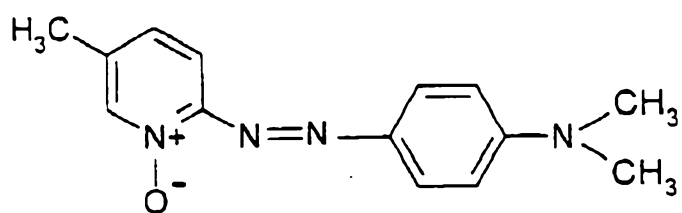
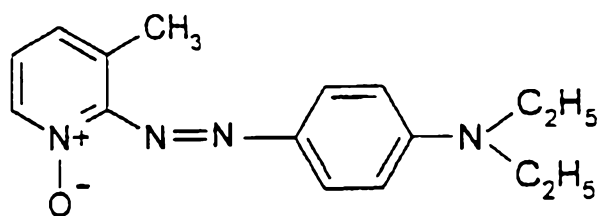
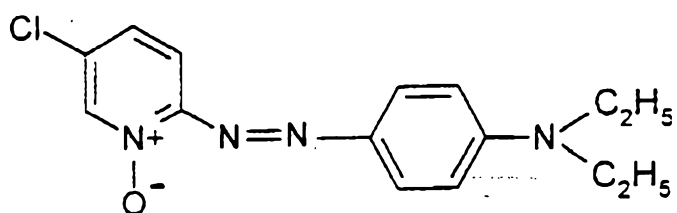
10 Among the cationic direct dyes of formula (IV) which can be used in the dyeing compositions in accordance with the invention, there may be mentioned more particularly the compounds having the following structures (IV)₁ to (IV)₇₇:

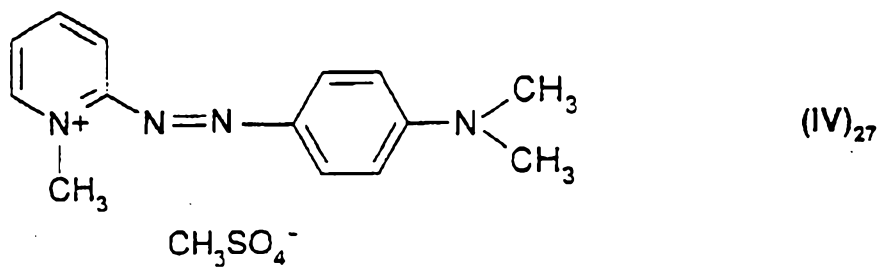
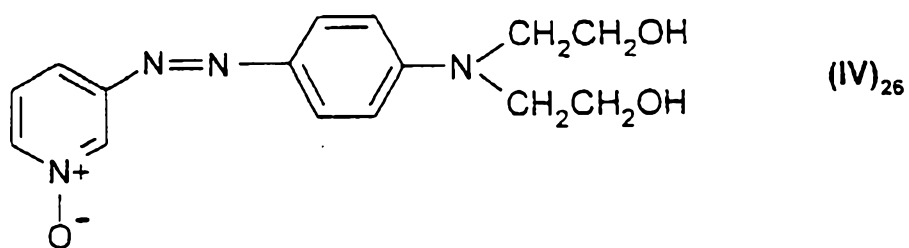
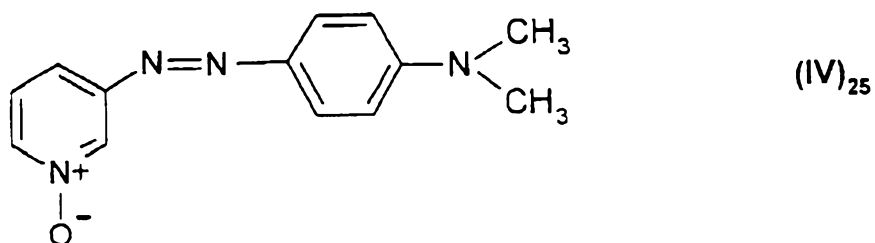
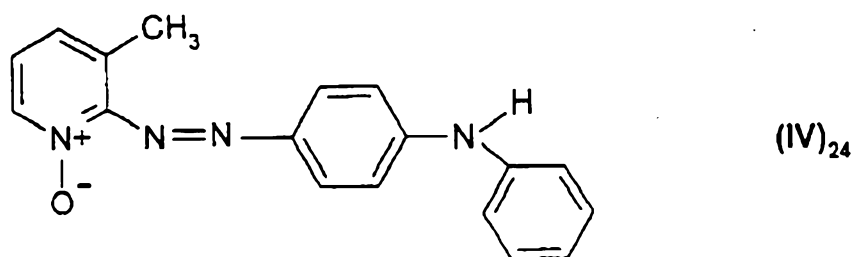
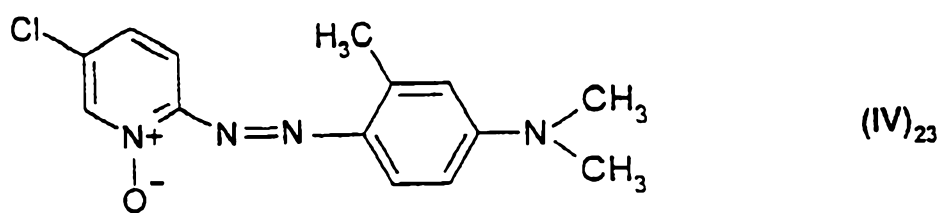


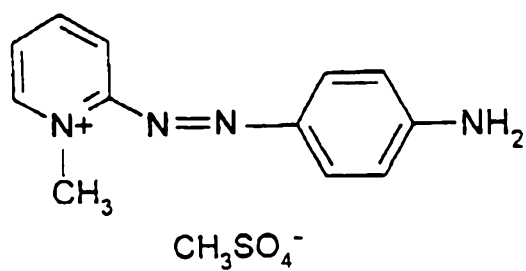
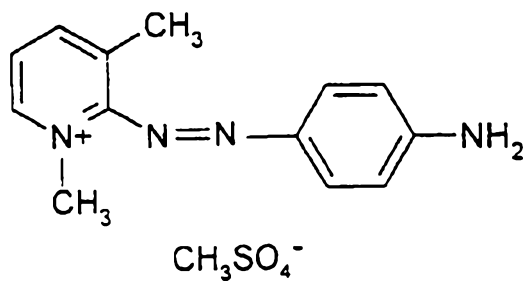
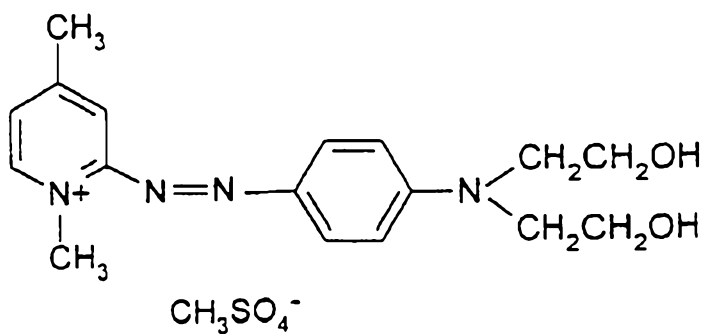
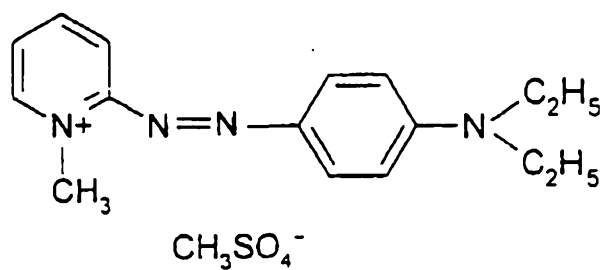
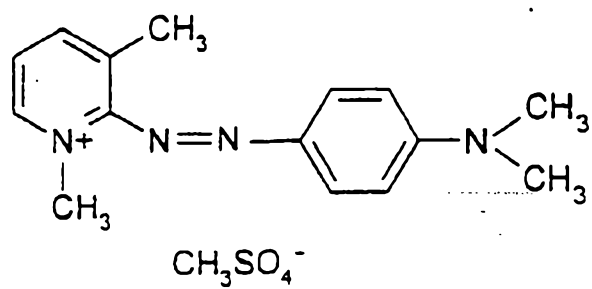


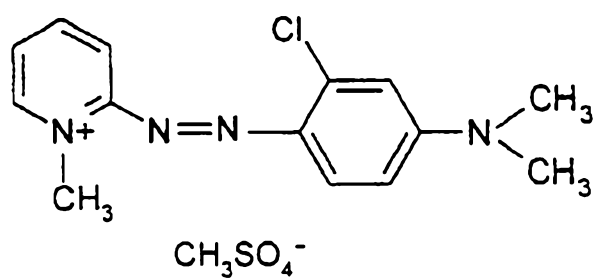
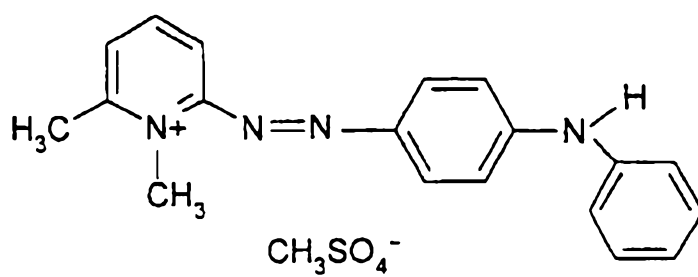
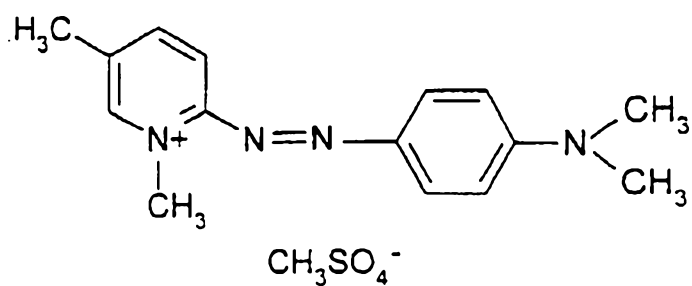
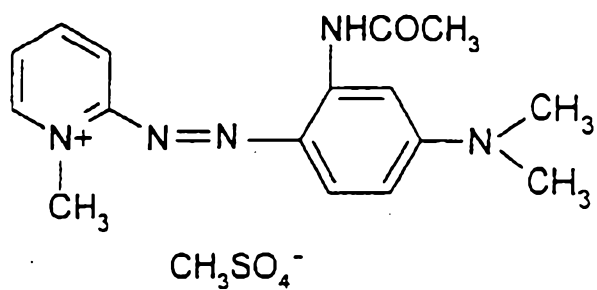


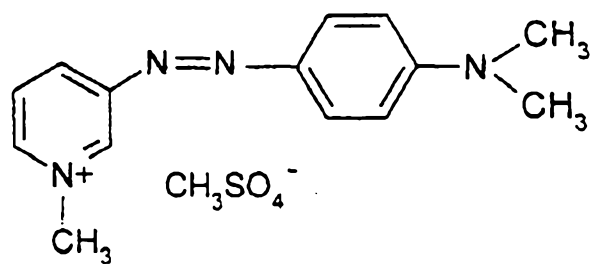
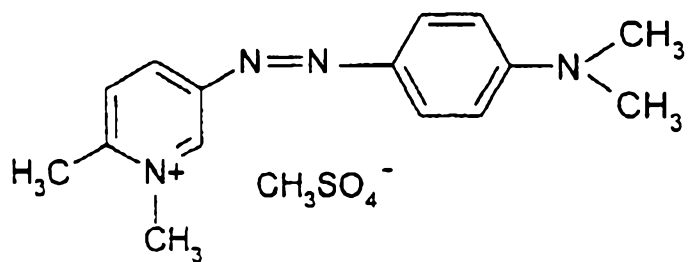
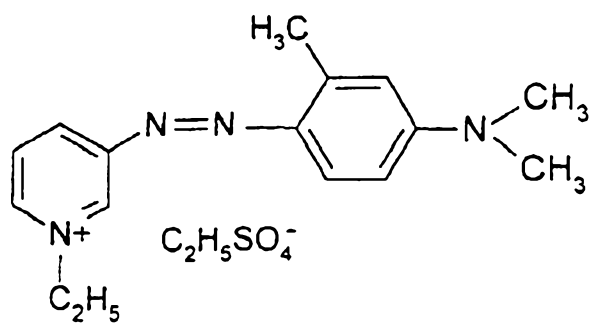
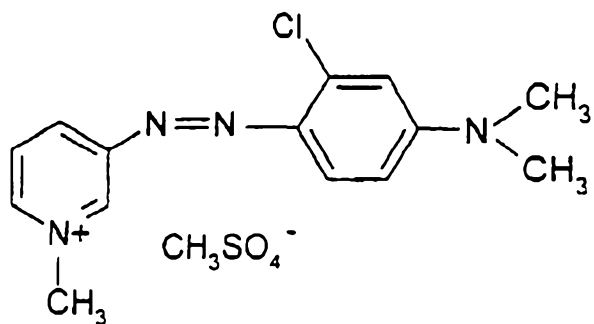


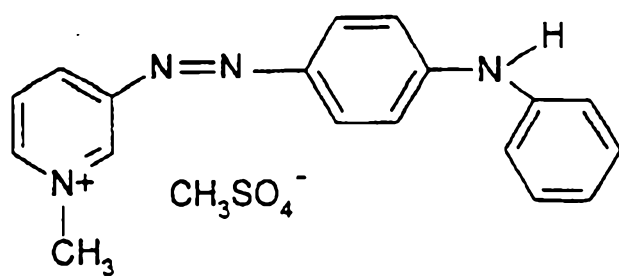
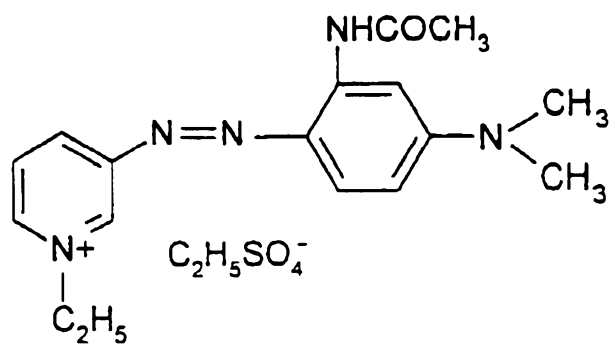
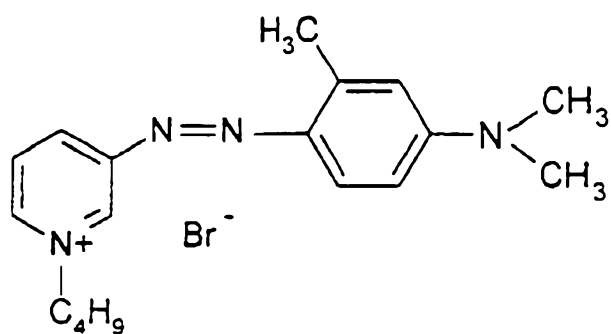
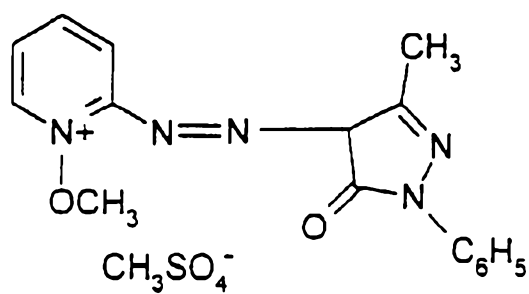
(IV)₁₇(IV)₁₈(IV)₁₉(IV)₂₀(IV)₂₁(IV)₂₂

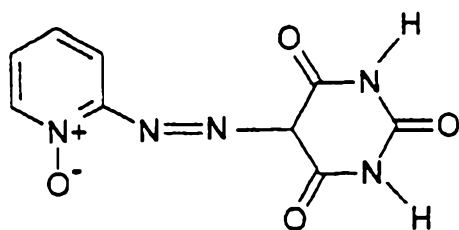
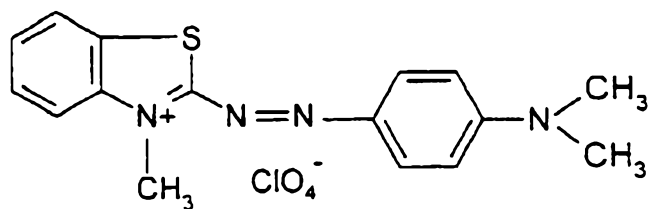
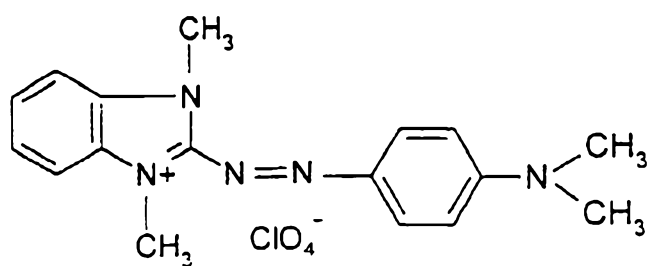
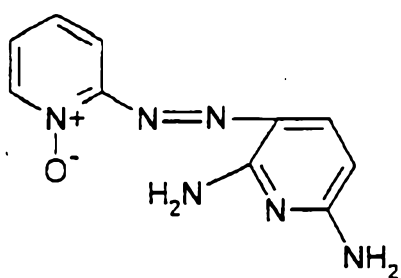
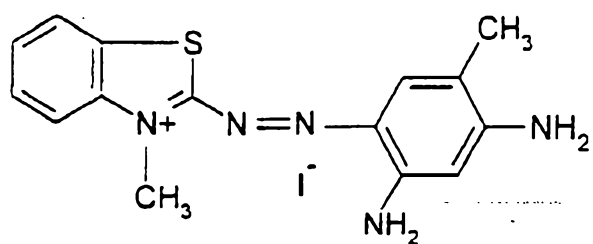


(IV)₂₈(IV)₂₉(IV)₃₀(IV)₃₁(IV)₃₂

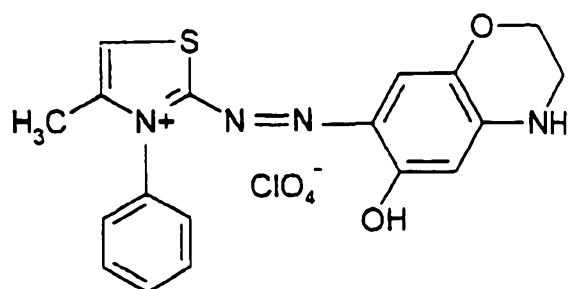
(IV)₃₃(IV)₃₄(IV)₃₅(IV)₃₆

(IV)₃₇(IV)₃₈(IV)₃₉(IV)₄₀

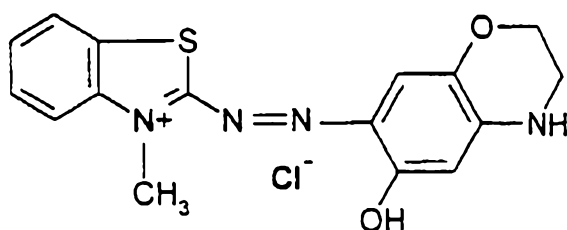
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(IV)₄₅(IV)₄₆(IV)₄₇(IV)₄₈(IV)₄₉

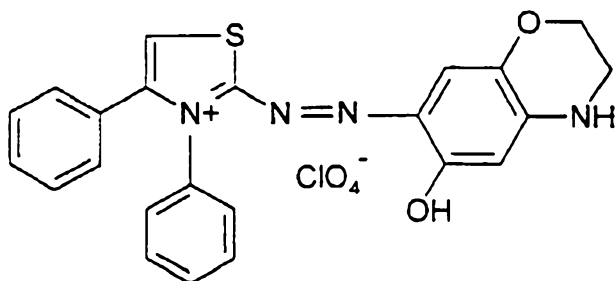
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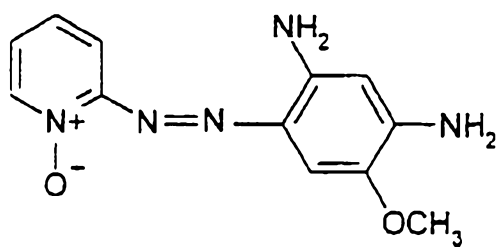
(IV)₅₀



(IV)₅₁

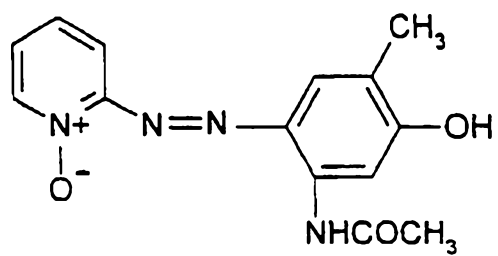
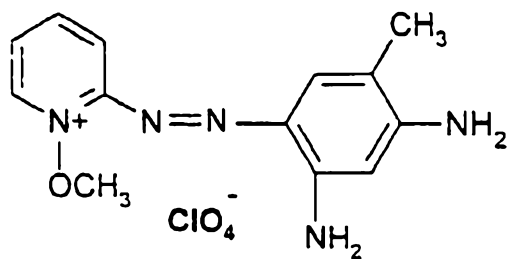
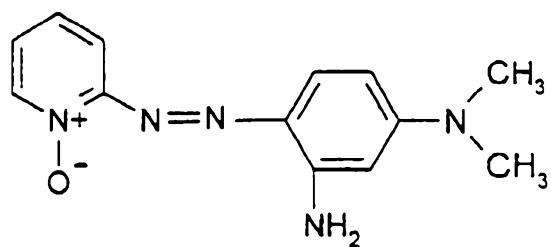
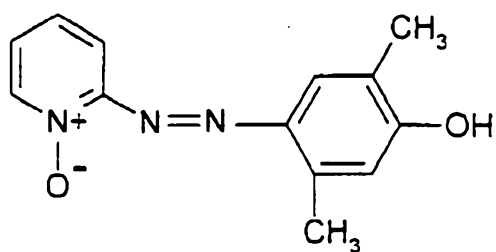
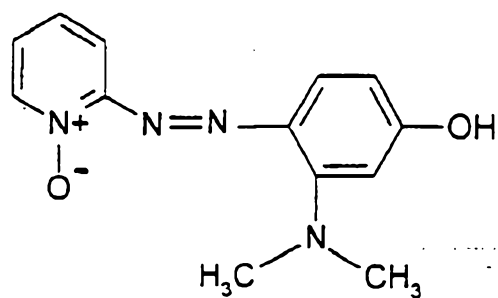


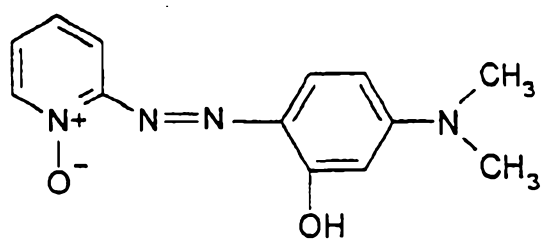
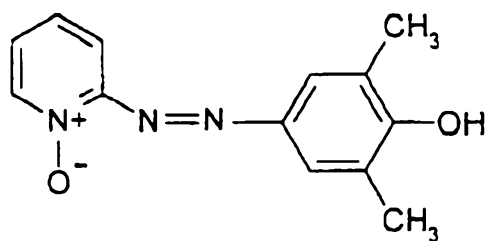
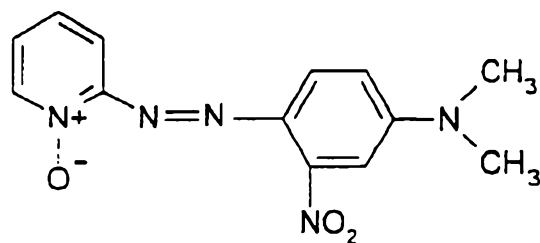
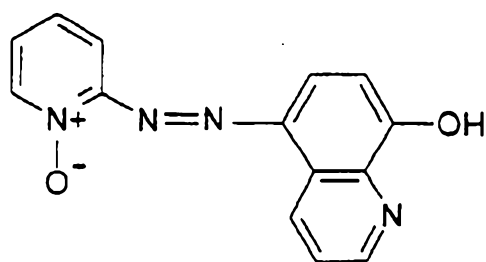
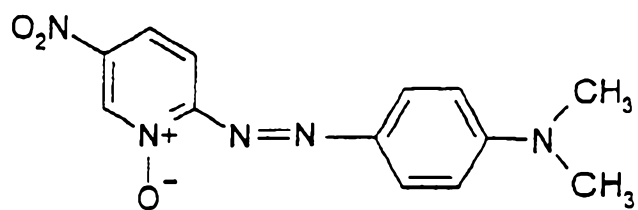
(IV)₅₂

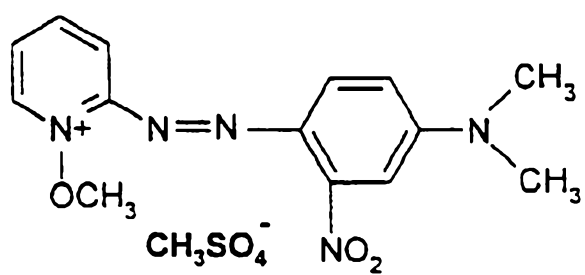
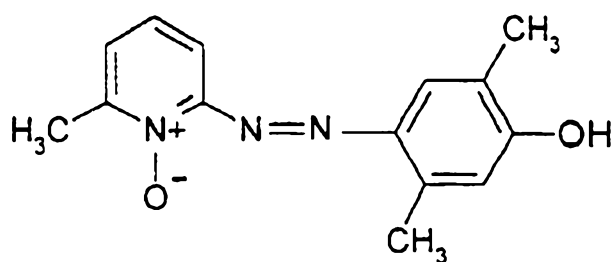
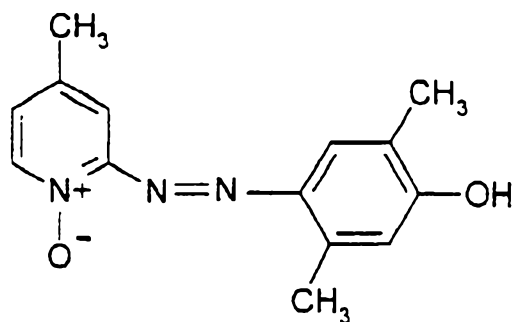
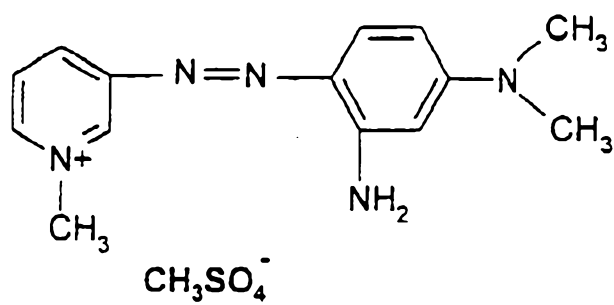


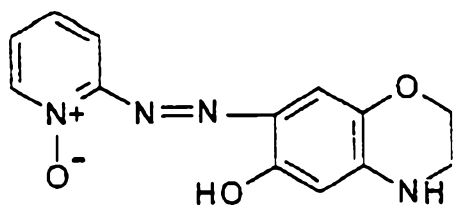
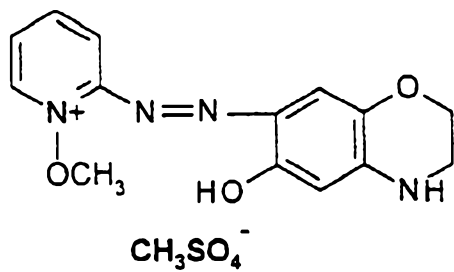
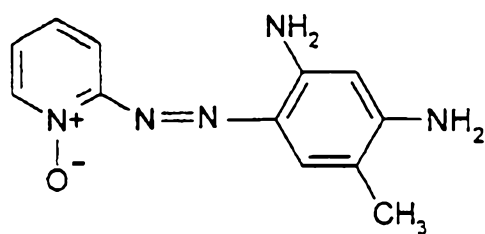
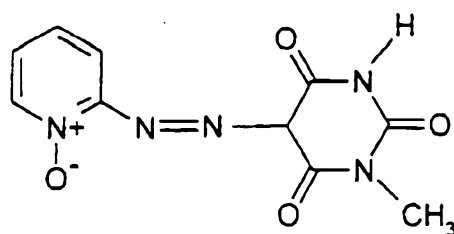
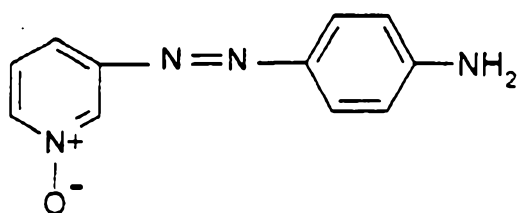
(IV)₅₃

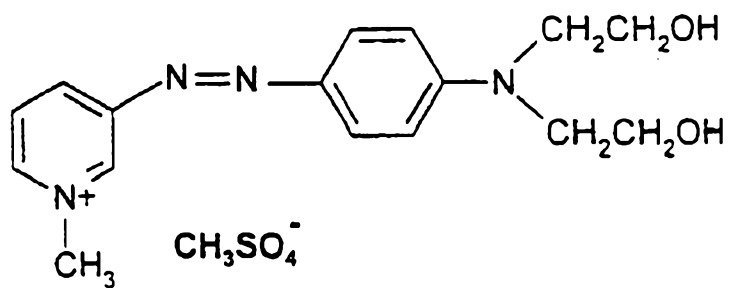
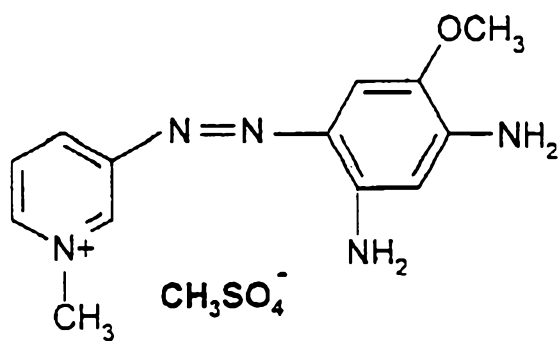
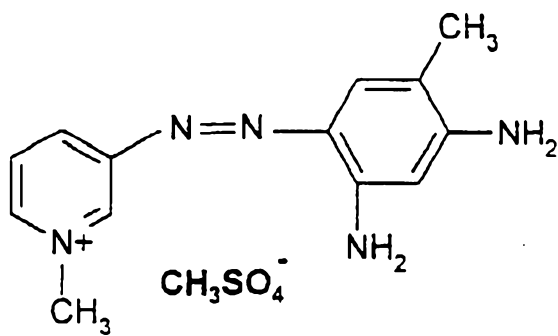
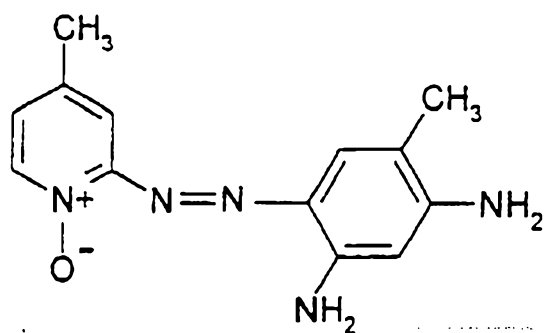


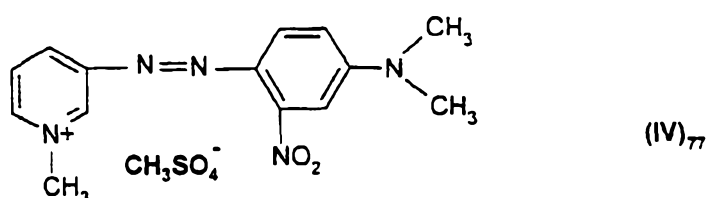
(IV)₅₄(IV)₅₅(IV)₅₆(IV)₅₇(IV)₅₈

(IV)₅₉(IV)₆₀(IV)₆₁(IV)₆₂(IV)₆₃

(IV)₆₄(IV)₆₅(IV)₆₆(IV)₆₇

(IV)₆₈(IV)₆₉(IV)₇₀(IV)₇₁(IV)₇₂

(IV)₇₃(IV)₇₄(IV)₇₅(IV)₇₆



The cationic direct dye(s) used according to the invention preferably represent from 0.001 to 10% by weight approximately of the total weight of the dyeing composition and still more preferably from 0.005 to 5% by weight approximately of this weight.

(ii) The silicones which can be used according to the present invention are chosen from the group consisting of:

- (ii)₁ aminated silicones,
- (ii)₂ polyoxyalkylenated silicones,
- (ii)₃ silicone gums and resins.

In the whole of the present invention, silicone is understood to mean, in accordance with what is generally accepted, all organosilicon-containing polymers or oligomers having a linear or cyclic, branched or crosslinked, structure of variable molecular weight, which are obtained by polymerization and/or polycondensation of suitably functionalized silanes, and which mainly consist of a repeat of principle motifs in which the silicon atoms are linked to each other by oxygen atoms (siloxane bond $\equiv\text{Si}-\text{O}-\text{Si}\equiv$), optionally substituted hydrocarbon radicals being directly linked via a carbon atom to the said



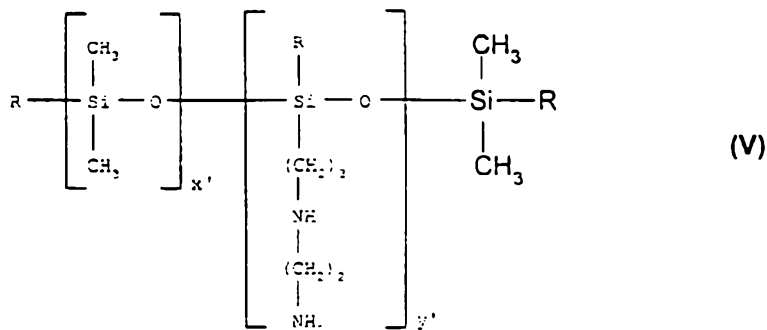
silicon atoms. The most common hydrocarbon radicals are the alkyl radicals, in particular as C_1 - C_{10} , and in particular methyl, the fluoroalkyl radicals, the aryl, and in particular phenyl, radicals.

5 According to the invention, aminated silicone denotes any silicone comprising at least one primary, secondary or tertiary amine or a quaternary ammonium group.

Also according to the invention,
10 polyoxyalkylenated silicone denotes any silicone comprising at least one oxyalkylenated group of the $(-C_xH_{2x}O-)_a$ type in which x may vary from 2 to 6, and a is greater than or equal to 2.

In accordance with the invention, the
15 aminated silicones (ii)₁ are chosen from:

(ii)₁(a) the compounds which are called in the CTFA dictionary "amodimethicone" and which correspond to the following formula (V):



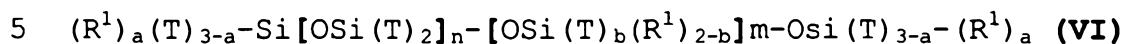
20

in which R denotes the CH_3 or OH radical, and x' and y' are integers which depend on the molecular weight, generally such that the said number-average



molecular weight is between 5000 and 500,000 approximately;

(ii)₁(b) the compounds corresponding to the following formula (VI):



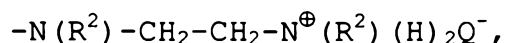
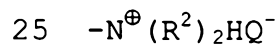
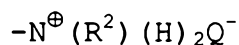
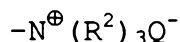
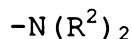
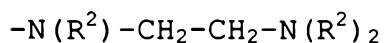
in which,

T is a hydrogen atom, or a phenyl, or OH, or C₁-C₈ alkyl, and preferably methyl, radical,

a denotes the number 0 or an integer from 1 to 3, and
 10 preferably 0,
 b denotes 0 or 1, and in particular 1,
 m and n are numbers such that the sum (n + m) may vary in particular from 1 to 2000 and in particular from 50 to 150, it being possible for n to denote a number from
 15 0 to 1999 and in particular from 49 to 149 and it being possible for m to denote a number from 1 to 2000, and in particular from 1 to 10;

R¹ is a monovalent radical of formula -C_qH_{2q}L in which q is a number from 2 to 8 and L is an optionally

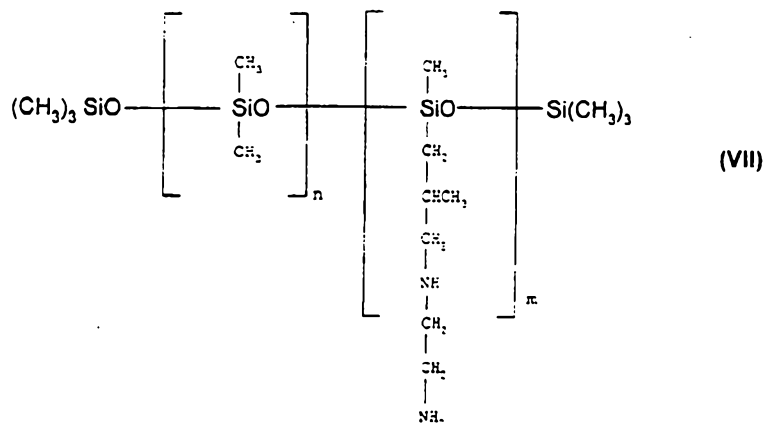
20 quaternized amino group chosen from the groups:



in which R^2 may denote hydrogen, phenyl, benzyl, or a monovalent saturated hydrocarbon radical, for example an alkyl radical having from 1 to 20 carbon atoms and Q^- represents a halide ion such as, for example, fluoride,
 5 chloride, bromide or iodide.

A product corresponding to this definition is the polymer which is called in the CTFA dictionary "trimethylsilylamodimethicone", which corresponds to the following formula (VII):

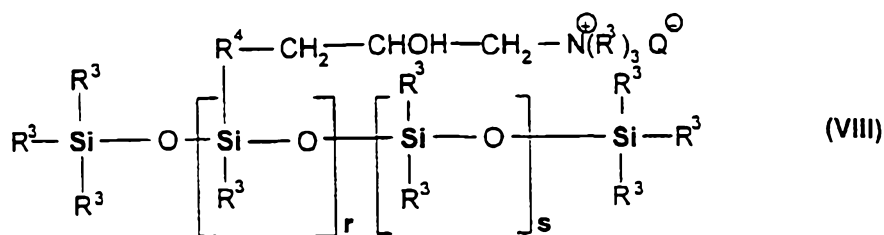
10



in which n and m have the meanings given above [cf formula (VI)]. Such compounds are described, for example, in patent application EP-A-95238; a compound
 15 of formula (VII) is for example sold under the name Q2-8220 by the company OSI.

(ii)₁(c) the compounds which correspond to the following formula (VIII):





in which,

R^3 represents a monovalent hydrocarbon radical having from 1 to 18 carbon atoms, and in particular a C_1 - C_{18} alkyl or C_2 - C_{18} alkenyl, for example methyl, radical;
 R^4 represents a divalent hydrocarbon radical, in particular a C_1 - C_{18} alkylene radical or a C_1 - C_{18} , for example C_1 - C_8 , divalent alkyleneoxy radical;
 Q^- is a halide, in particular chloride, ion;
 r represents a mean statistical value from 2 to 20 and in particular from 2 to 8;
 s represents a mean statistical value from 20 to 200 and in particular from 20 to 50.

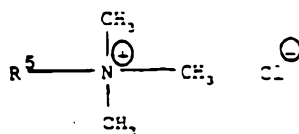
Such compounds are described more particularly in patent US-4,185,087.

One compound falling into this class is that sold by the company Union Carbide under the name "Ucar Silicone ALE 56".

When these compounds are used, a particularly advantageous embodiment is their use jointly with cationic and/or nonionic surfactants. By way of example, it is possible to use the product sold under the name "Emulsion Cationique DC 929" by the company Dow Corning, which comprises, in addition to



amodimethicone, a cationic surfactant comprising a mixture of products corresponding to the formula:



in which R⁵ denotes alkenyl and/or alkyl radicals having
5 from 14 to 22 carbon atoms derived from tallow fatty acids, and known by the CTFA name "tallowtrimonium chloride",

in combination with a nonionic surfactant of formula:

C₉H₁₉-C₆H₄-(OC₂H₄)₁₀-OH, known by the CTFA name

10 "Nonoxynol 10".

It is also possible to use, for example, the product sold under the name "Emulsion Cationique DC 939" by the company Dow Corning, which comprises, in addition to amodimethicone, a cationic surfactant which
15 is trimethylcetylammmonium chloride and a nonionic surfactant of formula:

C₁₃H₂₇-(OC₂H₄)₁₂-OH, known by the CTFA name

"trideceth-12".

Another commercially available product which
20 can be used according to the invention is the product sold under the name "Dow Corning Q2 7224" by the company Dow Corning, comprising, in combination the trimethylsilylamodimethicone of formula (VII) described above, a nonionic surfactant of formula:

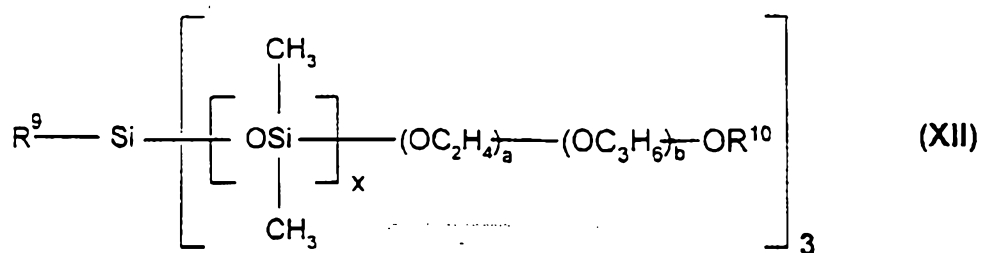
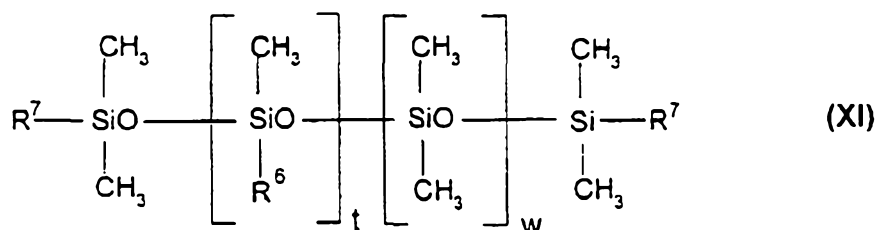
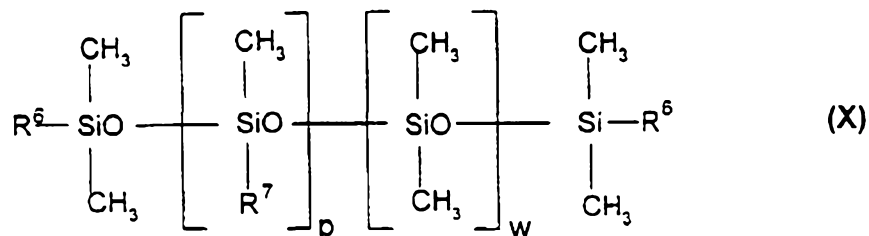
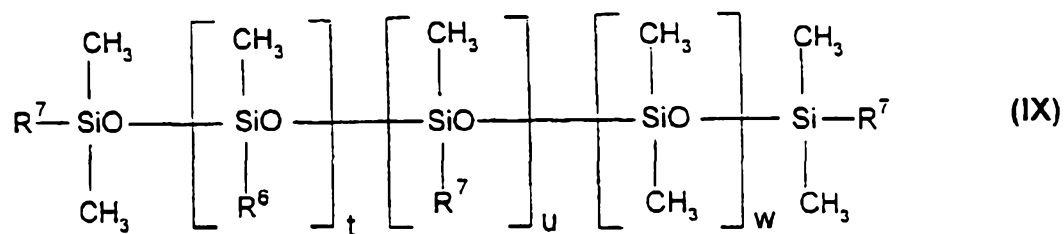
25 C₈H₁₇-C₆H₄-(OCH₂CH₂)₄₀-OH, known by the CTFA name

"octoxynol-40", a second nonionic surfactant of

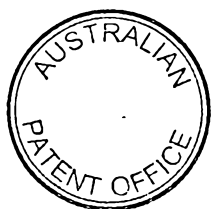


formula: $C_{12}H_{25}-(OCH_2-CH_2)_6-OH$, known by the CTFA name "isolaureth-6", and propylene glycol.

The polyoxyalkylenated silicones (ii)₂, according to the present invention are chosen from the 5 compounds having the following general formulae (IX), (X), (XI) and (XII):



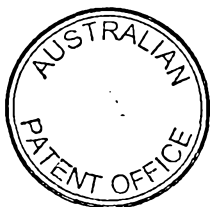
- in which formulae (IX), (X), (XI) and (XII),
- R^6 , identical or different, represents a C_1 - C_{30} , linear or branched, alkyl radical or a phenyl radical,
 - R^7 , identical or different, represents a radical
 - 5 - $-C_6H_2c-O-(C_2H_4O)_a(C_3H_6O)_b-R^8$ or a radical
 $-C_6H_2c-O-(C_4H_8O)_a-R^8$,
 - R^9 , R^{10} , which are identical or different, denote a C_2 - C_{12} , linear or branched, alkyl radical, and preferably the methyl radical,
 - 10 - R^8 , identical or different, is chosen from a hydrogen atom, a C_1 - C_{12} , linear or branched, alkyl radical, a C_1 - C_6 , linear or branched, alkoxy radical, a C_2 - C_{30} , linear or branched, acyl radical, a hydroxyl radical, an $-SO_3M$ radical, a C_1 - C_6 aminoalkoxy radical which is
 - 15 optionally substituted on the amine, a C_2 - C_6 aminoacyl radical which is optionally substituted on the amine, a radical $-NHCH_2CH_2COOM$, a radical $-N(CH_2CH_2COOM)_2$, an aminoalkyl radical which is optionally substituted on the amine and on the alkyl chain, a C_2 - C_{30} carboxyacyl
 - 20 radical, a phosphono group which is optionally substituted with one or two substituted aminoalkyl radicals, a radical $-CO(CH_2)_dCOOM$, $-COCHR^{11}(CH_2)_dCOOM$, $-NHCO(CH_2)_dOH$, $-NH_3Y$, a phosphate group,
 - M , identical or different, denotes a hydrogen atom,
 - 25 Na , K , Li , NH_4 or an organic amine,
 - R^{11} denotes a hydrogen atom or an $-SO_3M$ radical,
 - d varies from 1 to 10,
 - u varies from 0 to 20,



- w varies from 0 to 500,
- t varies from 0 to 20,
- p varies from 1 to 50,
- a varies from 0 to 50,
- 5 - b varies from 0 to 50,
- the sum (a + b) is greater than or equal to 2,
- c varies from 0 to 4,
- x varies from 1 to 100,
- Y represents a monovalent inorganic or organic anion
- 10 such as halide (chloride, bromide), sulphate,
carboxylate (acetate, lactate, citrate).

These silicones are in particular described
in patents US-A-5,070,171, US-A-5,149,765,
US-A-5,093,452 and US-A-5,091,493.

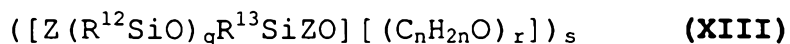
- 15 Such silicones are for example marketed by
the company RHODIA CHIMIE under the name MIRASIL DMCO,
by the company GOLDSCHMIDT under the names ABIL WE 09,
ABIL EM 90, ABIL B8852, ABIL B8851, ABIL B 8843, ABIL
B8842, by the company DOW CORNING under the names FLUID
20 DC 190, DC 3225 C, Q2-5220, Q25354, Q2-5200, by the
company RHONE POULENC under the names SILBIONE HUILE
70646, RHODORSIL HUILE 10634, by the company GENERAL
ELECTRIC under the names SF1066, SF1188, by the company
SWS SILICONES under the name SILICONE COPOLYMER F 754,
25 by the company AMERCHOL under the name SILSOFT BEAUTY
AID SL, by the company SHIN-ETSU under the name KF 351,
by the company WACKER under the name BELSIL DMC 6038,
by the company SILTECH under the names SILWAX WD-C,



SILWAX WD-B, SILWAX WD-IS, SILWAX WSL, SILWAX DCA 100, SILTECH AMINE 65, by the company FANNING CORPORATION under the names FANCORSIL SLA, FANCORSIL LIM1, by the company PHOENIX under the name PECOSIL.

- 5 Preferably, according to the present invention, the polyoxyalkylenated silicones corresponding to the general formulae (X) or (XI) are used. More particularly, these formulae correspond to at least one of the, and preferably all of the,
- 10 following conditions:
- c is equal to 2 or 3;
 - R^6 denotes the methyl radical;
 - R^8 represents a methyl radical, a C_{12} - C_{22} acyl radical or a $-CO(CH_2)_dCOOM$ radical;
 - 15 - a varies from 2 to 25 and more particularly from 2 to 15,
 - b is equal to 0,
 - w varies from 0 to 100,
 - p varies from 1 to 20.

- 20 The polyoxyalkylenated silicones according to the invention may also be chosen from the compounds having the following formula (XIII):



in which,

- 25 - R^{12} and R^{13} , which are identical or different, represent a monovalent hydrocarbon radical,
- n is an integer ranging from 2 to 4,



- q is a number which is greater than or equal to 4, preferably between 4 and 200 and still more particularly between 4 and 100,

- r is a number which is greater than or equal to 4, preferably between 4 and 200 and still more particularly between 5 and 100,

- s is a number which is greater than or equal to 4, preferably between 4 and 1000 and still more particularly between 5 and 300,

10 - z represents a divalent organic group which is linked to the adjacent silicon atom by a carbon-silicon bond and to a polyoxyalkylene block by an oxygen atom,

- the average molecular weight of each siloxane block is between about 400 and about 10,000, that of 15 each polyoxyalkylene block being between about 300 and about 10,000,

- the siloxane blocks represent from about 10% to about 95% by weight of the block copolymer,

- it being possible for the number-average 20 molecular weight of the block copolymer to range from 2500 to 1,000,000, and preferably between 3000 and 200,000, and still more particularly between 6000 and 100,000.

R^{12} and R^{13} are preferably chosen from the 25 group comprising linear or branched alkyl radicals such as for example the methyl, ethyl, propyl, butyl, pentyl, hexyl, octyl, decyl or dodecyl radicals, aryl radicals such as for example phenyl or naphthyl,



aralkyl or alkylaryl radicals such as for example benzyl or phenylethyl, and tolyl or xylyl radicals.

Z is preferably $-R''-$, $-R''-\text{CO}-$, $-R''-\text{NHCO}-$, $-R''-\text{NH}-\text{CO}-\text{NH}-R'''-$, $-R''-\text{OCONH}-R'''-\text{NHCO}-$, where R'' is a
 5 C_1-C_6 , linear or branched, divalent alkylene group such as for example ethylene, propylene or butylene, and R''' is a divalent alkylene group or a divalent arylene group such as $-\text{C}_6\text{H}_4-$, $\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-$, $\text{C}_6\text{H}_4-\text{CH}_2-\text{C}_6\text{H}_4-$, $-\text{C}_6\text{H}_4-\text{C}(\text{CH}_3)_2\text{C}_6\text{H}_4-$.

10 Still more preferably, Z represents a divalent alkylene radical, more particularly the $-\text{C}_3\text{H}_6-$ radical or the $-\text{C}_4\text{H}_8-$ radical, which are linear or branched.

The preparation of the block copolymers used
 15 in the context of the present invention is described in European application EP-0,492,657 A1, whose teaching is included in the present description.

Such products are for example marketed under the name SILICONE FLUID FZ-2172 by the company OSI.

20 The silicone gums and resins **(ii)₃**, according to the present invention, are chosen in particular as regards:

(ii)₃(a) the gums, from the polydiorganosiloxanes having high molecular masses of between 200,000 and 1,000,000;

25 the following gums may be mentioned:

- poly[(dimethylsiloxane)/(methylvinylsiloxane)],
- poly[(dimethylsiloxane)/(diphenylsiloxane)],

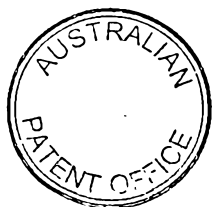


- poly[(dimethylsiloxane)/(phenylmethylsiloxane)],
- poly[(dimethylsiloxane)/(diphenylsiloxane)/
(methylvinylsiloxane)].

The silicone resins are crosslinked siloxane
5 systems containing $R_2SiO_{2/2}$, $RSiO_{3/2}$ and $SiO_{4/2}$ units in
which R represents a hydrocarbon group possessing 1 to
6 carbon atoms or a phenyl group. Among these products,
those which are particularly preferred are those in
which R denotes a lower alkyl radical or a phenyl
10 radical.

There may be mentioned in particular among
these resins, the product sold by the company DOW
CORNING under the name DOW CORNING 593, which is a
mixture of trimethylsiloxylsilicate and of
15 polydimethylsiloxane, or the products sold by the
company GENERAL ELECTRIC under the names SILICONE FLUID
SS 4230 and SS 4267, which are dimethyl/trimethyl/-
polysiloxanes.

Among all the silicones described above,
20 there are preferably used according to the present
invention the aminated silicones identified by the
reference (ii)₁(a), that is to say those corresponding
to the formula (V) described above, the aminated
silicones identified by the reference (ii)₁(b) and
25 having the formula (VII) described above, and the
polyoxyalkylenated silicones identified by the
reference (ii)₂ and having the respective formulae (X)
and (XI) described above.



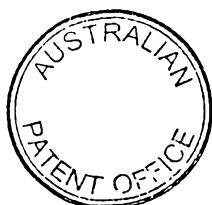
The silicone(s) (ii) used according to the invention preferably represent from 0.01 to 20% by weight approximately of the total weight of the dyeing composition and still more preferably from 0.1 to 10%
5 by weight approximately of this weight.

The appropriate dyeing medium (or carrier) generally consists of water or of a mixture of water and of at least one organic solvent for solubilizing the compounds which would not be sufficiently soluble
10 in water. As organic solvent, there may be mentioned for example the C₁-C₄ lower alkanols such as ethanol and isopropanol, the aromatic alcohols such as benzyl alcohol as well as similar products and mixtures thereof.

15 The solvents may be present in proportions preferably of between 1 and 40% by weight approximately relative to the total weight of the dyeing composition, and still more preferably between 5 and 30% by weight approximately.

20 The pH of the dyeing composition in accordance with the invention is generally between 2 and 11 approximately, and preferably between 5 and 10 approximately. It may be adjusted to the desired value by means of acidifying or alkalinizing agents normally
25 used in dyeing keratinous fibres.

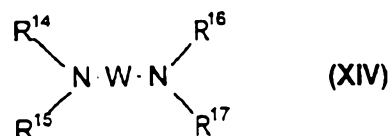
Among the acidifying agents, there may be mentioned, by way of example, the inorganic or organic acids such as hydrochloric acid, orthophosphoric acid,



sulphuric acid, carboxylic acids such as acetic acid, tartaric acid, citric acid, lactic acid, sulphonic acids.

Among the alkalinizing agents, there may be mentioned, by way of example, aqueous ammonia, alkali metal carbonates, alkanolamines such as mono-, di- and triethanolamines as well as derivatives thereof, sodium or potassium hydroxides and the compounds having the following formula (XIV):

10



in which W is a propylene residue which is optionally substituted with a hydroxyl group or a C₁-C₆ alkyl radical; R¹⁴, R¹⁵, R¹⁶ and R¹⁷, which are identical or different, represent a hydrogen atom, a C₁-C₆ alkyl radical or a C₁-C₆ hydroxyalkyl radical.

The dyeing composition in accordance with the invention may, in addition to the cationic direct dye(s) (i) defined above, contain one or more additional direct dyes which may for example be chosen from the nitrobenzene dyes, the anthraquinone dyes, the naphthoquinone dyes, the triarylmethane dyes, the xanthene dyes, the noncationic azo dyes.

When it is intended for oxidation dyeing, the dyeing composition in accordance with the invention contains, in addition to the cationic direct dye(s)

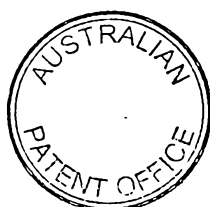


(i), one or more oxidation bases chosen from the oxidation bases conventionally used for oxidation dyeing and among which there may be mentioned in particular the para-phenylenediamines, the bis-
5 phenylalkylenediamines, the para-aminophenols, the ortho-aminophenols and the heterocyclic bases. When they are used, the oxidation base(s) preferably represent from 0.0005 to 12% by weight approximately of the total weight of the dyeing composition, and still
10 more preferably from 0.005 to 6% by weight approximately of this weight.

When it is intended for oxidation dyeing, the dyeing composition in accordance with the invention may also contain, in addition to the cationic direct dye
15 (i) and the silicone (ii) as well as oxidation bases, one or more couplers so as to modify or increase the shimmer of the shades obtained using the cationic direct dye(s) (i) and the oxidation base(s).

The couplers which can be used in the dyeing
20 composition in accordance with the invention may be chosen from the couplers conventionally used in oxidation dyeing and among which there may be mentioned in particular the meta-phenylenediamines, the meta-aminophenols, the meta-diphenols and the heterocyclic
25 couplers.

When they are present, the coupler(s) preferably represent from 0.0001 to 10% by weight approximately of the total weight of the dyeing composition and still



more preferably from 0.005 to 5% by weight approximately of this weight.

The dyeing composition in accordance with the invention may also contain various adjuvants which are
5 conventionally used in hair-dyeing compositions, such as antioxidants, penetrating agents, sequestrants, perfumes, buffers, dispersing agents, film-forming agents, ceramides, preservatives, screening agents and opacifying agents.

10 Of course, persons skilled in the art will be careful to choose this or these optional additional compounds such that the advantageous properties intrinsically attached to the dyeing composition in accordance with the invention are not, or not
15 substantially, altered by the addition(s) envisaged.

The dyeing composition according to the invention may be provided in various forms, such as in the form of liquids, shampoos, creams, gels, or in any other form appropriate for dyeing keratinous fibres,
20 and in particular human hair. It may be obtained by freshly mixing a composition, which is optionally pulverulent, containing the cationic direct dye(s) with a composition containing the silicone.

When the combination of the cationic direct
25 dye (i) and of the silicone (ii) according to the invention is used in a composition intended for oxidation dyeing (one or more oxidation bases are then used, optionally in the presence of one or more



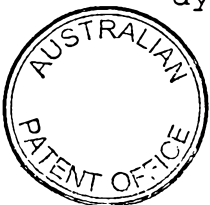
couplers) or when it is used in a composition intended for direct lightening dyeing, then the dyeing composition in accordance with the invention contains, in addition, at least one oxidizing agent chosen for example from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts such the perborates and persulphates, and enzymes such as peroxidases, laccases and oxidoreductases containing two electrons. The use of hydrogen peroxide or of enzymes is particularly preferred.

Another subject of the invention is a method of dyeing keratinous fibres and in particular human keratinous fibres such as hair using the dyeing composition as defined above.

According to a first variant of this dyeing method in accordance with the invention, at least one dyeing composition as defined above is applied to the fibres for a sufficient time to develop the desired colour, after which they are rinsed, optionally washed with shampoo, rinsed again and dried.

The time necessary for the development of the colour on the keratinous fibres is generally between 3 and 60 minutes and still more preferably 5 and 40 minutes.

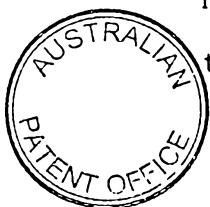
According to a second variant of this dyeing method in accordance with the invention, at least one dyeing composition as defined above is applied to the



fibres for a sufficient time to develop the desired colour, with no final rinsing.

According to a particular embodiment of this dyeing method, and when the dyeing composition in accordance with the invention contains at least one oxidation base and at least one oxidizing agent, the dyeing method comprises a preliminary stage consisting of storing in a separate form, on the one hand, a composition (A1) comprising, in an appropriate dyeing medium, at least one cationic direct dye (i) as defined above and at least one oxidation base and, on the other hand, a composition (B1) containing, in an appropriate dyeing medium, at least one oxidizing agent, and then mixing them at the time of use before applying this mixture to the keratinous fibres, the composition (A1) or the composition (B1) containing the silicone (ii) as defined above.

According to another particular embodiment of this dyeing method, and when the dyeing composition in accordance with the invention contains at least one oxidizing agent, the dyeing method comprises a preliminary stage consisting of storing in a separate form, on the one hand, a composition (A2) comprising, in an appropriate dyeing medium, at least one cationic direct dye (i) as defined above and, on the other hand, a composition (B2) containing, in an appropriate dyeing medium, at least one oxidizing agent, and then mixing them at the time of use before applying this mixture to



the keratinous fibres, the composition (A2) or the composition (B2) containing the silicone as defined above.

Another subject of the invention is a
5 multicompartment device or dyeing "kit" or any other multicompartment packaging system in which a first compartment contains composition (A1) or (A2) as defined above and a second compartment contains composition (B1) or (B2) as defined above. These
10 devices may be equipped with a means allowing the desired mixture to be delivered to the hair, such as the devices described in patent FR-2,586,913 in the applicant's name.

The following examples are intended to
15 illustrate the invention without, however, limiting the scope thereof.

EXAMPLES

Examples 1 to 2:

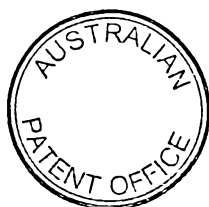
20 The two direct dyeing compositions which are assembled in the following table were prepared:
(all contents expressed in grams)



EXAMPLES No. →	1	2
Cationic direct dye of formula (I1)	0.10	
Cationic direct dye of formula (I14)	0.10	
Cationic direct dye of formula (IV) ₂₇		0.10
Nonylphenol containing 9 moles of ethylene oxide	8.0	8.0
Aminated silicone (mixture of polydimethylsiloxane containing aminoethyl-aminoisobutyl/- polydimethylsiloxane groups), sold under the name Q2-8220 by the company OSI.....	1.2	
Polyoxyalkylenated silicone (oxyethylenated polydimethylsiloxane containing 22 EO and oxypropylenated polydimethylsiloxane containing 23 PO), sold under the name MIRASIL DMCO by the company RHODIA CHIMIE		0.75
Ethanol	10	10
2-Amino-2-methyl-1-propanol ...qs...	pH 9	pH 9
Demineralized water..qsp.....	100	100

The above compositions were each applied for 30 minutes to locks of natural grey hair which is 90% white. The hair locks were then rinsed, washed with a standard shampoo and then dried.

The locks were dyed in the following shades:



Examples	Shades obtained
1	dark orange-red
2	dark purple

Throughout the specification and claims, the words "comprise", "comprises" and "comprising" are used in a non-exclusive sense.

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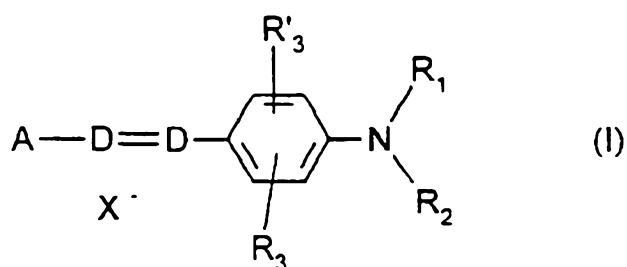


CLAIMS

1. Composition for dyeing keratinous fibres and in particular human keratinous fibres such as hair, containing in an appropriate dyeing medium, (i) at least compound chosen from those of the following formulae (I), (II), (III), (III'), (IV):

a) the compounds of the following formula

(I):

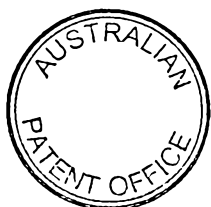


in which:

D represents a nitrogen atom or the -CH group,

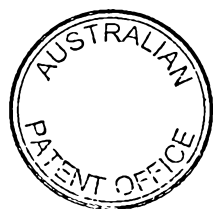
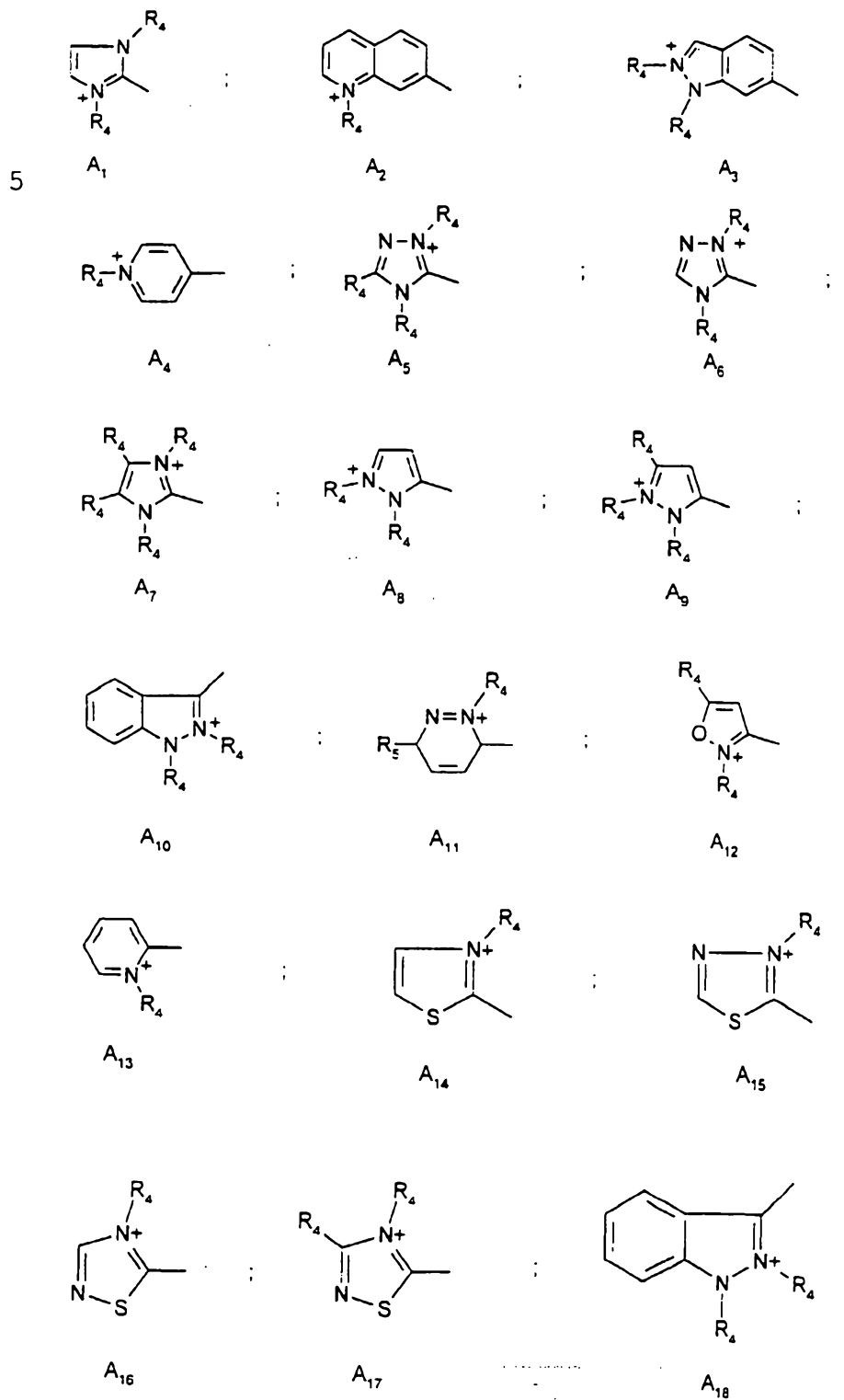
R₁ and R₂, which are identical or different, represent a hydrogen atom; a C₁-C₄ alkyl radical which may be substituted with a -CN, -OH or -NH₂ radical or form with a carbon atom of the benzene ring an optionally oxygen-containing or nitrogen-containing heterocycle which may be substituted with one or more C₁-C₄ alkyl radicals; a 4'-aminophenyl radical,

R₃ and R'₃, which are identical or different, represent a hydrogen or halogen atom chosen from chlorine, bromine, iodine and fluorine, a cyano, C₁-C₄ alkyl, C₁-C₄ alkoxy or acetyloxy radical,

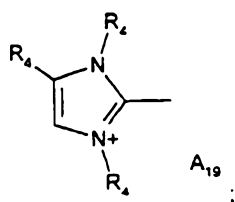


X^- represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

A represents a group chosen from the following structures A_1 to A_{19} :



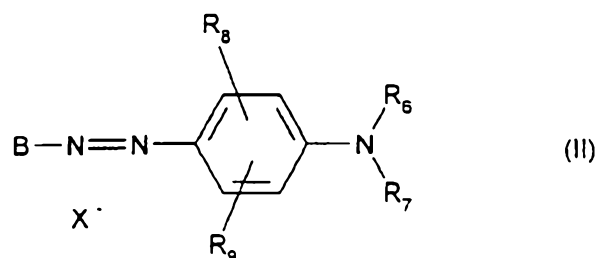
and



in which R_4 represents a C_1 - C_4 alkyl radical which may be substituted with a hydroxyl radical and R_5 represents a C_1 - C_4 alkoxy radical, with the proviso that when D represents $-CH$, A represents A_4 or A_{13} and R_3 is different from an alkoxy radical, then R_1 and R_2 do not simultaneously denote a hydrogen atom;

b) the compounds of the following formula

(II):



in which:

R_6 represents a hydrogen atom or a C_1 - C_4 alkyl radical,

R_7 represents a hydrogen atom, an alkyl radical which may be substituted with a $-CN$ radical or with an amino group, a 4'-aminophenyl radical or forms with R_6 an optionally oxygen-containing and/or nitrogen-containing heterocycle which may be substituted with a C_1 - C_4 alkyl radical,

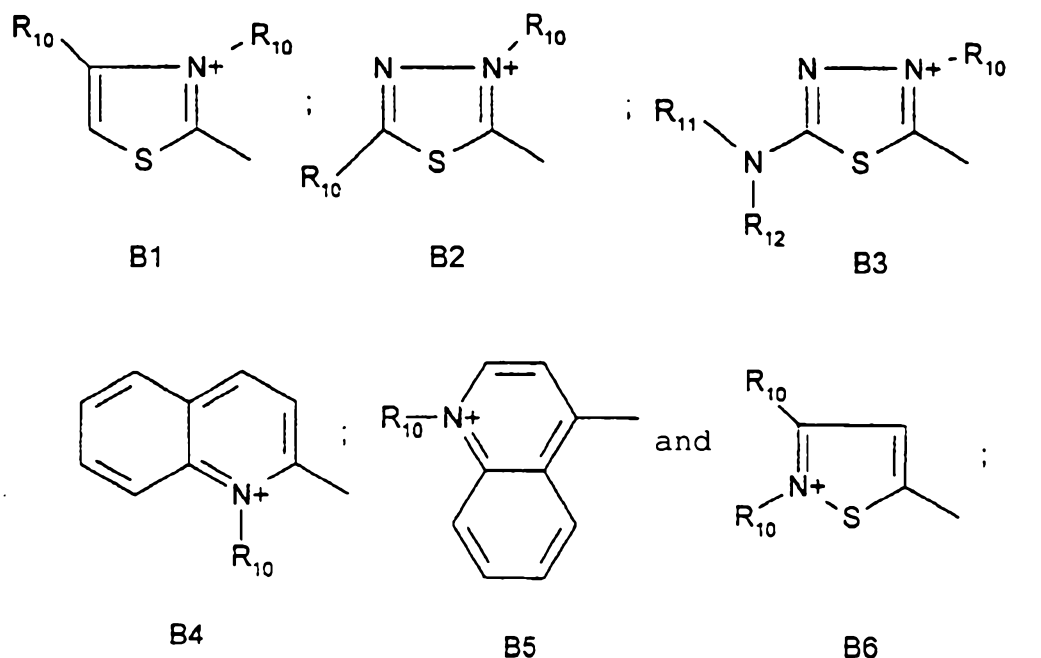
R_8 and R_9 , which are identical or different, represent a hydrogen atom, a halogen atom such as



bromine, chlorine, iodine or fluorine, a C₁-C₄ alkyl or C₁-C₄ alkoxy radical, a -CN radical,

X⁻ represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

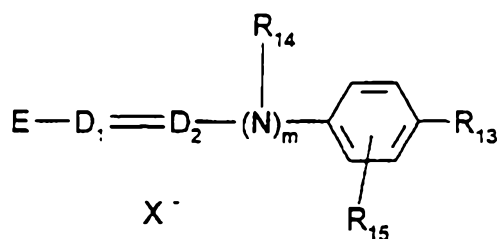
5 B represents a group chosen from the following structures B1 to B6:



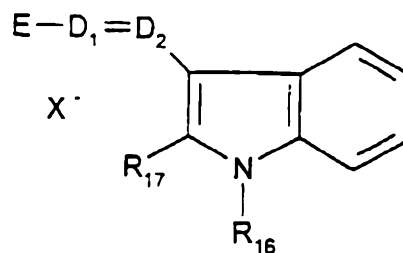
in which R₁₀ represents a C₁-C₄ alkyl radical, R₁₁ and R₁₂, which are identical or different, represent a
10 hydrogen atom or a C₁-C₄ alkyl radical;

c) the compounds of the following formulae (III) and (III'):





(III)



(III')

in which:

R_{13} represents a hydrogen atom, a C_1 - C_4 alkoxy radical, a halogen atom such as bromine, chlorine,
5 iodine or fluorine or an amino radical,

R_{14} represents a hydrogen atom, a C_1 - C_4 alkyl radical or forms with a carbon atom of the benzene ring a heterocycle which is optionally oxygen-containing and/or substituted with one or more C_1 - C_4 alkyl groups,

10 R_{15} represents a hydrogen or halogen atom such as bromine, chlorine, iodine or fluorine,

R_{16} and R_{17} , which are identical or different, represent a hydrogen atom or a C_1 - C_4 alkyl radical,

D_1 and D_2 , which are identical or different,
15 represent a nitrogen atom or the $-CH$ group,

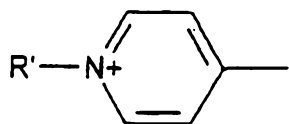
$m = 0$ or 1 ,

it being understood that when R_{13} represents an unsubstituted amino group, then D_1 and D_2 simultaneously represent a $-CH$ group and $m = 0$,

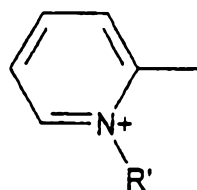
20 X^- represents an anion which is preferably chosen from chloride, methylsulphate and acetate,

E represents a group chosen from the following structures E1 to E8:

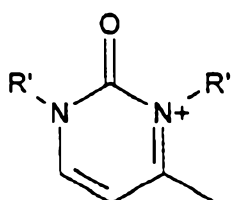




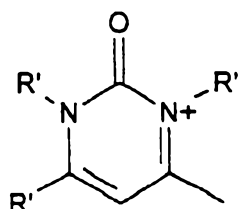
E1



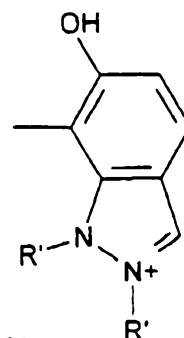
E2



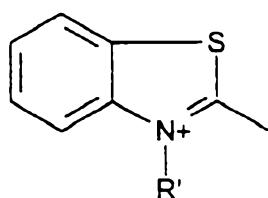
E3



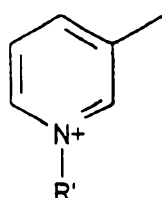
E4



E5

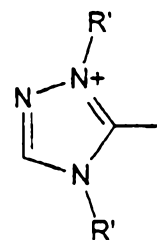


E6



E7

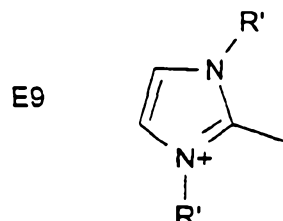
and



E8

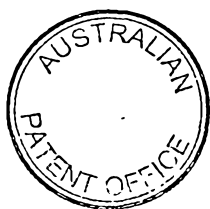
in which R' represents a C₁-C₄ alkyl radical;

5 when m = 0 and D₁ represents a nitrogen atom,
then E may also denote a group having the following
structure E9:



E9

10 in which R' represents a C₁-C₄ alkyl radical,



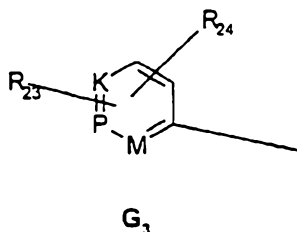
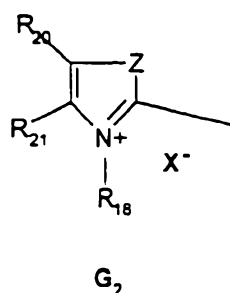
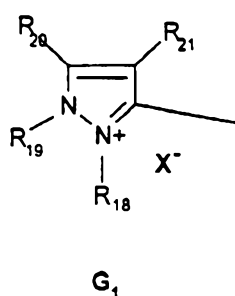
d) the compounds of the following formula

(IV) :



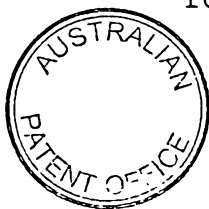
in which:

- 5 the symbol **G** represents a group chosen from the following structures G_1 to G_3 :



in which structures G_1 to G_3 ,

- 10 R_{18} denotes a C_1 - C_4 alkyl radical, a phenyl radical which may be substituted with a C_1 - C_4 alkyl radical or a halogen atom chosen from chlorine, bromine, iodine and fluorine;
- R_{19} denotes a C_1 - C_4 alkyl radical or a phenyl radical;
- 15 R_{20} and R_{21} , which are identical or different, represent a C_1 - C_4 alkyl radical, a phenyl radical, or form together in G_1 a benzene ring which is substituted with one or more C_1 - C_4 alkyl, C_1 - C_4 alkoxy or NO_2 radicals, or form together in G_2 a benzene ring which is optionally



substituted with one or more C_1-C_4 alkyl, C_1-C_4 alkoxy or NO_2 radicals;

R_{20} may denote, in addition, a hydrogen atom;

Z denotes an oxygen or sulphur atom or an $-NR_{19}$ group;

5 M represents a group $-CH$, $-CR$ (R denoting C_1-C_4 alkyl), or $-NR_{22}(X^-)_r$;

K represents a group $-CH$, $-CR$ (R denoting C_1-C_4 alkyl), or $-NR_{22}(X^-)_r$;

P represents a group $-CH$, $-CR$ (R denoting C_1-C_4 alkyl),
10 or $-NR_{22}(X^-)_r$; r denotes zero or 1;

R_{22} represents an O^- atom, a C_1-C_4 alkoxy radical or a C_1-C_4 alkyl radical;

R_{23} and R_{24} , which are identical or different, represent
a hydrogen or halogen atom chosen from chlorine,
15 bromine, iodine and fluorine, a C_1-C_4 alkyl radical, a C_1-C_4 alkoxy radical or an $-NO_2$ radical;

X^- represents an anion which is preferably chosen from chloride, iodide, methylsulphate, ethylsulphate, acetate and perchlorate;

20 with the proviso that

if R_{22} denotes O^- , then r denotes zero;

if K or P or M denote $-N-(C_1-C_4 \text{ alkyl})X^-$, then R_{23} or R_{24} is different from a hydrogen atom;

if K denotes $-NR_{22}(X^-)_r$, then $M = P = -CH$, $-CR$;

25 if M denotes $-NR_{22}(X^-)_r$, then $K = P = -CH$, $-CR$;

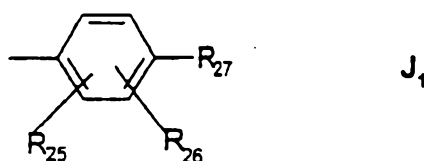
if P denotes $-NR_{22}(X^-)_r$, then $K = M$ and denote $-CH$ or $-CR$;



if Z denotes a sulphur atom with R_{21} denoting C_1-C_4 alkyl, then R_{20} is different from a hydrogen atom;
 if Z denotes $-NR_{22}$ with R_{19} denoting C_1-C_4 alkyl, then at least one of the R_{18} , R_{20} or R_{21} radicals of G_2 is
 5 different from a C_1-C_4 alkyl radical;

the symbol J represents:

-(a) a group having the following structure J_1 :



10 in which structure J_1 ,

R_{25} represents a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C_1-C_4 alkyl radical, a C_1-C_4 alkoxy radical, a radical $-OH$, $-NO_2$, $-NHR_{28}$, $-NR_{29}R_{30}$, $-NHCO(C_1-C_4\text{alkyl})$, or forms with

15 R_{26} a 5- or 6-membered ring containing or otherwise one or more heteroatoms chosen from nitrogen, oxygen or sulphur;

R_{26} represents a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C_1-C_4

20 alkyl or C_1-C_4 alkoxy radical, or forms with R_{27} or R_{28} a 5- or 6-membered ring containing or otherwise one or more heteroatoms chosen from nitrogen, oxygen or sulphur;

R_{27} represents a hydrogen atom, an $-OH$ radical, an $-NHR_{28}$
 25 radical, an $-NR_{29}R_{30}$ radical;

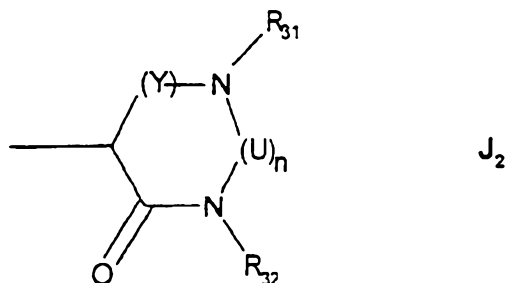
R_{28} represents a hydrogen atom, a C_1-C_4 alkyl radical, a



C₁-C₄ monohydroxyalkyl radical, a C₂-C₄ polyhydroxyalkyl radical, a phenyl radical;

R₂₉ and R₃₀, which are identical or different, represent a C₁-C₄ alkyl radical, a C₁-C₄ monohydroxyalkyl radical,
 5 a C₂-C₄ polyhydroxyalkyl radical;

-(b) a 5- or 6- membered nitrogen-containing heterocycle group which is capable of containing other heteroatoms and/or carbonyl-containing groups and which may be substituted with one or more C₁-C₄ alkyl, amino
 10 or phenyl radicals,
 and in particular a group having the following structure J₂:



15 in which structure J₂,

R₃₁ and R₃₂, which are identical or different, represent a hydrogen atom, a C₁-C₄ alkyl radical, a phenyl radical;

Y denotes the -CO- radical or the radical $\text{—}\overset{\text{CH}_3}{\underset{|}{\text{C}}}=\text{—}$;

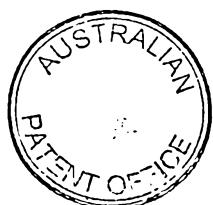
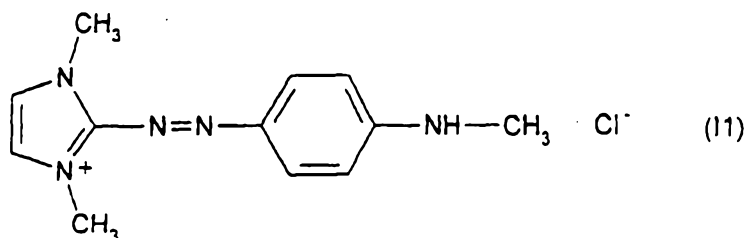
20 n = 0 or 1, with, when n denotes 1, U denotes the -CO- radical.

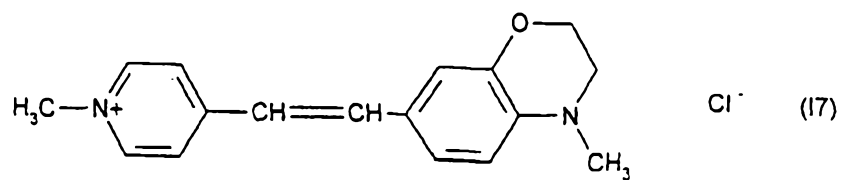
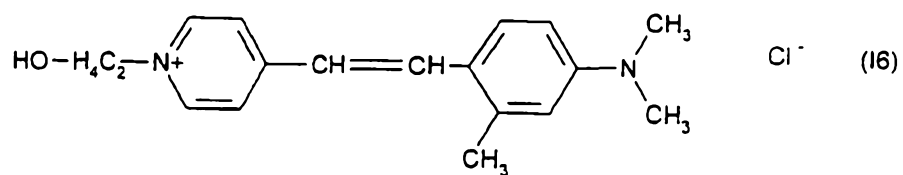
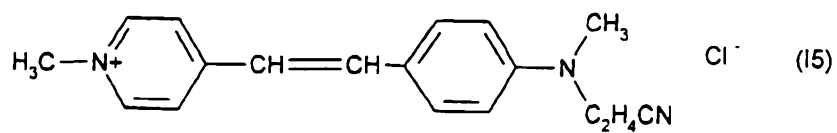
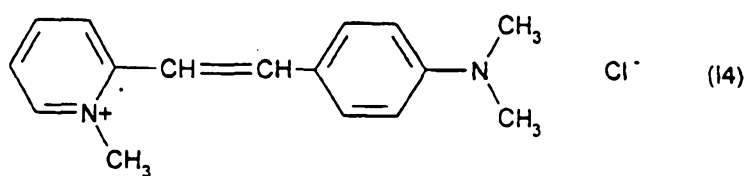
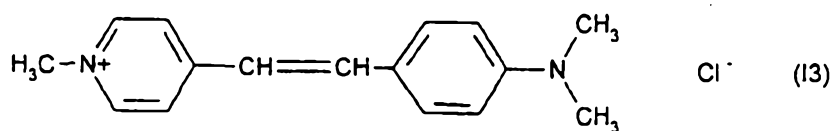
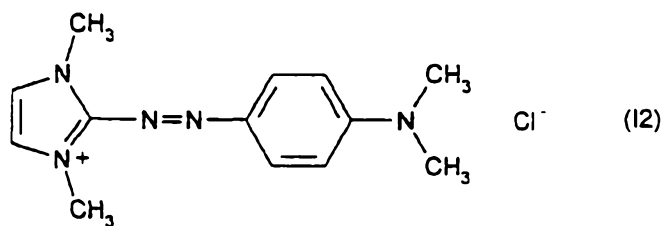


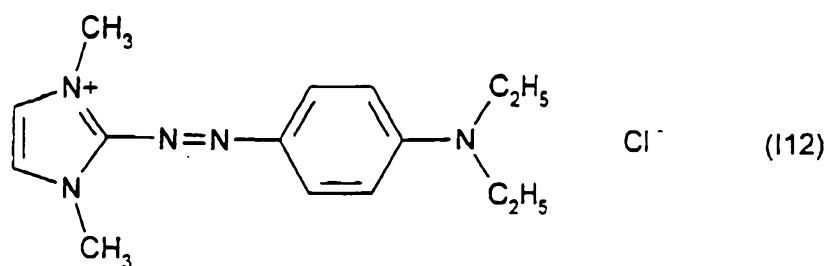
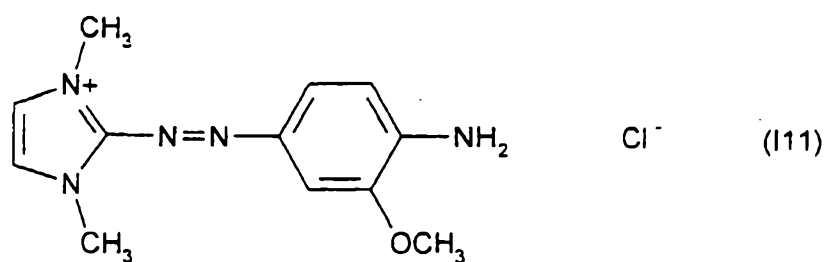
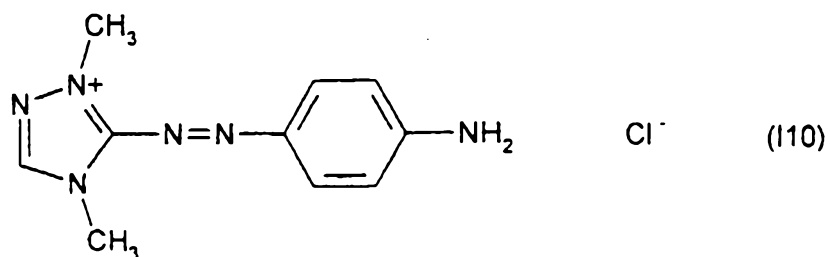
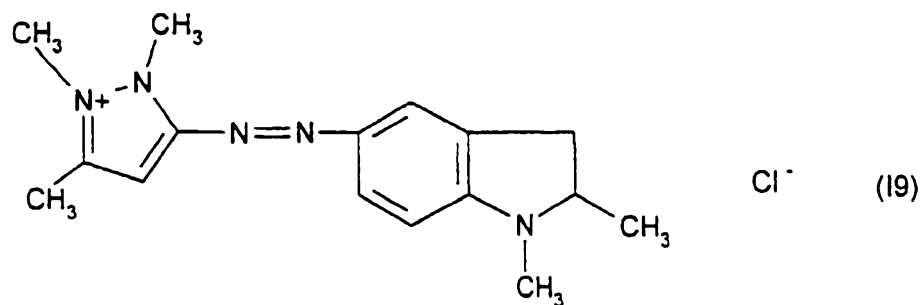
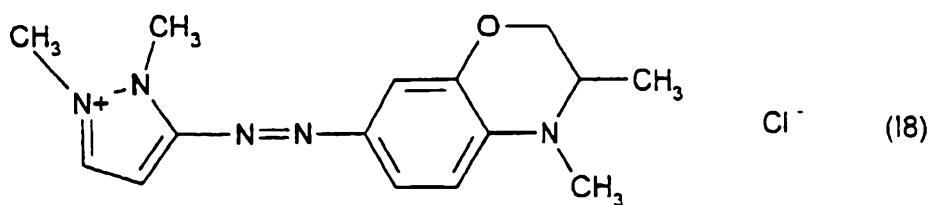
the said composition being characterized in that it contains, in addition, a silicone chosen from the group consisting of:

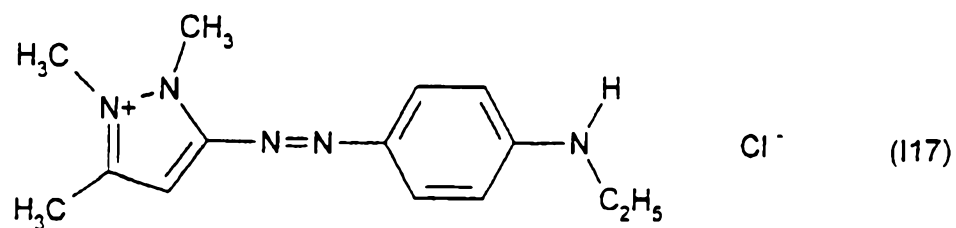
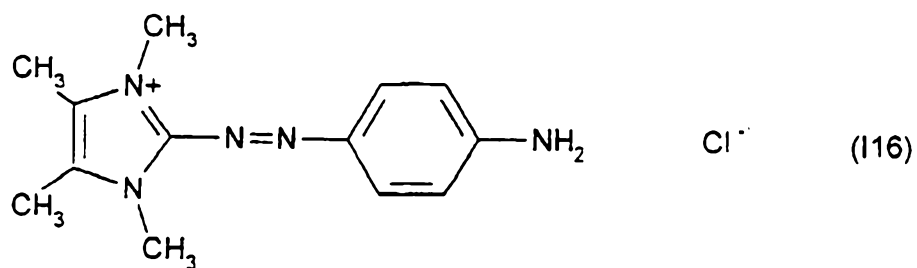
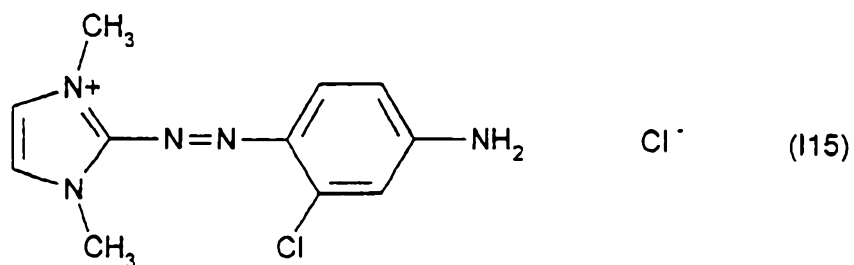
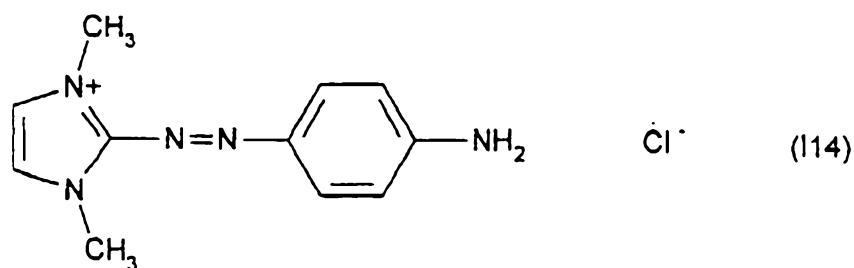
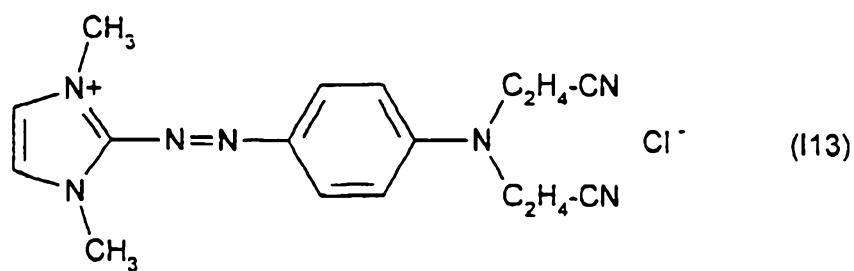
- (ii)₁ aminated silicones,
- 5 (ii)₂ polyoxyalkylenated silicones,
- (ii)₃ silicone gums and resins.

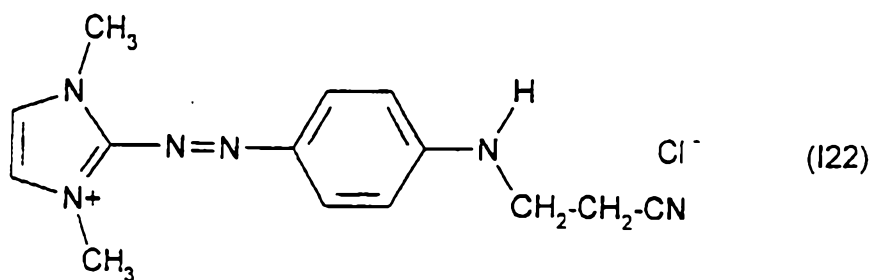
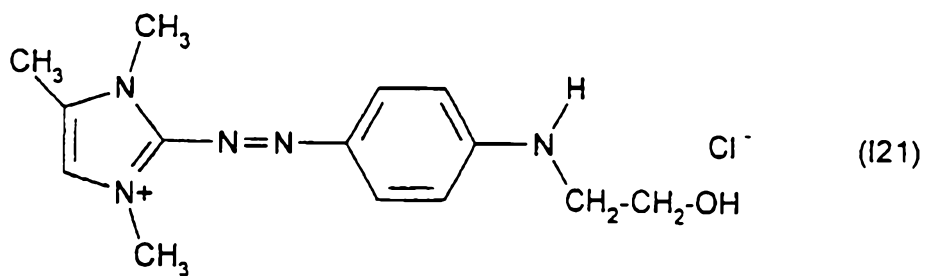
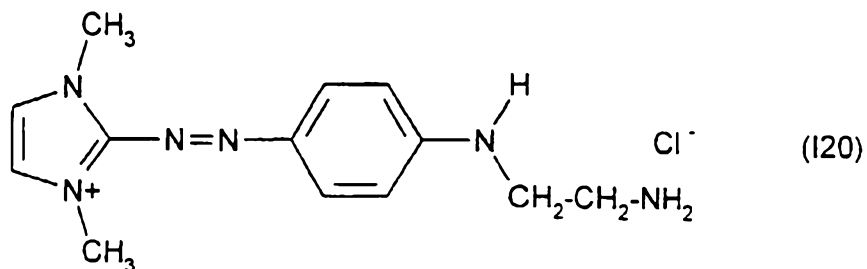
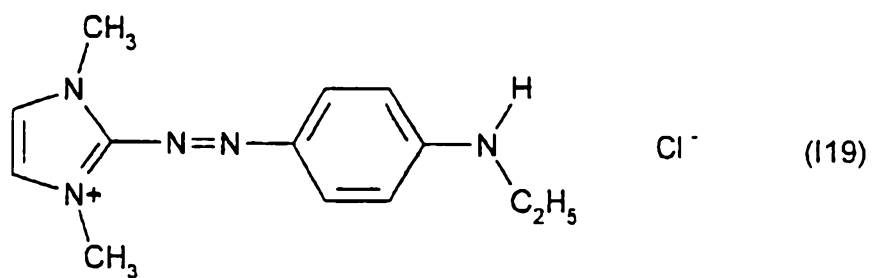
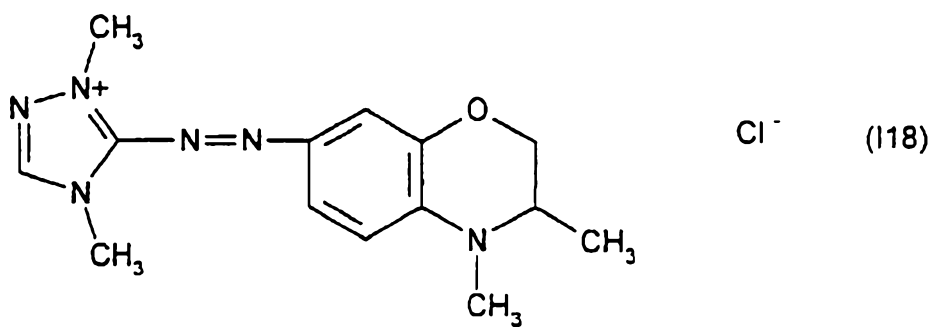
2. Composition according to Claim 1, characterized in that the cationic direct dyes of formula (I) are chosen from the compounds corresponding
10 to the following structures (I1) to (I54):

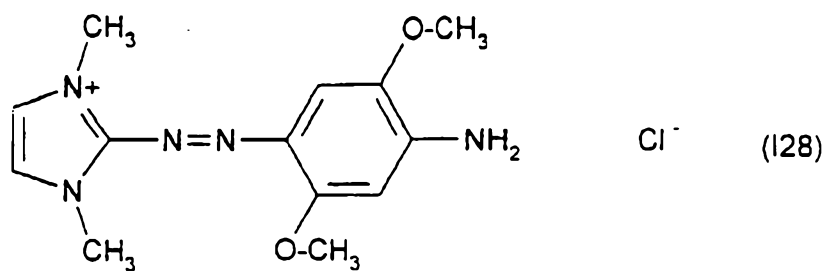
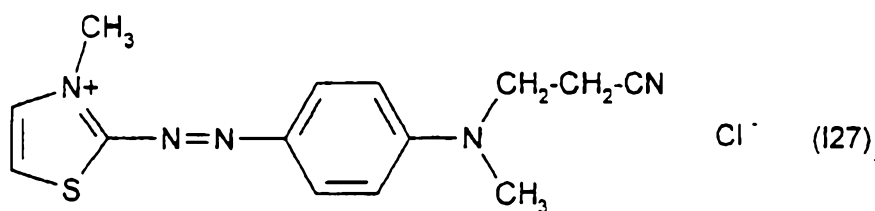
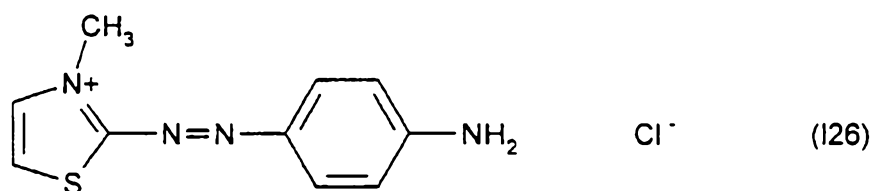
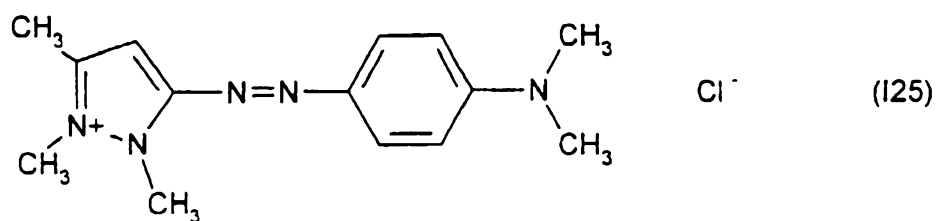
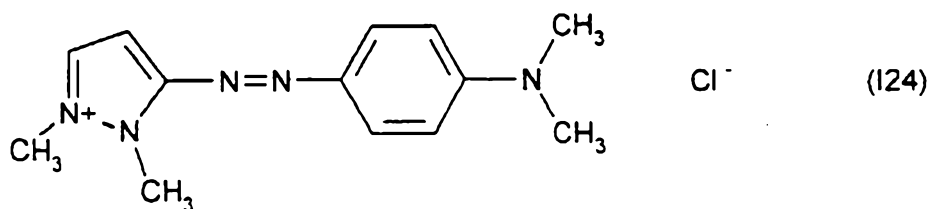
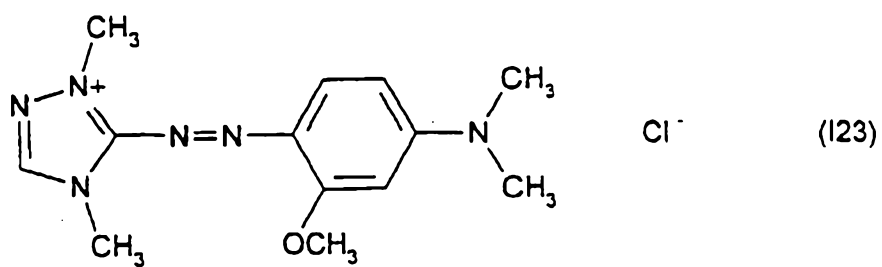


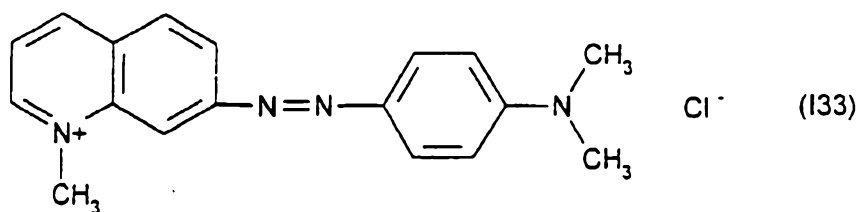
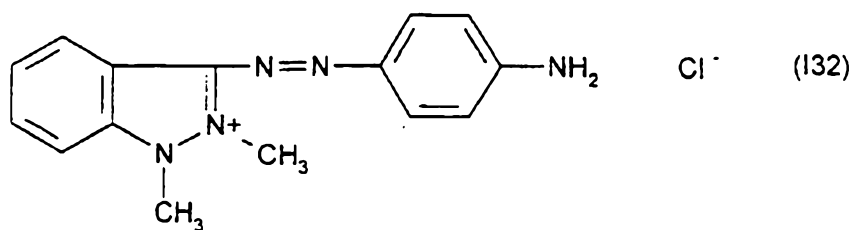
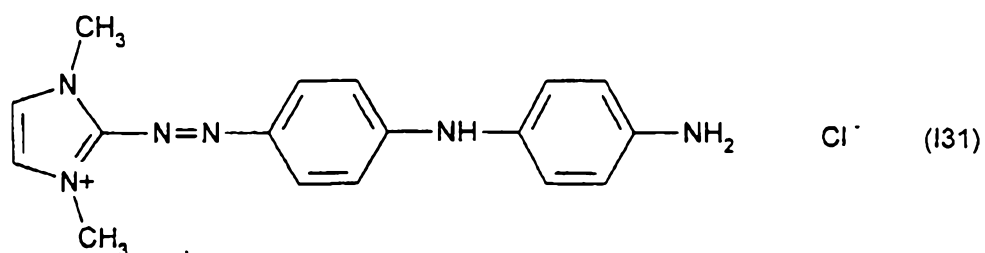
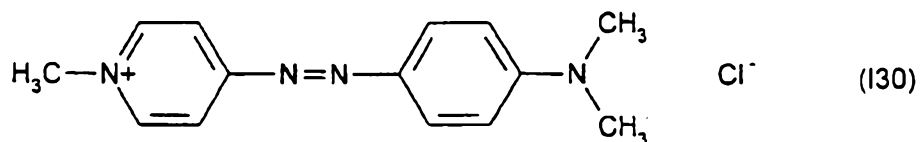
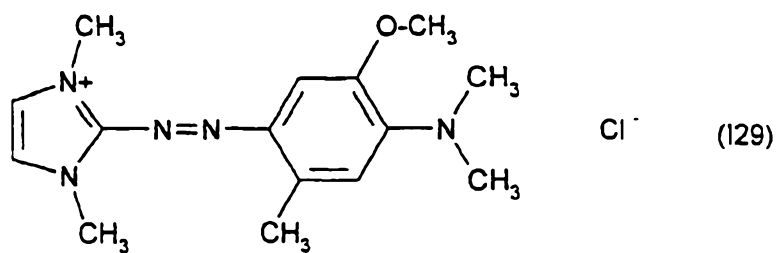


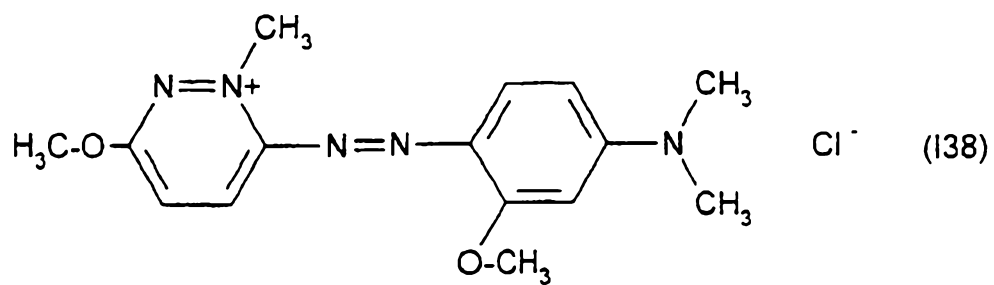
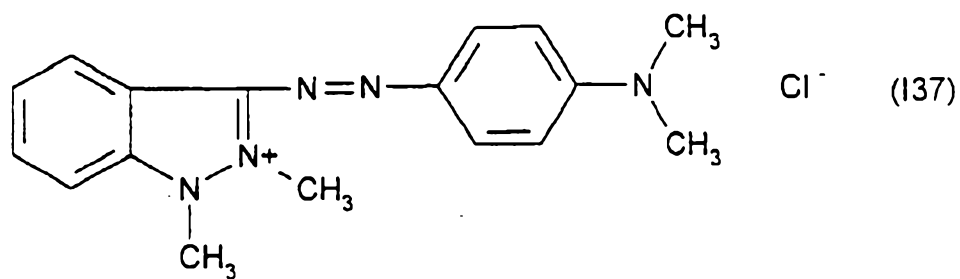
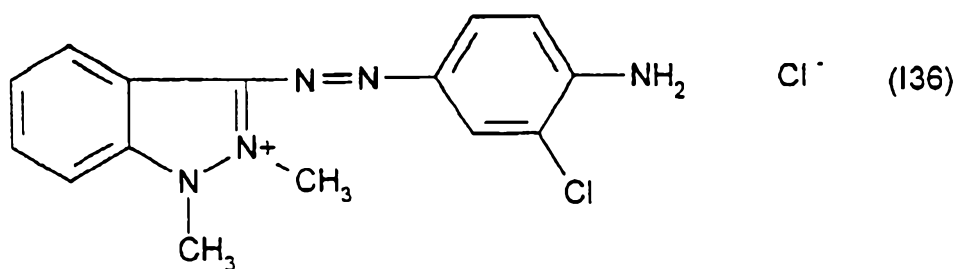
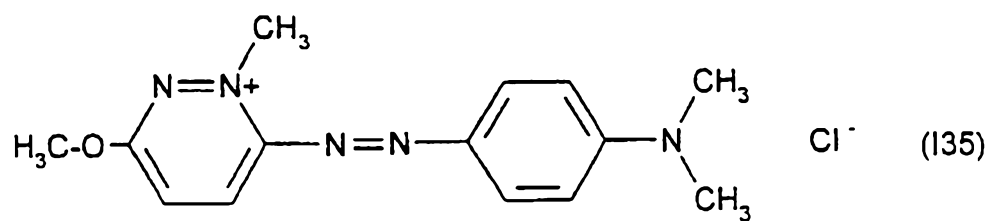
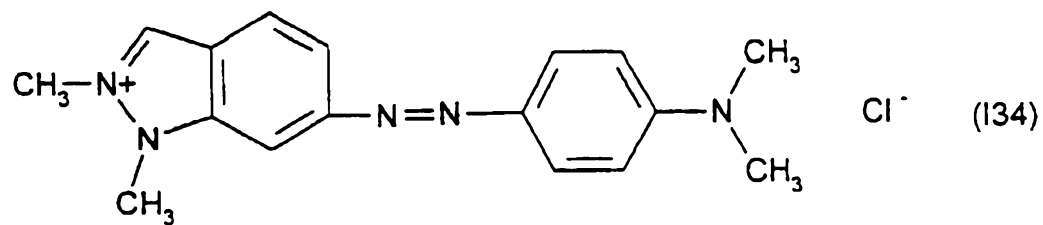


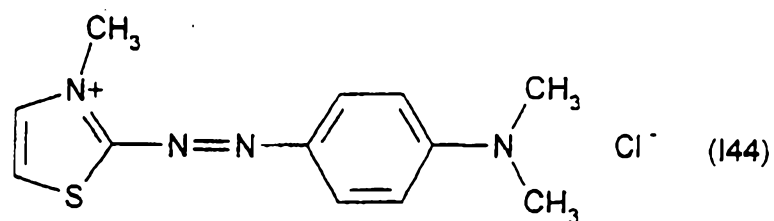
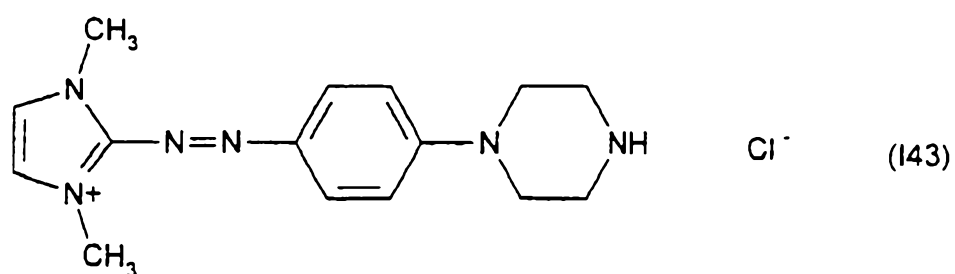
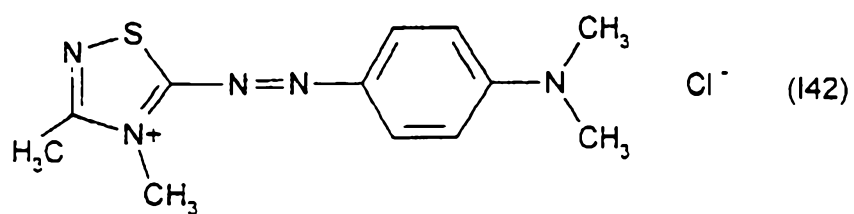
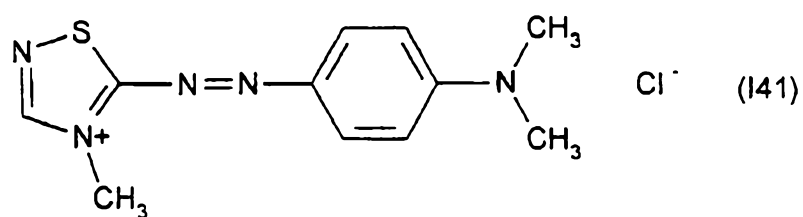
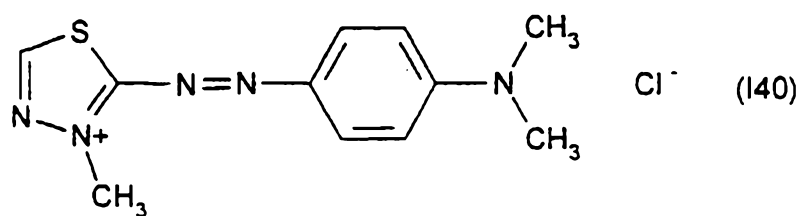
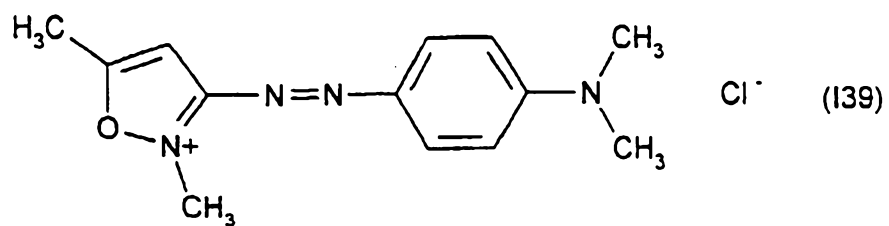


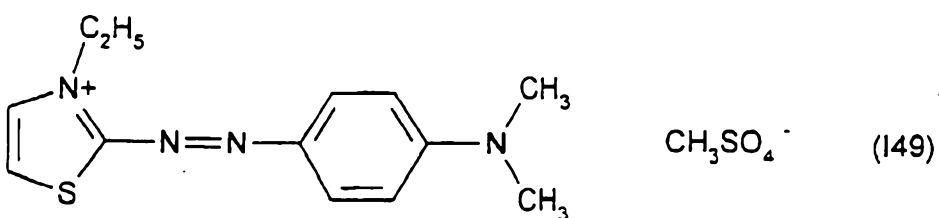
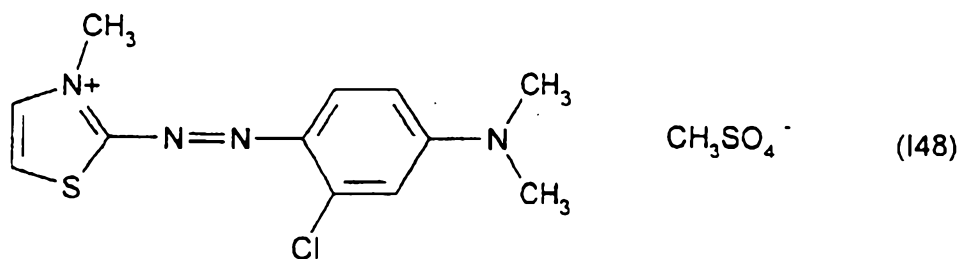
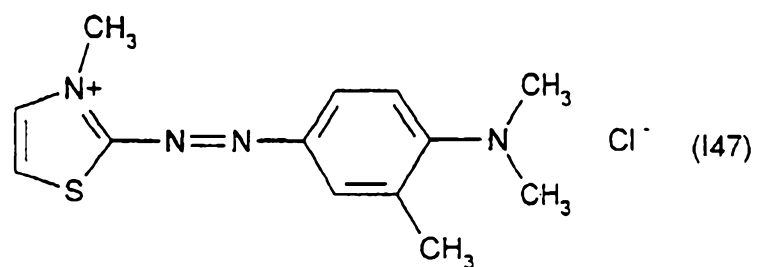
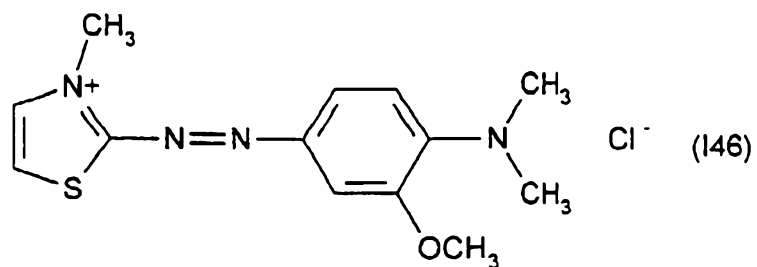
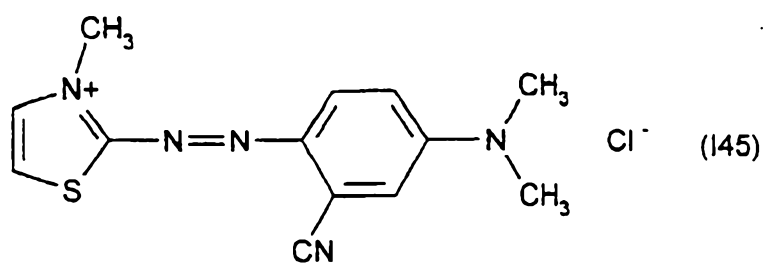


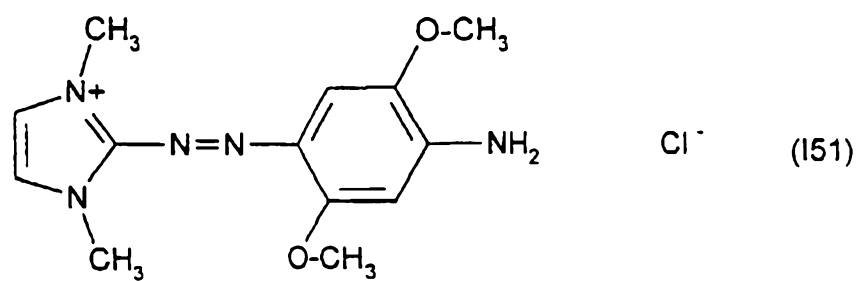
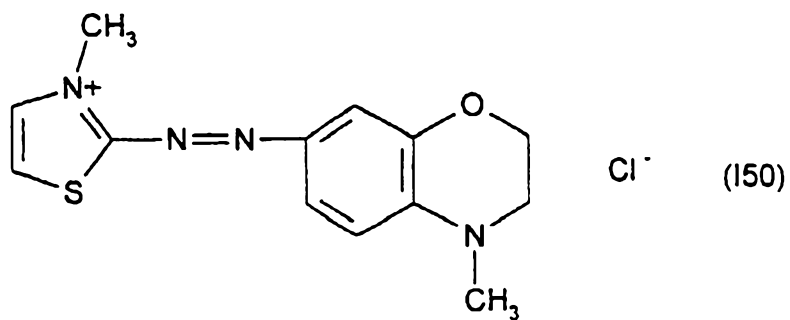




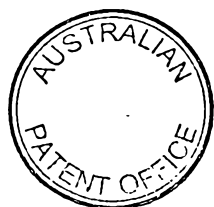
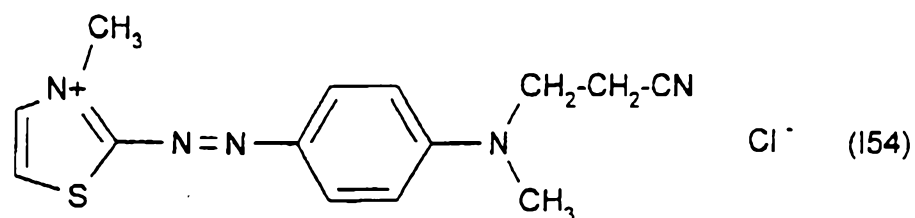
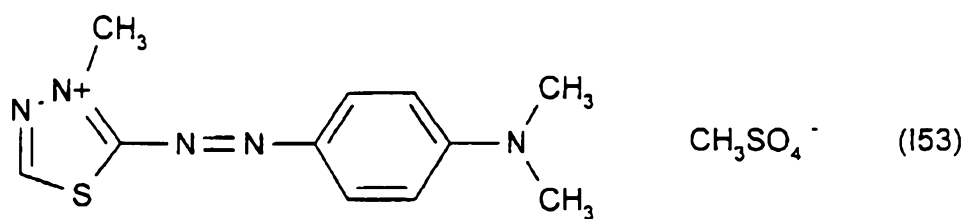
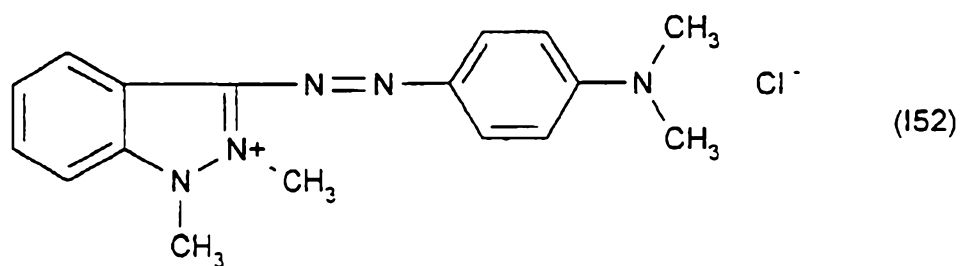






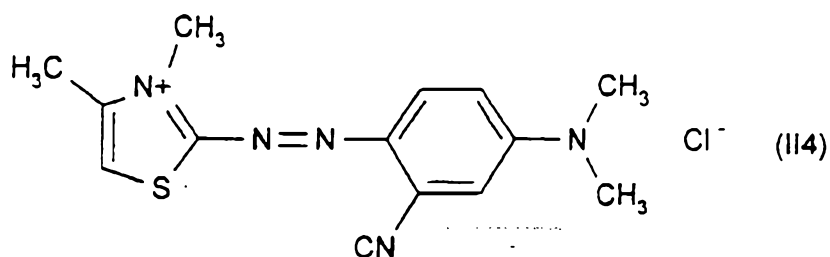
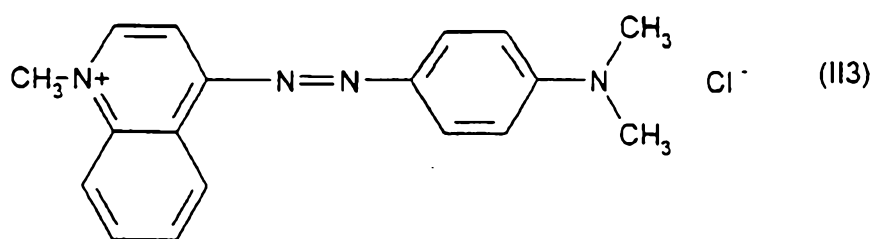
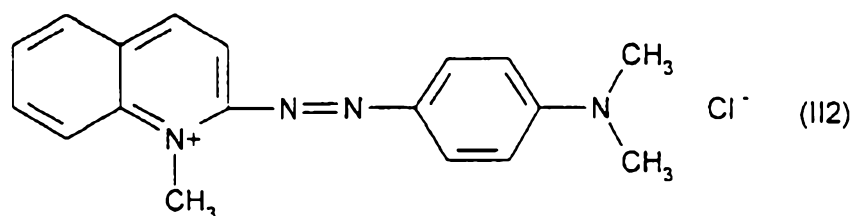
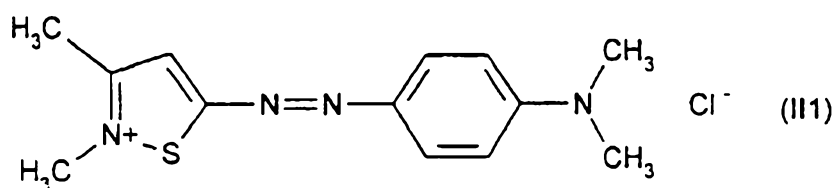


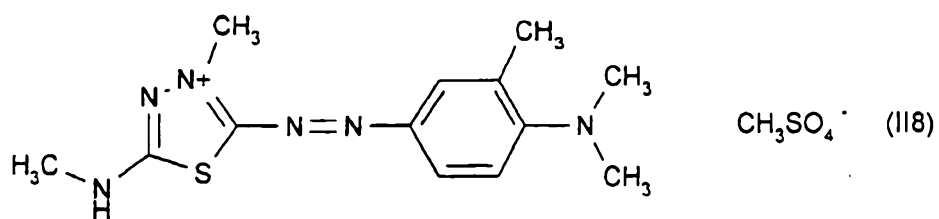
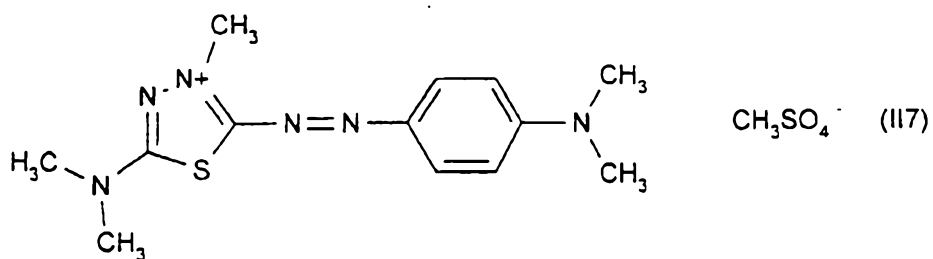
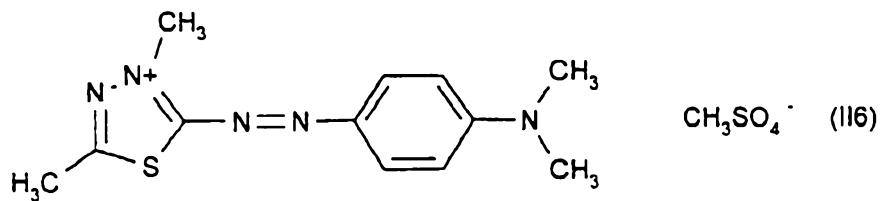
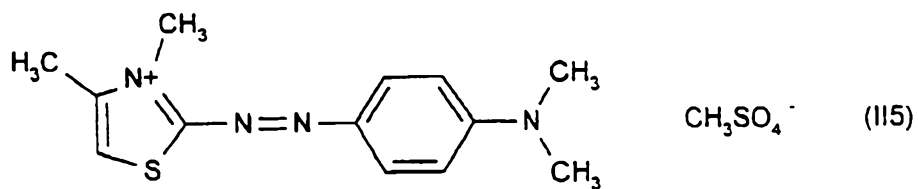
, and



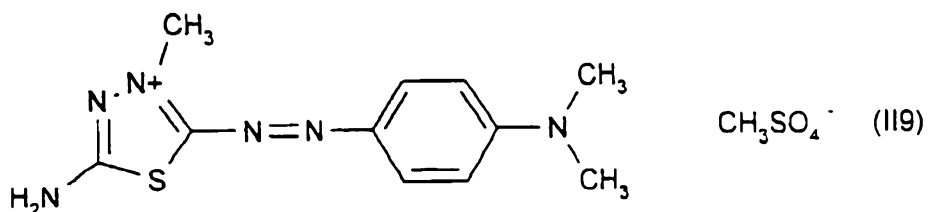
3. Composition according to Claim 2, characterized in that the cationic direct dyes correspond to the structures (II1), (II2), (II4), and (II31).

5 4. Composition according to Claim 1, characterized in that the cationic direct dyes of formula (II) are chosen from the compounds corresponding to the following structures (II1) to (II9):

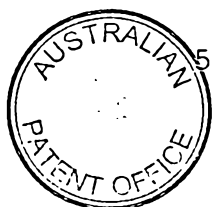




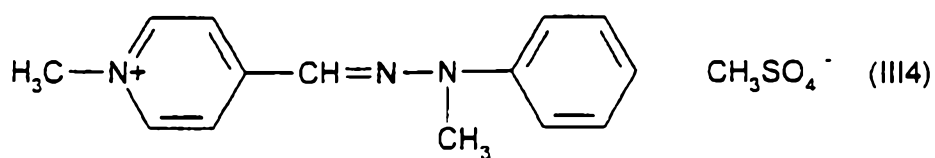
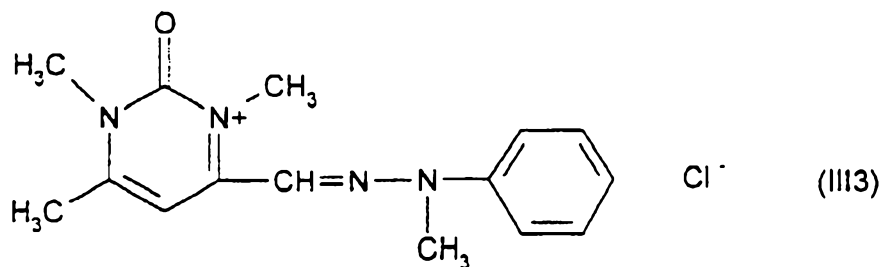
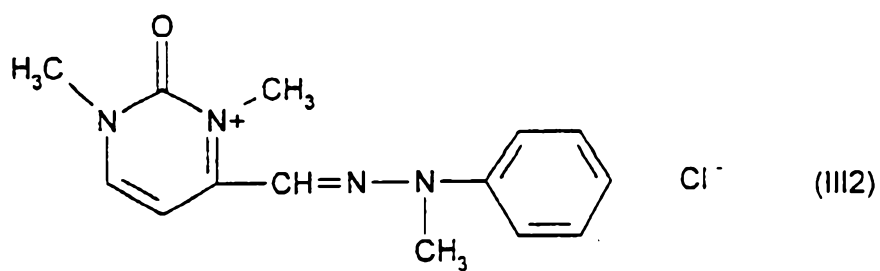
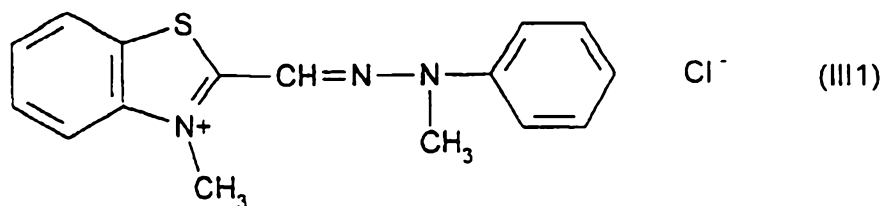
; and

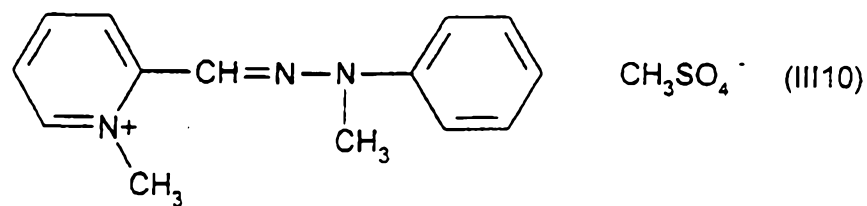
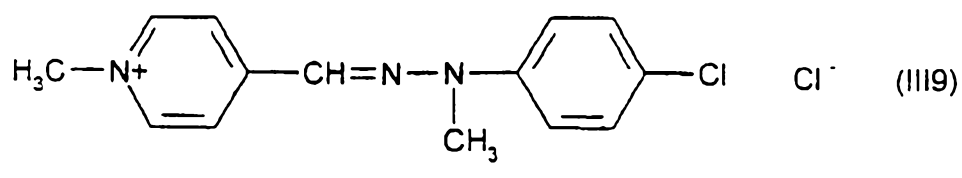
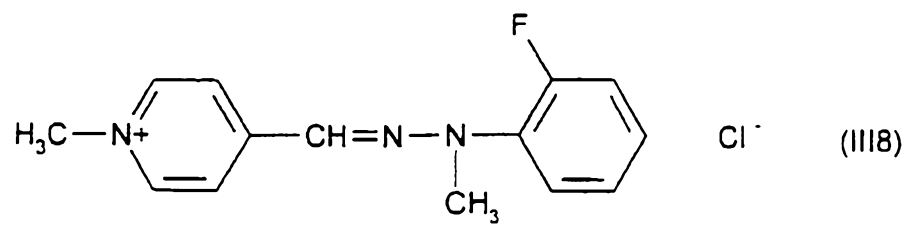
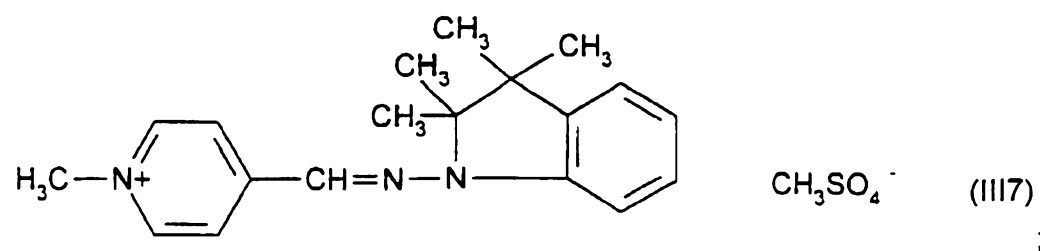
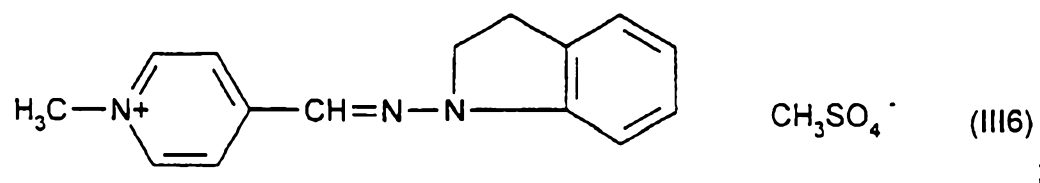
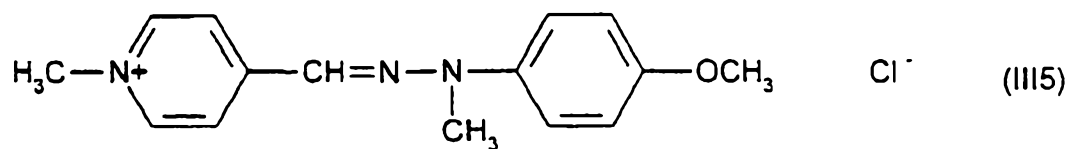


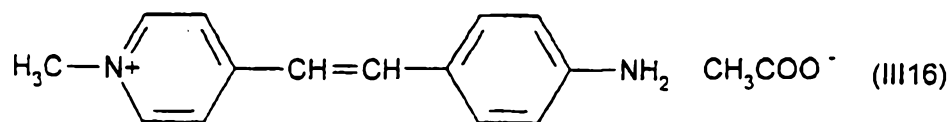
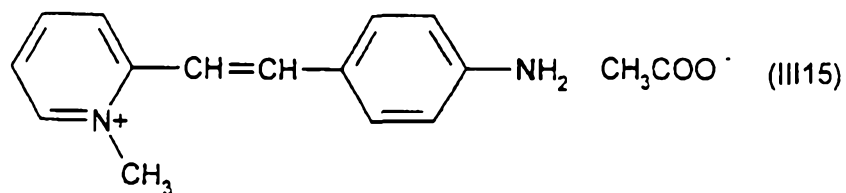
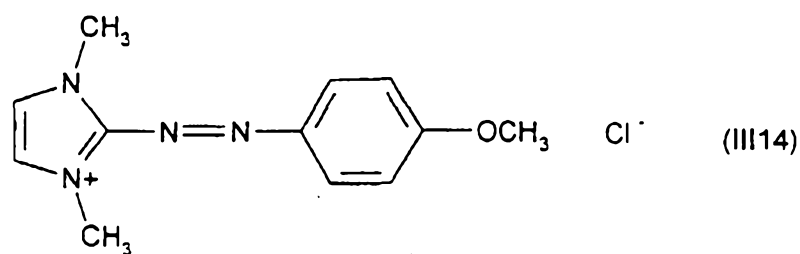
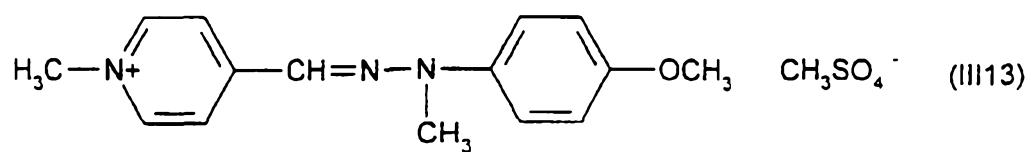
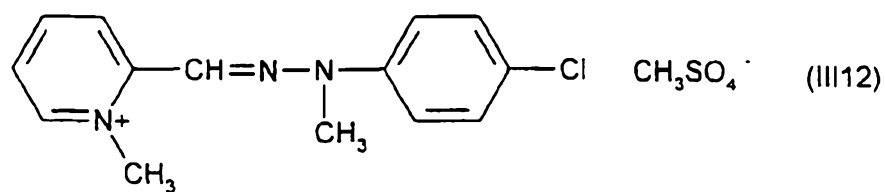
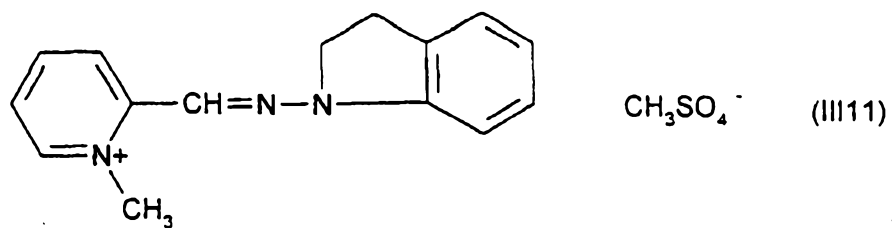
5. Composition according to Claim 1,
characterized in that the cationic direct dyes of

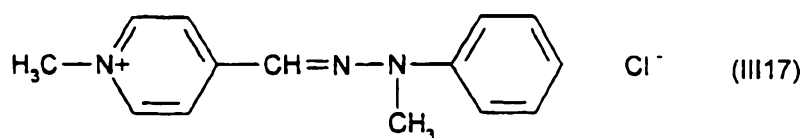


formula (III) are chosen from the compounds corresponding to the following structures (III1) to (III18):

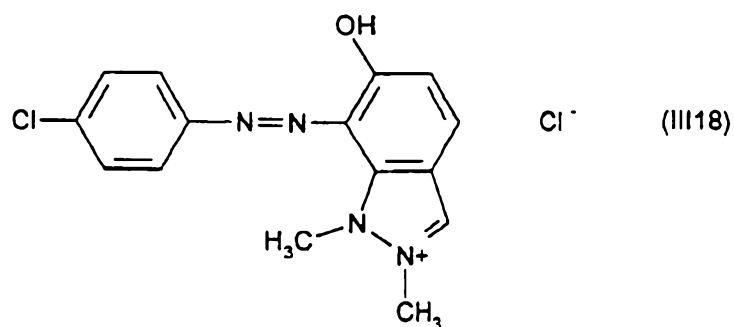






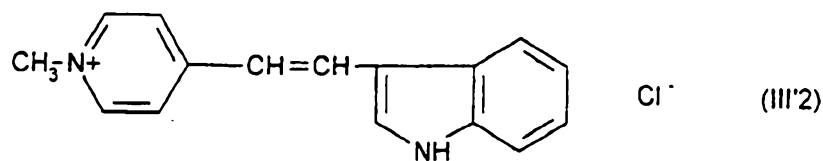
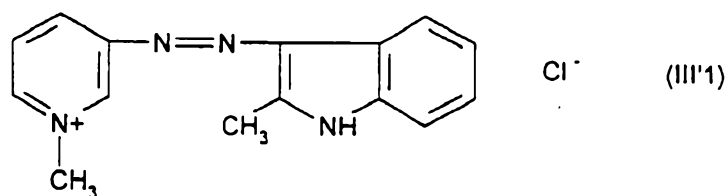


; and



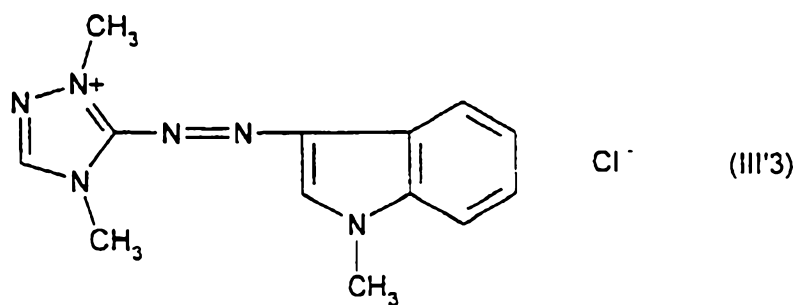
6. Composition according to Claim 5,
characterized in that the cationic direct dyes of
formula (III) are chosen from the compounds
5 corresponding to the structures (III4), (III5) and
(III13).

7. Composition according to Claim 1,
characterized in that the cationic direct dyes of
formula (III') are chosen from the compounds
10 corresponding to the following structures (III'1) to
(III'3):



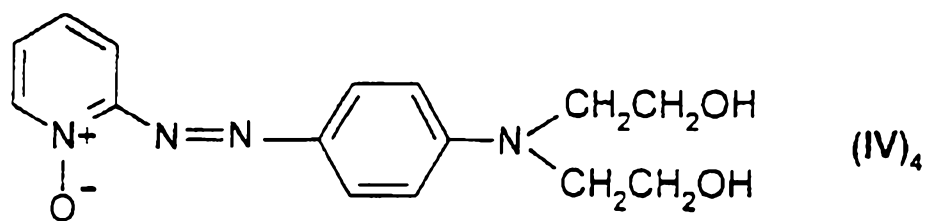
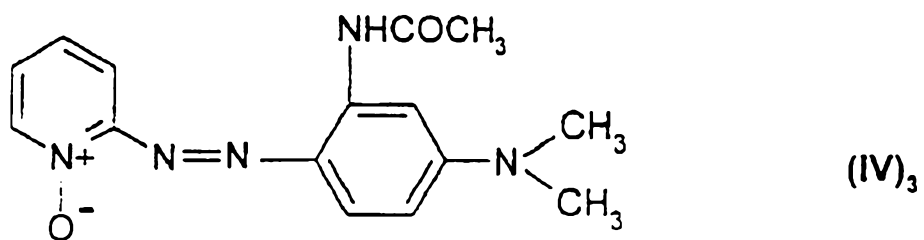
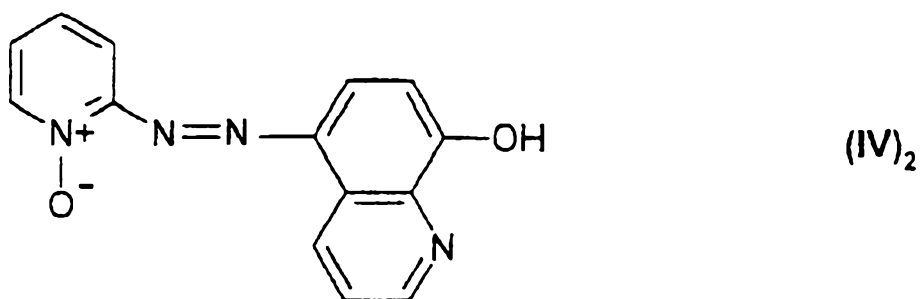
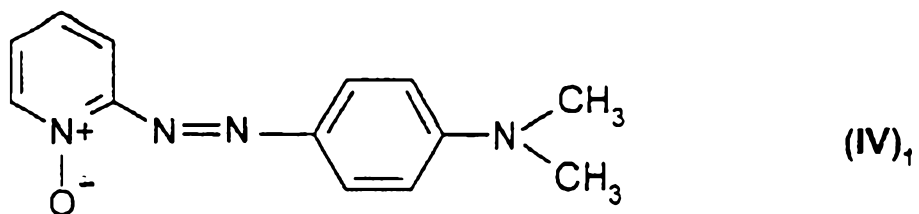
; and

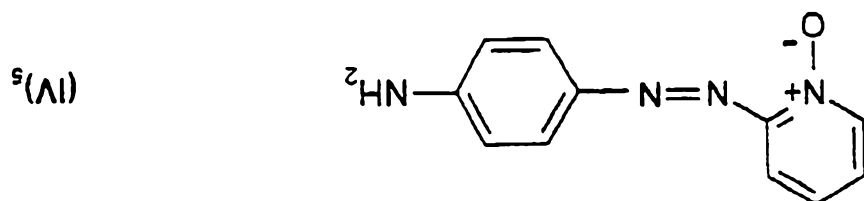
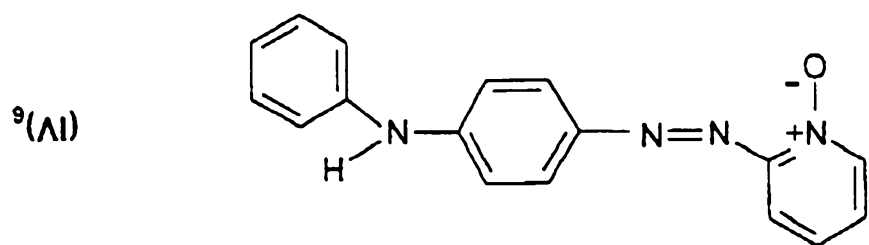
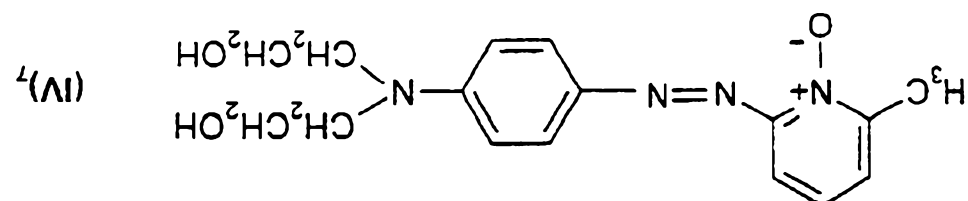
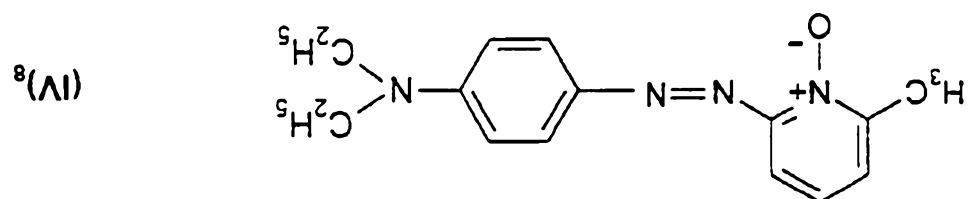
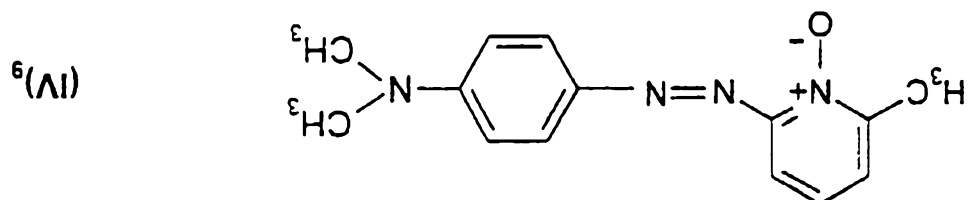
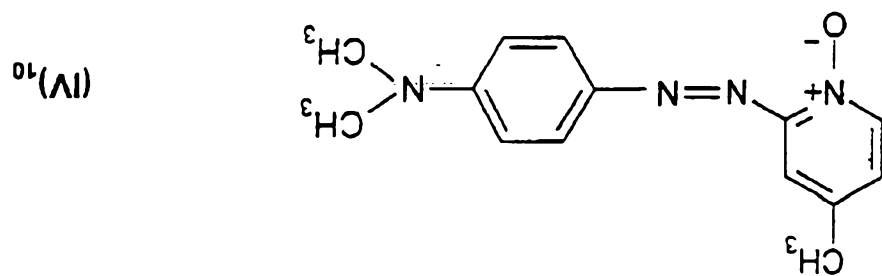


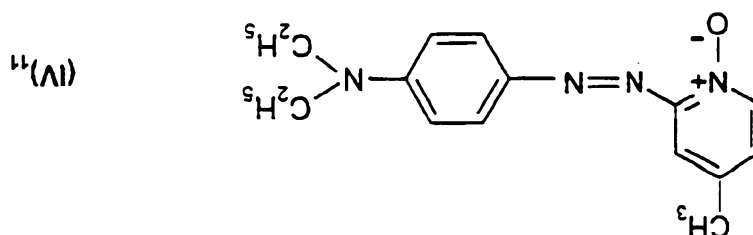
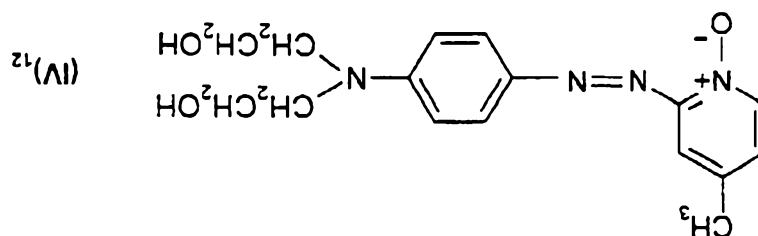
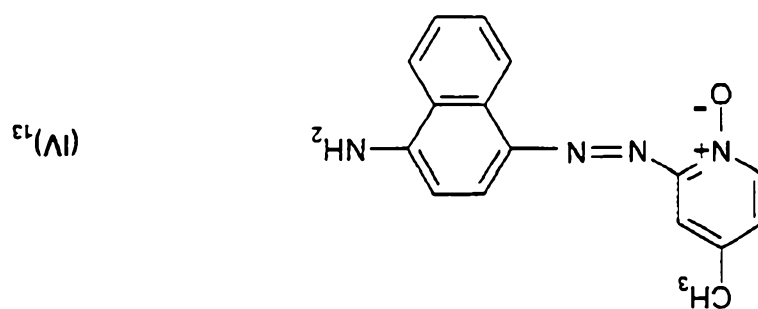
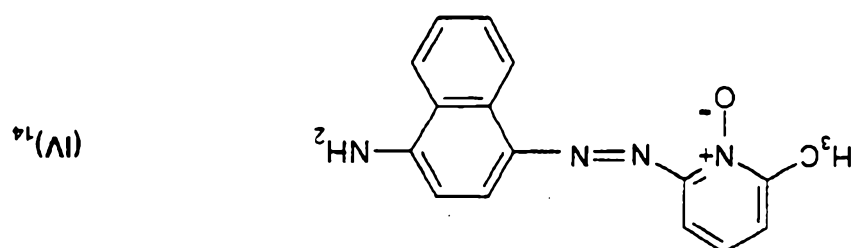
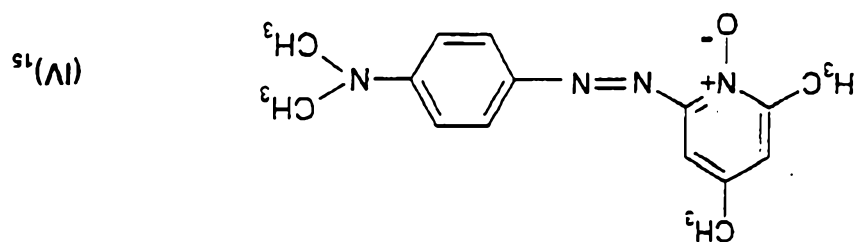


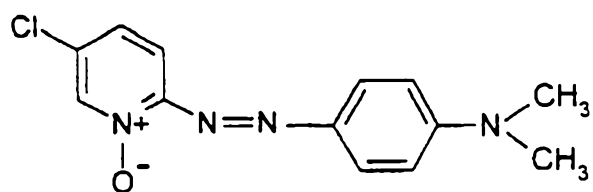
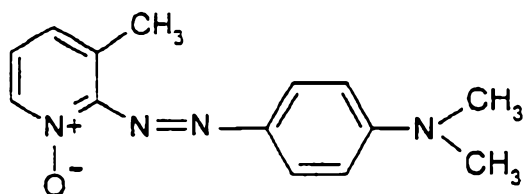
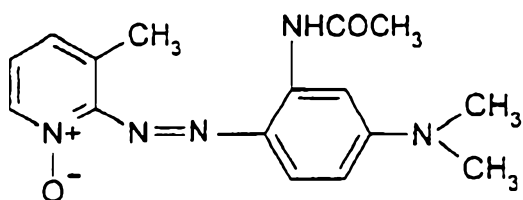
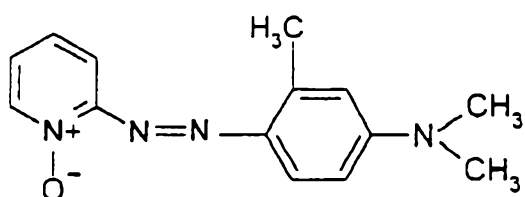
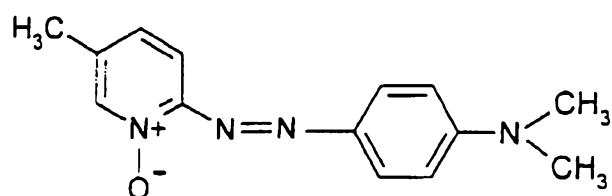
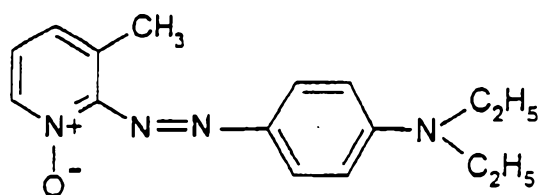
8. Composition according to Claim 1,
 characterized in that the cationic direct dyes of
 formula (IV) are chosen from the compounds
 5 corresponding to the following structures (IV)₁ to
 (IV)₇₇:

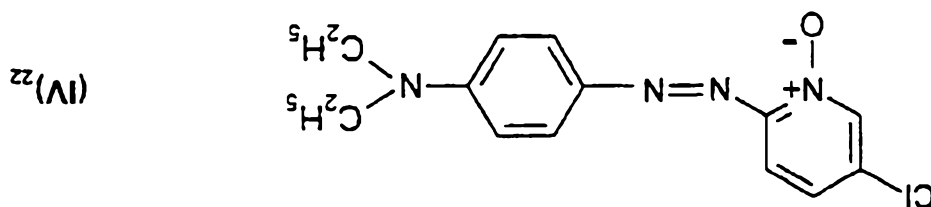
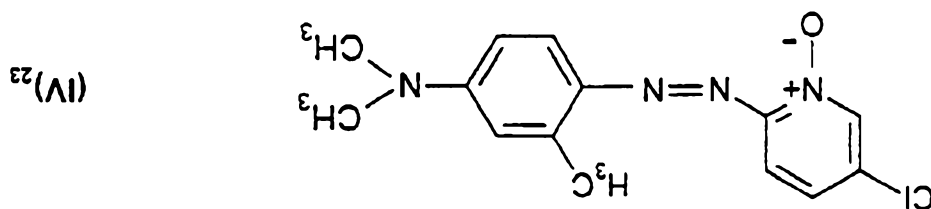
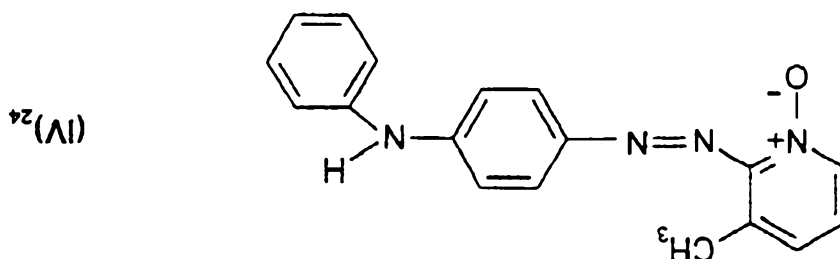
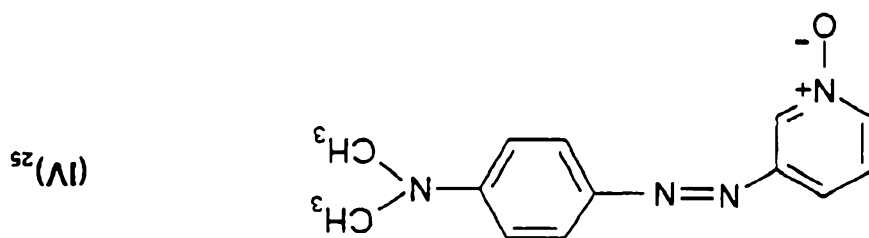
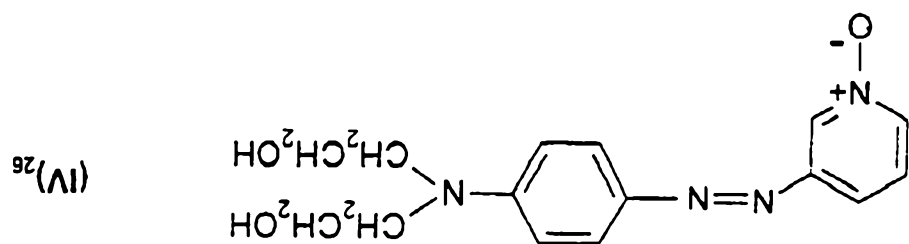


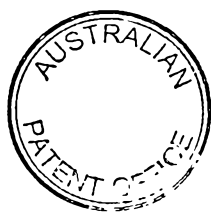
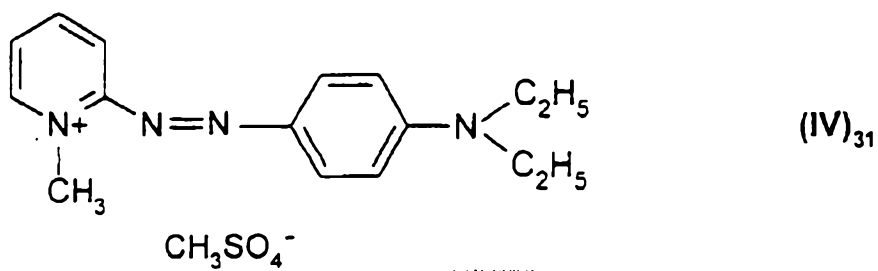
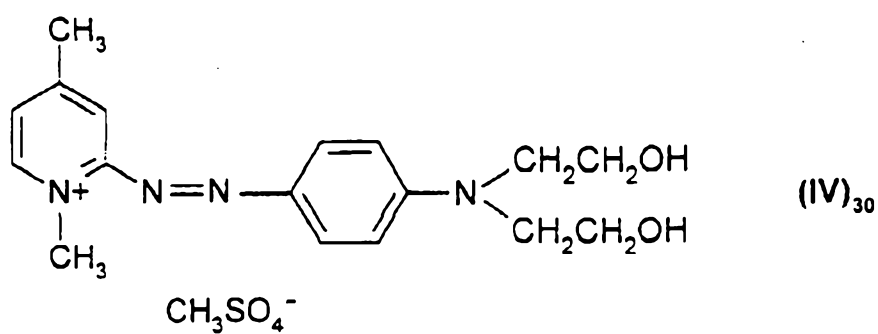
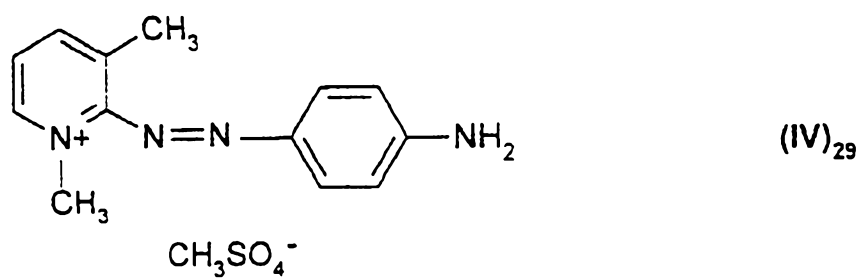
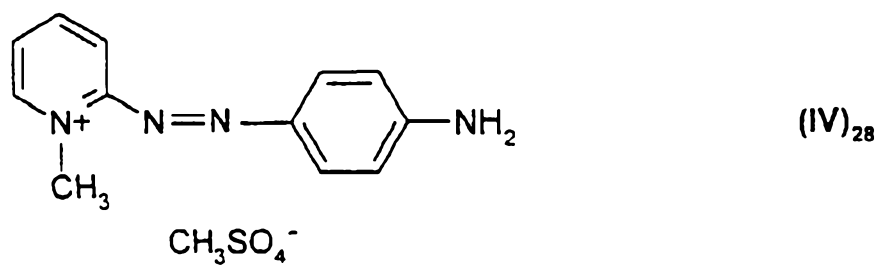
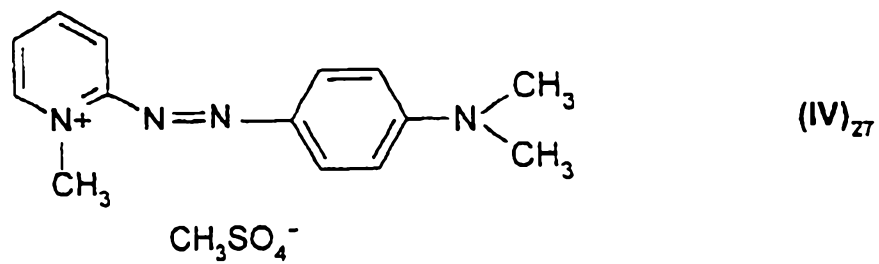


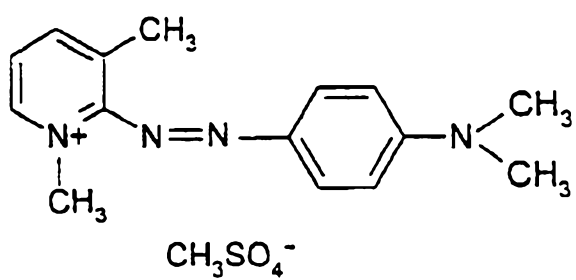
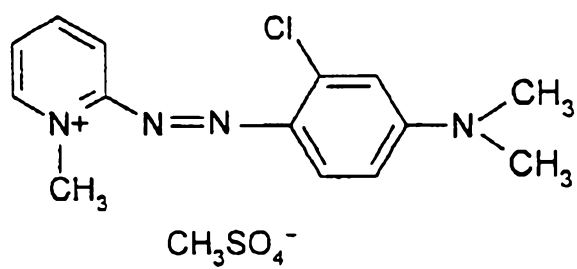
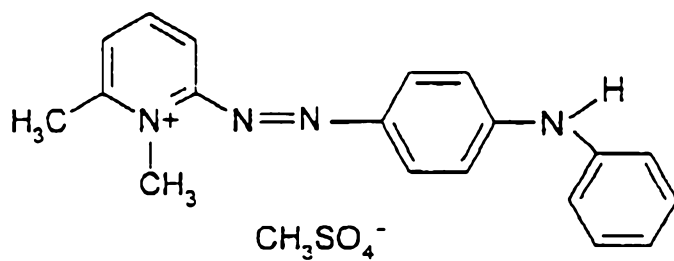
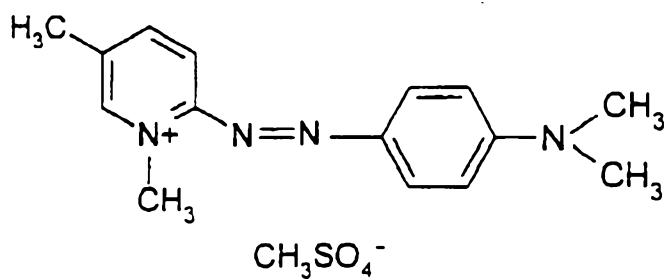
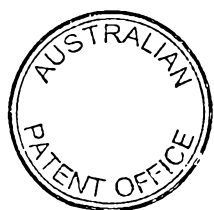


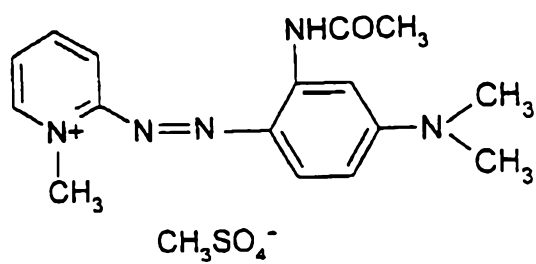
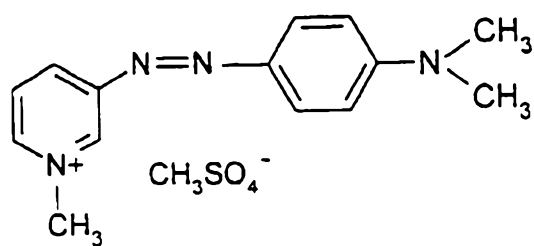
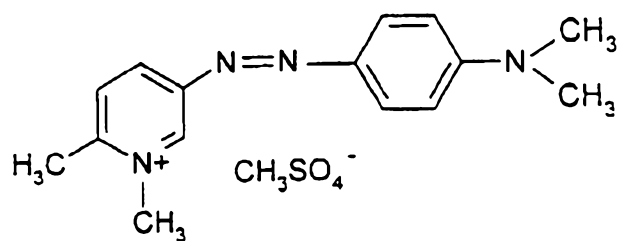
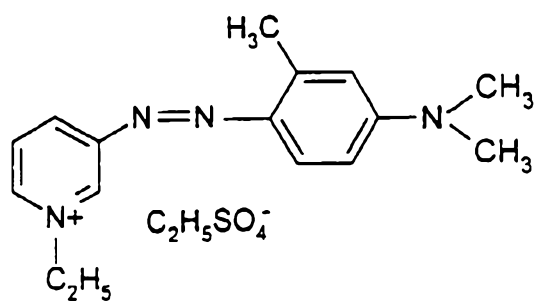
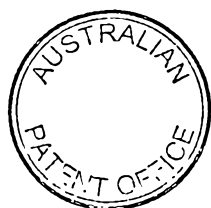


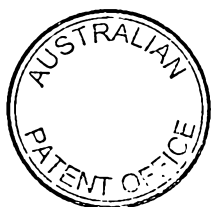
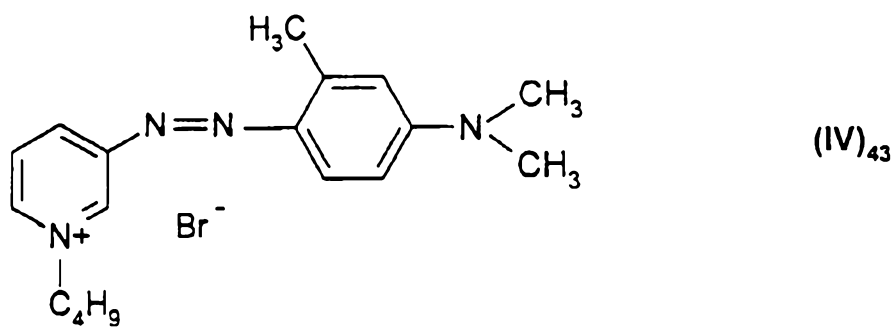
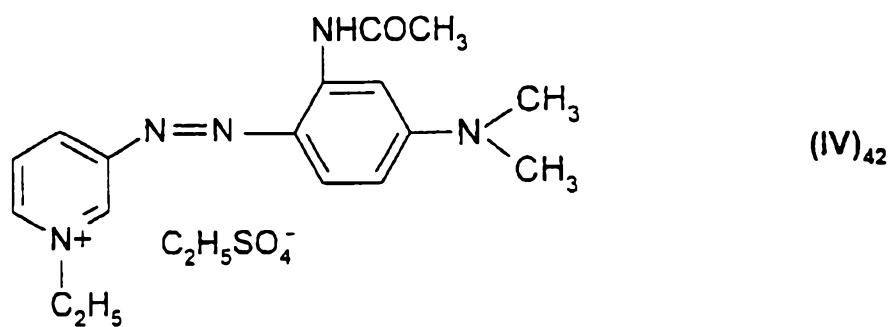
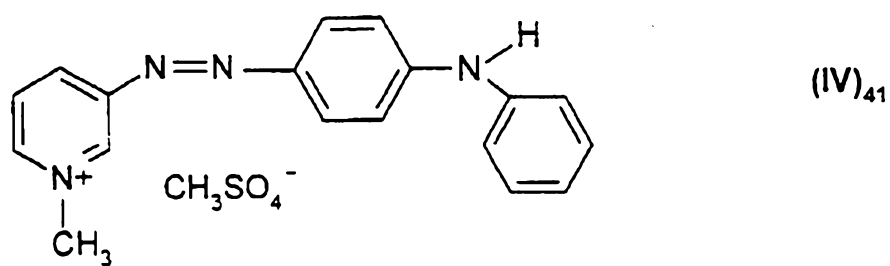
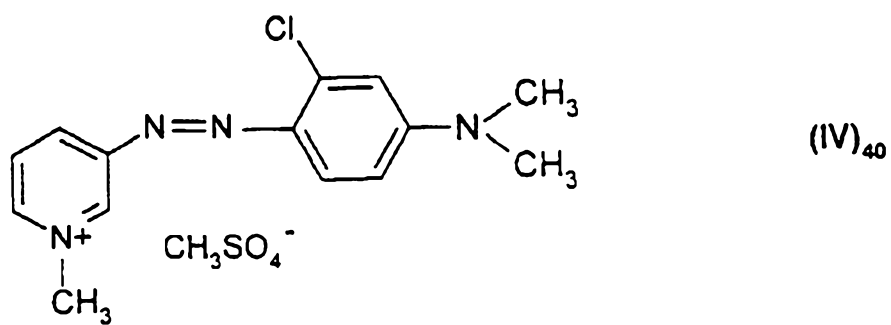
(IV)₁₆(IV)₁₇(IV)₁₈(IV)₁₉(IV)₂₀(IV)₂₁

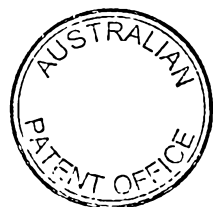
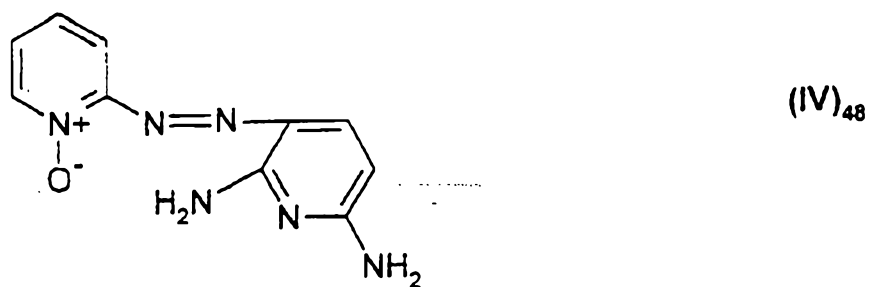
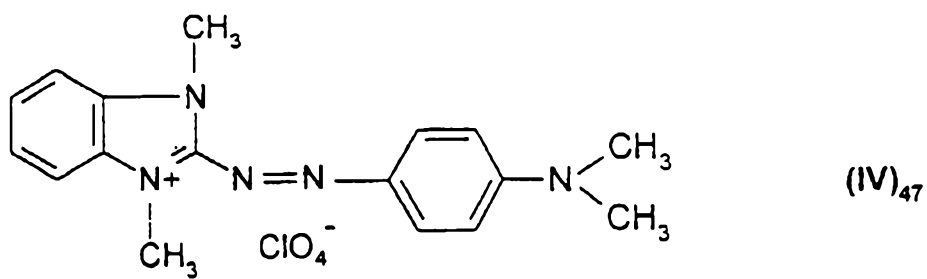
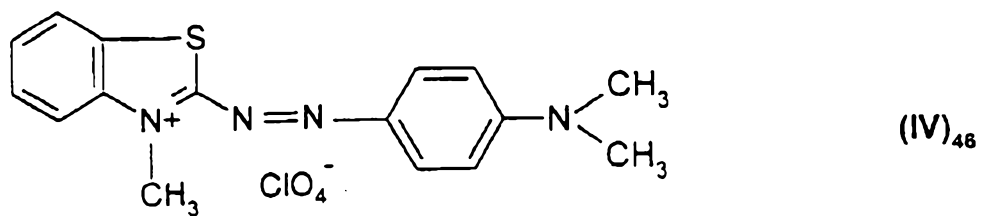
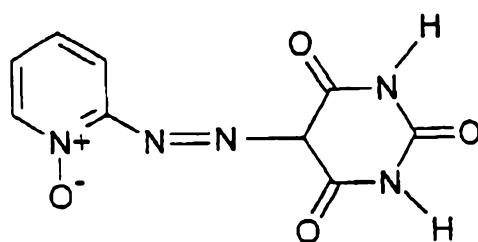
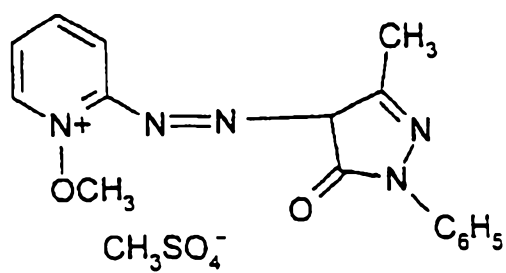


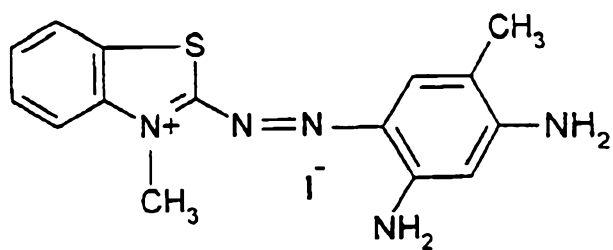
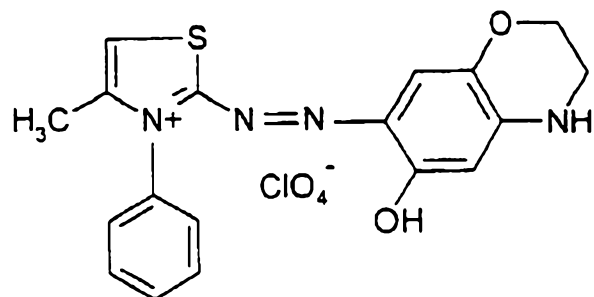
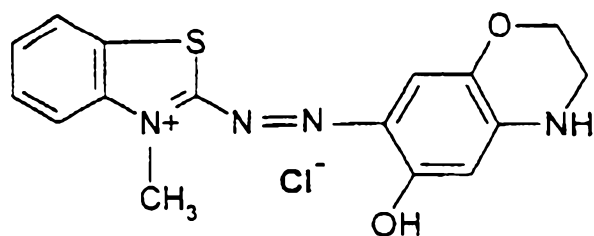
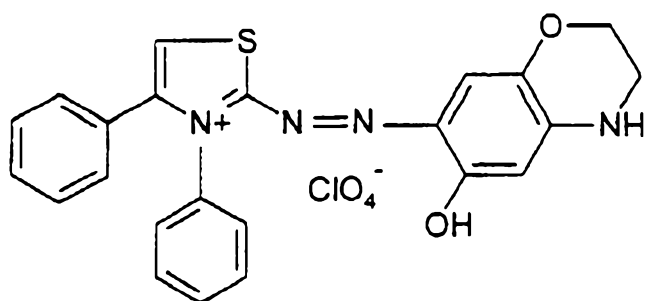


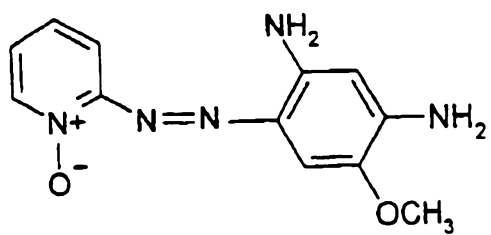
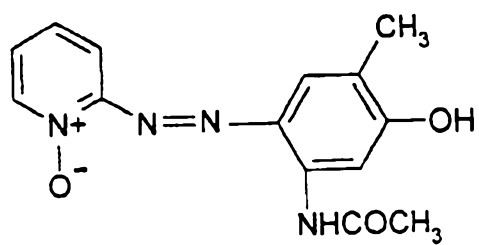
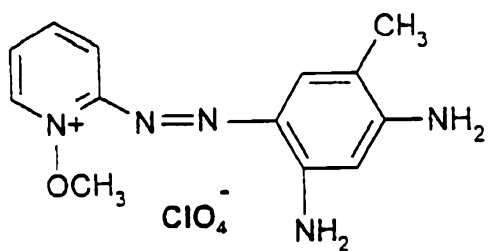
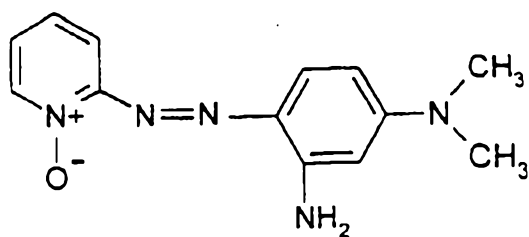
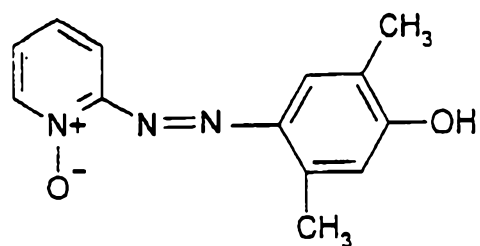
(IV)₃₂(IV)₃₃(IV)₃₄(IV)₃₅

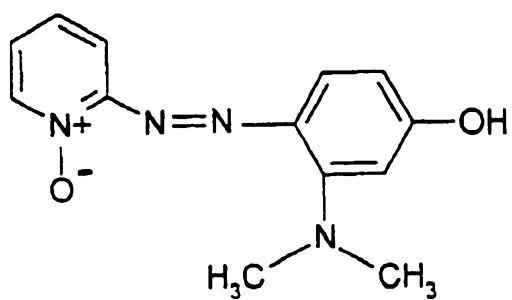
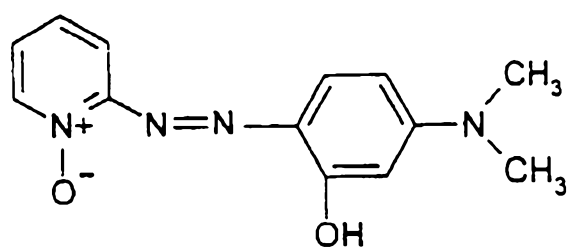
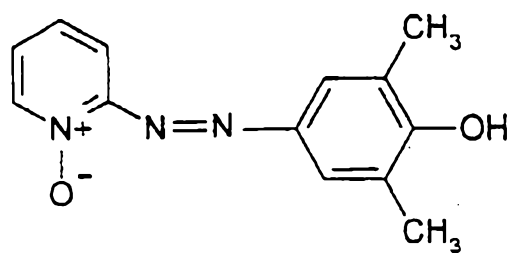
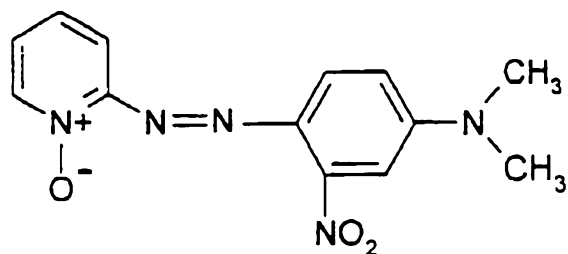
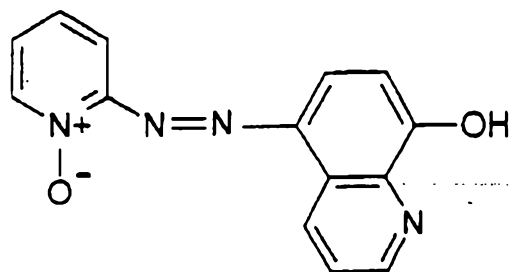
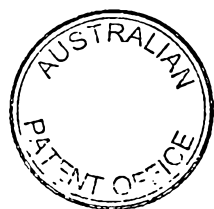
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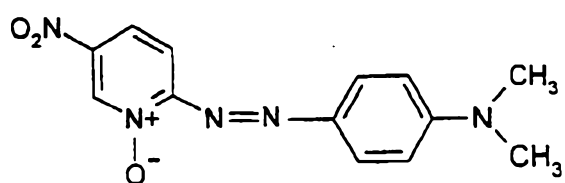
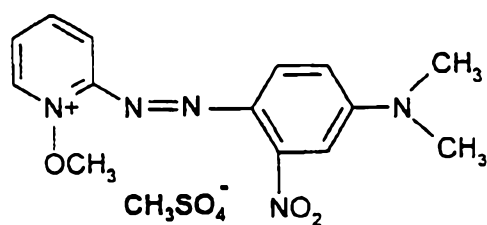
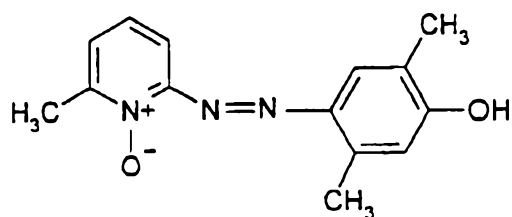
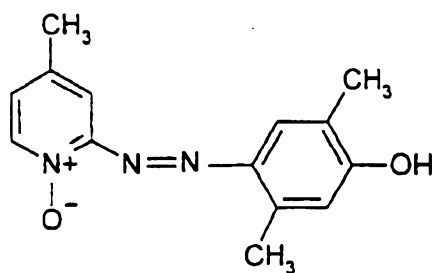
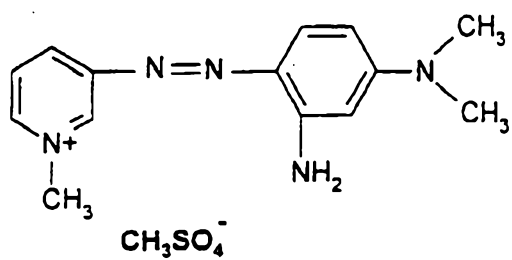


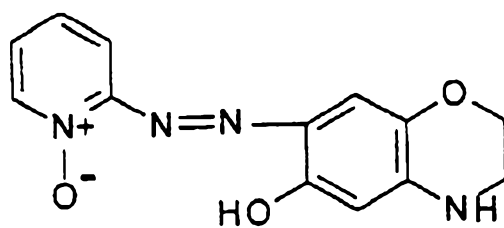
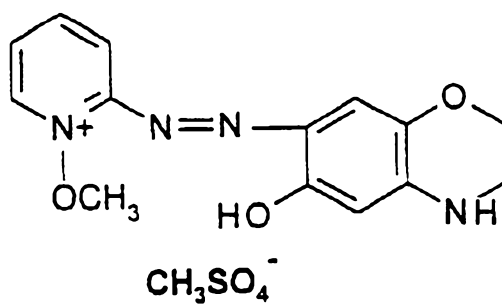
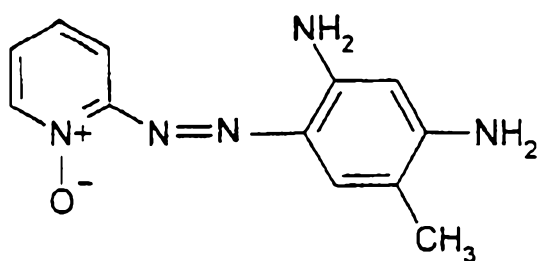
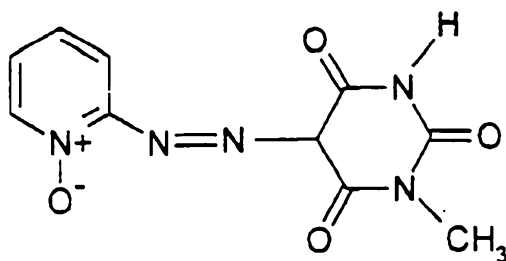
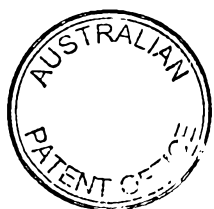


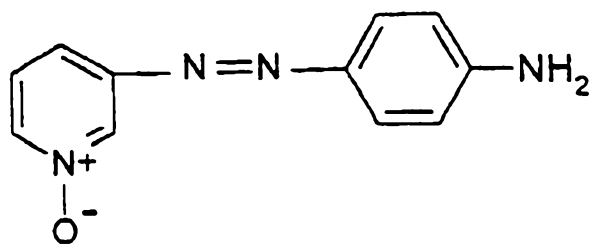
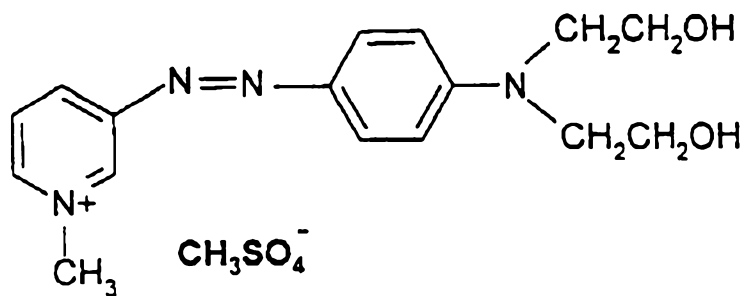
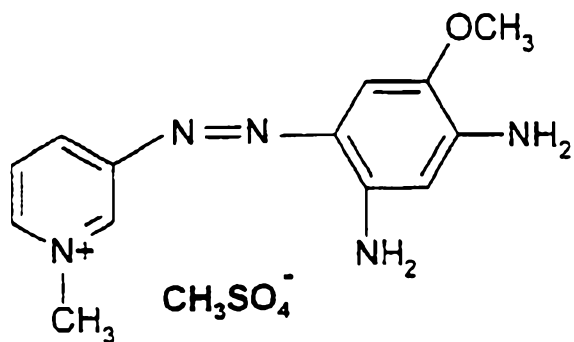
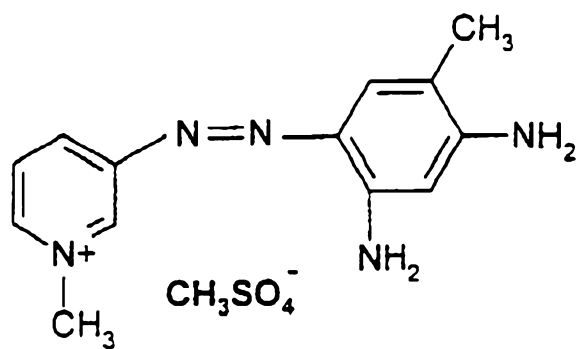
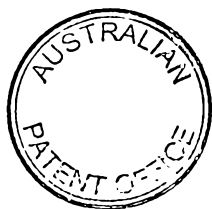
(IV)₄₉(IV)₅₀(IV)₅₁(IV)₅₂

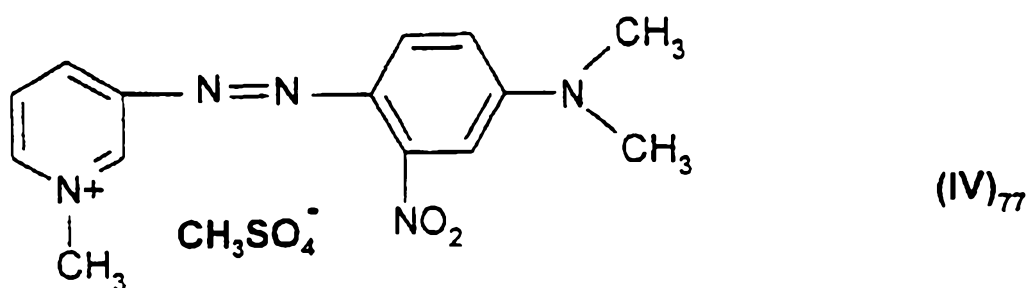
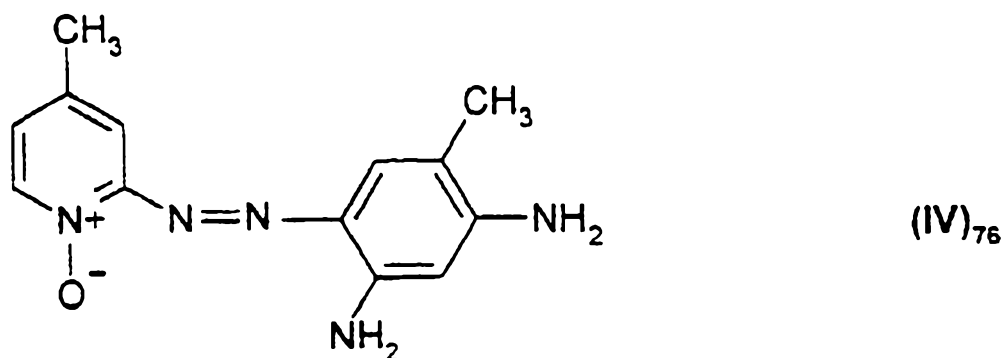
(IV)₅₃(IV)₅₄(IV)₅₅(IV)₅₆(IV)₅₇

(IV)₅₈(IV)₅₉(IV)₆₀(IV)₆₁(IV)₆₂

(IV)₆₃(IV)₆₄(IV)₆₅(IV)₆₆(IV)₆₇

(IV)₆₈(IV)₆₉(IV)₇₀(IV)₇₁

(IV)₇₂(IV)₇₃(IV)₇₄(IV)₇₅

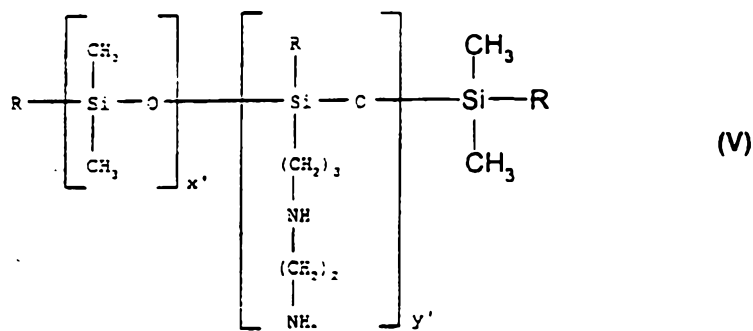


9. Composition according to any one of the preceding claims, characterized in that the cationic direct dye(s) of formulae (I), (II), (III), (III') or (IV) represent from 0.001 to 10% by weight of the total weight of the composition.

10. Composition according to Claim 9, characterized in that the cationic direct dye(s) of formulae (I), (II), (III), (III') or (IV) represent from 0.005 to 5% by weight of the total weight of the composition.

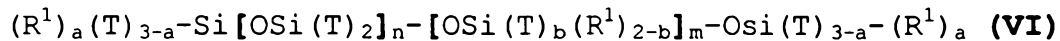
11. Composition according to any one of the preceding claims, characterized in that the aminated silicone (ii)₁ is chosen from the compounds of the following formula (V):





in which R denotes the CH₃ or OH radical, and x' and y' are integers which depend on the molecular weight.

- 5 12. Composition according to any of Claims 1 to 10, characterized in that the animated silicone (ii)₁ is chosen from the compounds of the following formula (VI):



- 10 in which,

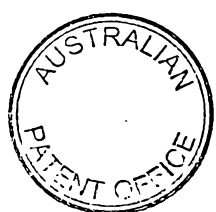
T is a hydrogen atom, or a phenyl, or OH, or C₁-C₈ alkyl, and preferably methyl, radical,
a denotes the number 0 or an integer from 1 to 3, and preferably 0,

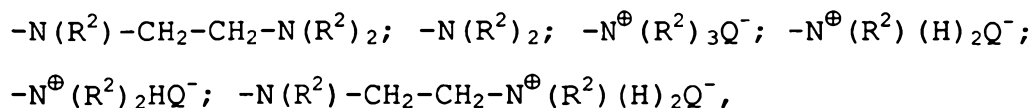
- 15 b denotes 0 or 1, and in particular 1,

m and n are numbers such that the sum (n + m) varies in particular from 1 to 2000 and in particular from 50 to 150, n denoting a number from 0 to 1999 and in particular from 49 to 149 and m denoting a number from

- 20 1 to 2000, and in particular from 1 to 10;

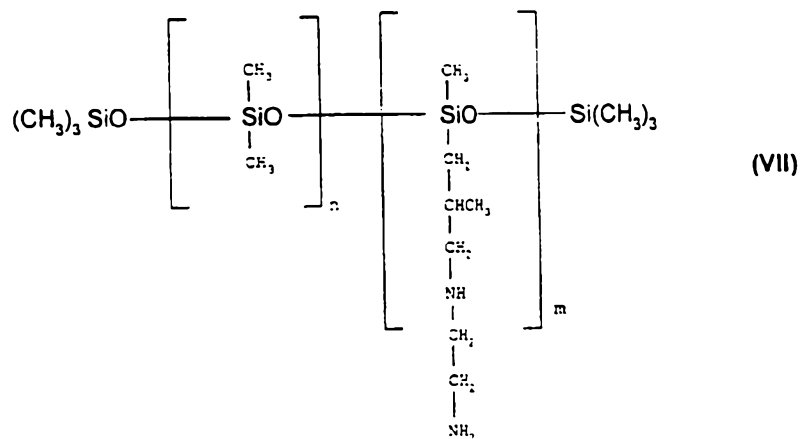
R¹ is a monovalent radical of formula -C_qH_{2q}L in which q is a number from 2 to 8 and L is an optionally quaternized amino group chosen from the groups:





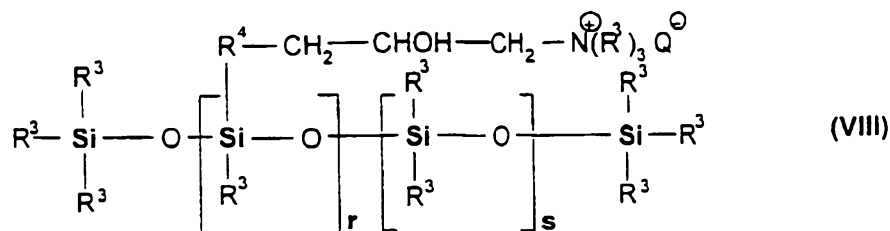
in which R^2 denotes hydrogen, phenyl, benzyl, or a monovalent saturated hydrocarbon radical, preferably an alkyl radical having from 1 to 20 carbon atoms and Q^- represents a halide ion.

13. Composition according to Claim 12, characterized in that the aminated silicone is chosen from the compounds of the following formula (VII):



in which n and m have the meanings given for the formula (VI).

14. Composition according to any one of Claims 1 to 10, characterized in that the aminated silicone (ii)₁ is chosen from the compounds of the following formula (VIII):



in which,

R^3 represents a monovalent hydrocarbon radical having from 1 to 18 carbon atoms, and preferably a C_1 - C_{18} alkyl or C_2 - C_{18} alkenyl radical;

5 R^4 represents a divalent hydrocarbon radical, preferably a C_1 - C_{18} alkylene radical or a C_1 - C_{18} divalent alkyleneoxy radical;

Q^- is a halide ion;

r represents a mean statistical value from 2 to 20 and

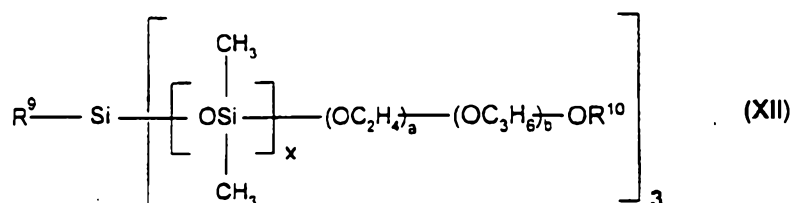
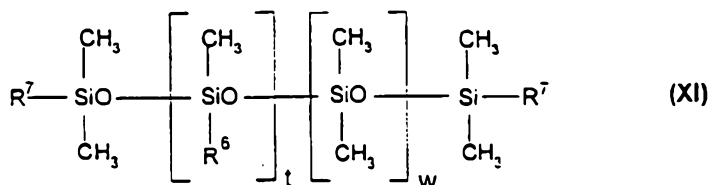
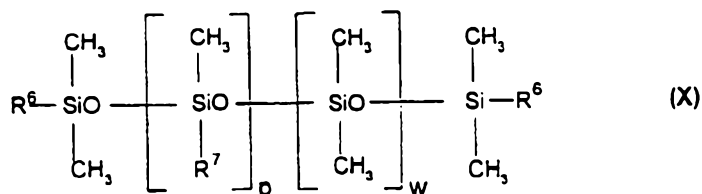
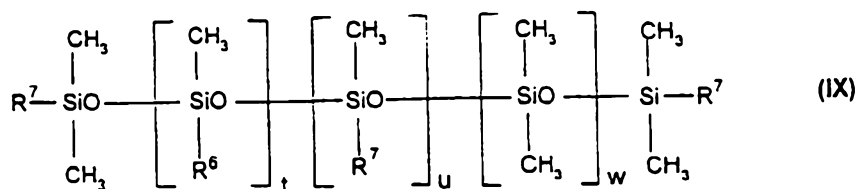
10 preferably from 2 to 8;

s represents a mean statistical value from 20 to 200 and preferably from 20 to 50.

15. Composition according to any one of Claims 1 to 10, characterized in that the

15 polyoxyalkylenated silicone $(ii)_2$ is chosen from the compounds having the following formulae (IX), (X), (XI) and (XII):





in which formulae (IX), (X), (XI) and (XII),

- R^6 , identical or different, represents a C_1 - C_{30} , linear or branched, alkyl radical or a phenyl radical,

5 - R^7 , identical or different, represents a radical

$-\text{C}_6\text{H}_2\text{C}-\text{O}-(\text{C}_2\text{H}_4\text{O})_a(\text{C}_3\text{H}_6\text{O})_b-\text{R}^8$ or a radical

$-\text{C}_6\text{H}_2\text{C}-\text{O}-(\text{C}_4\text{H}_8\text{O})_a-\text{R}^8$,

- R^9 , R^{10} , which are identical or different, denote a C_2 - C_{12} , linear or branched, alkyl radical, and

10 preferably the methyl radical,



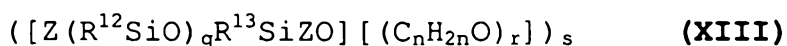
- R^8 , identical or different, is chosen from a hydrogen atom, a C_1 - C_{12} , linear or branched, alkyl radical, a C_1 - C_6 , linear or branched, alkoxy radical, a C_2 - C_{30} , linear or branched, acyl radical, a hydroxyl radical,
- 5 an $-SO_3M$ radical, a C_1 - C_6 aminoalkoxy radical which is optionally substituted on the amine, a C_2 - C_6 aminoacyl radical which is optionally substituted on the amine, a radical $-NHCH_2CH_2COOM$, a radical $-N(CH_2CH_2COOM)_2$, an aminoalkyl radical which is optionally substituted on
- 10 the amine and on the alkyl chain, a C_2 - C_{30} carboxyacyl radical, a phosphono group which is optionally substituted with one or two substituted aminoalkyl radicals, a radical $-CO(CH_2)_dCOOM$, $-COCHR^{11}(CH_2)_dCOOM$, $-NHCO(CH_2)_dOH$, $-NH_3Y$, a phosphate group,
- 15 - M , identical or different, denotes a hydrogen atom, Na, K, Li, NH_4 or an organic amine,
- R^{11} denotes a hydrogen atom or an $-SO_3M$ radical,
- d varies from 1 to 10,
- u varies from 0 to 20,
- 20 - w varies from 0 to 500,
- t varies from 0 to 20,
- p varies from 1 to 50,
- a varies from 0 to 50,
- b varies from 0 to 50,
- 25 - the sum $(a + b)$ is greater than or equal to 2,
- c varies from 0 to 4,
- x varies from 1 to 100,
- Y represents a monovalent inorganic or organic anion.



16. Composition according to Claim 15, characterized in that the silicone is chosen from those of formulae (X) or (XI) in which:

- c is equal to 2 or 3;
- 5 - R^6 denotes methyl;
- R^8 represents a methyl radical, a C_{12} - C_{22} acyl radical or a $-CO(CH_2)_dCOOM$ radical;
- a varies from 2 to 25 and preferably from 2 to 15,
- b is equal to 0,
- 10 - w varies from 0 to 100,
- p varies from 1 to 20.

17. Composition according to any one of Claims 1 to 10, characterized in that the polyoxyalkylenated silicone (ii)₂ is chosen from the
15 compounds having the following formula (XIII):



in which,

- R^{12} and R^{13} , which are identical or different, represent a monovalent hydrocarbon radical, n is an
20 integer ranging from 2 to 4, q is a number which is greater than or equal to 4, preferably between 4 and 200, r is a number which is greater than or equal to 4, preferably between 4 and 200, s is a number which is greater than or equal to 4, preferably between 4 and
25 1000, Z represents a divalent organic group which is linked to the adjacent silicon atom by a carbon-silicon bond and to a polyoxyalkylene block by an oxygen atom, the average molecular weight of each siloxane block



being between 400 and 10,000, that of each polyoxyalkylene block being between 300 and 10,000, the siloxane blocks representing from 10% to 95% by weight of the block copolymer, and the number-average

5 molecular weight of the block copolymer ranging from 2500 to 1,000,000, and preferably from 3000 to 200,000.

18. Composition according to any one of the preceding claims, characterized in that the silicone(s) (ii) represent from 0.01 to 20% by weight approximately
10 of the total weight of the dyeing composition.

19. Composition according to Claim 18, characterized in that the silicone(s) represent from 0.1 to 10% by weight approximately of the total weight of the dyeing composition.

15 20. Composition according to any one of the preceding claims, characterized in that the appropriate dyeing medium (or carrier) consists of water or of a mixture of water and of at least one organic solvent.

21. Composition according to any one of the
20 preceding claims, characterized in that it has a pH of between 2 and 11, and preferably between 5 and 10.

22. Composition according to any one of the preceding claims, characterized in that it is intended for oxidation dyeing and in that it contains one or
25 more oxidation bases chosen from the para-phenylenediamines, the bis-phenylalkylenediamines, the para-aminophenols, the ortho-aminophenols and the heterocyclic bases.



23. Composition according to Claim 22, characterized in that the oxidation base(s) represent 0.0005 to 12% by weight of the total weight of the dyeing composition.

5 24. Composition according to Claim 23, characterized in that the oxidation base(s) represent 0.005 to 6% by weight of the total weight of the dyeing composition.

25. Composition according to any one of
10 Claims 22 to 24, characterized in that it contains one or more couplers chosen from the meta-phenylenediamines, the meta-aminophenols, the meta-diphenols and the heterocyclic couplers.

26. Composition according to Claim 25,
15 characterized in that the coupler(s) represent from 0.0001 to 10% by weight of the total weight of the dyeing composition.

27. Composition according to Claim 26,
characterized in that the coupler(s) represent from
20 0.005 to 5% by weight of the total weight of the dyeing composition.

28. Composition according to any one of the preceding claims, characterized in that it is intended for direct lightening dyeing or oxidation dyeing and in
25 that it then contains at least one oxidizing agent.

29. Method of dyeing keratinous fibres and in particular human keratinous fibres such as hair, characterized in that at least one dyeing composition



as defined in any one of Claims 1 to 28 is applied to the fibres for a sufficient time to develop the desired colour, after which they are rinsed, optionally washed with shampoo, rinsed again and dried.

5 30. Method of dyeing keratinous fibres and in particular human keratinous fibres such as hair, characterized in that at least one dyeing composition as defined in any one of Claims 1 to 28 is applied to the fibres for a sufficient time to develop the desired
10 colour, with no final rinsing.

 31. Method of dyeing keratinous fibres and in particular human keratinous fibres such as hair, characterized in that it comprises a preliminary stage consisting of storing in a separate form, on the one
15 hand, a composition (A1) comprising, in an appropriate dyeing medium, at least one cationic direct dye (i) as defined in the preceding claims and at least one oxidation base and, on the other hand, a composition (B1) containing, in an appropriate dyeing medium, at
20 least one oxidizing agent, and then mixing them at the time of use before applying this mixture to the keratinous fibres, the composition (A1) or the composition (B1) containing the silicone (ii) as defined in the preceding claims.

25 32. Method of dyeing keratinous fibres and in particular human keratinous fibres such as hair, characterized in that it comprises a preliminary stage consisting of storing in a separate form, on the one



hand, a composition (A2) comprising, in an appropriate dyeing medium, at least one cationic direct dye (i) as defined in the preceding claims and, on the other hand, a composition (B2) containing, in an appropriate dyeing
5 medium, at least one oxidizing agent, and then mixing them at the time of use before applying this mixture to the keratinous fibres, the composition (A2) or the composition (B2) containing the silicone (ii) as defined in the preceding claims.

10 33. Multicompartment device or multicompartment dyeing "kit", characterized in that a first compartment contains composition (A1) or (A2) as defined in Claim 31 or 32 and a second compartment contains composition (B1) or (B2) as defined in Claim
15 31 or 32.



**COMPOSITION FOR DYEING KERATINOUS FIBRES WITH A
CATIONIC DIRECT DYE AND A SILICONE**

The invention relates to a composition for dyeing keratinous fibres, in particular human keratinous fibres such as hair, comprising, in an appropriate dyeing medium, at least one cationic direct dye of a given formula, and which is characterized in that it contains, in addition, at least one silicone chosen from the aminated silicones, the polyoxyalkylenated silicones, the silicone gums and resins.

The invention also relates to the dyeing methods and devices using it.

