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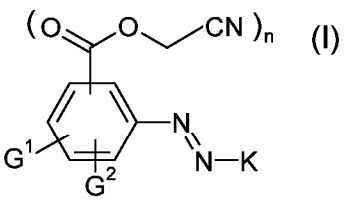
(54) Title: DISPERSE AZO DYESTUFFS



(57) Abstract: The present invention claims dyestuffs of the formula (I) wherein each of G^1 and G^2, independently is hydrogen, (C_1-C_4)-alkyl, trifluoromethyl, halogen, nitro, cyano or -SO_2-T, wherein T is halogen, (C_1-C_4)-alkyl, (C_1-C_4)-alkoxy, aryl or aryloxy; K is a coupling component; and n is 1 or 2;a process for their preparation, their use and and inks for ink jet printing containing them.

Description

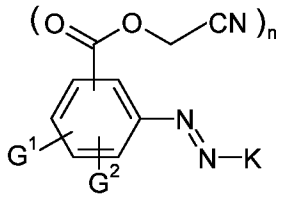
Disperse Azo Dyestuffs

The present invention relates to the field of disperse dyes.

Disperse dyestuffs containing cyanomethyl ester groups are known from literature and are described for example in GB 909,843, DE-A 2130992, GB 1,457,532, GB 1,536,429, FR-A 1,531,147, US 3,776,898, JP 55161857, GB 2,104,088, EP 0 685 531 A1, WO 95/20014 and WO2005/040283. All dyestuffs disclosed in these documents show the cyanomethylester groups in the coupling component.

The inventors of the present invention have surprisingly found that dyeings on polyester with excellent wet fastness properties can be obtained if dyestuffs containing the cyanomethylester groups in the diazo component as defined below are used.

The present invention claims dyestuffs of the formula (I)



(I)

wherein

each of G^1 and G^2, independently is hydrogen, (C_1-C_4)-alkyl, trifluoromethyl, halogen, nitro, cyano or -SO_2-T, wherein T is halogen, (C_1-C_4)-alkyl, (C_1-C_4)-alkoxy, aryl or aryloxy;

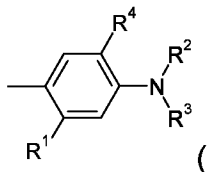
K is a coupling component; and

n is 1 or 2.

Coupling components K can be all coupling components which are used for the preparation of disperse dyes. Such coupling components are described in literature

and known to a person of ordinary skill in the art.

Preferred coupling components K are of the formula (IIa)



(IIa)

wherein

R^1 is hydrogen, hydroxyl, (C_1-C_4)-alkyl, (C_1-C_4)-alkylsulfonamino or (C_1-C_4)-acylamino;

each of R^2 and R^3, independently is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imide group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imide group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino an imide group or aryl;

R^4 is hydrogen, (C_1-C_4)-alkyl, (C_1-C_4)-alkoxy or halogen; or

R^2 and R^4 together are (C_2-C_5)-alkylen, (C_2-C_5)-alkylen, which is substituted by (C_1-C_4)-alkyl, hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl, (C_2-C_5)-alkenylen or (C_2-C_5)-alkenylen, which is substituted by (C_1-C_4)-alkyl, hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl;

R^5 is hydrogen or (C_1-C_4)-alkyl; and

R^6 is hydrogen or (C_1-C_4)-alkyl;

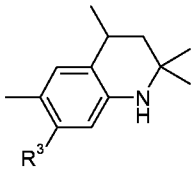
Especially preferred coupling components K correspond to the formula (IIa), wherein

R^1 is hydrogen, methyl, ethyl, methylsulfonylamino, acetylamino and propionylamino;

each of R^2 and R^3, independently is hydrogen, methyl, ethyl, propyl or butyl or methyl, ethyl, propyl or butyl which is substituted by hydroxy, cyano, -$COOCH_3$, -$COOC_2H_5$, -COOphenyl, -$OCOCH_3$, -$OCOC_2H_5$, -OCOphenyl, methoxy, ethoxy or phenyl, or is allyl; and

R^4 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine.

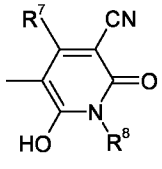
Further especially preferred coupling components K correspond to the formula (IIaa)



(IIaa)

wherein R^3 is defined as given above.

Further preferred coupling components K are of the formula (IIb)



(IIb)

wherein

R^7 is hydrogen, (C_1-C_4)-alkyl or trifluormethyl; and

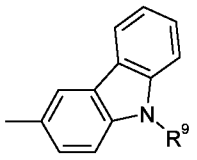
R^8 is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl.

Further especially preferred coupling components K correspond to the formula (IIb), wherein

R^7 is methyl; and

R^8 is methyl or ethyl.

Further preferred coupling components K are of the formula (IIc)


(IIc)

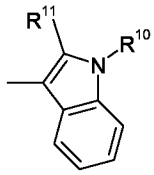
wherein

R^9 is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, $COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, $COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl.

Further especially preferred coupling components K correspond to the formula (IIc), wherein

R^9 is methyl, ethyl, hydroxymethyl or hydroxyethyl.

Still further preferred coupling components K are of the formula (IId)


(IId)

wherein

R^{10} is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5,

(C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$CONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl; and

R^{11} is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl or is aryl.

Further especially preferred coupling components K correspond to the formula (IId), wherein

R^{10} is methyl or ethyl; and

R^{11} is methyl, ethyl or phenyl.

Alkyl groups may be straight-chain or branched and are preferably methyl, ethyl, n-propyl, i-propyl or n-butyl. The same logic applies to alkoxy groups which are preferably methoxy, ethoxy or propoxy.

Alkenyl groups are preferably vinyl and allyl, whereas alkylen groups are preferably methylen, ethylen and propylen.

Acyl groups are preferably acetyl groups and consequently acylamino groups are preferably acetylamino and acyloxy groups are preferably acetyloxy.

Preferred imido groups are maleimide, succinimide and in particular phthalimide.

Examples of (C_2-C_6)-alkyl groups which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, are -CH_2-O-CH_2-, -$(CH_2)_2$-O-$(CH_2)_2$-, -CH_2-S-CH_2-, -$(CH_2)_2$-S-$(CH_2)_2$-, -CH_2-$NR^{7'}$-CH_2- or -$(CH_2)_2$- $NR^{7'}$-$(CH_2)_2$-, wherein $R^{7'}$ is hydrogen or methyl.

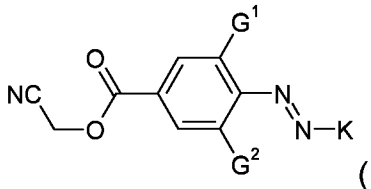
Halogen is preferably fluorine, chlorine or bromine.

Aryl is preferably phenyl or naphthly, whereas aryloxy is preferably phenoxy or naphthoxy.

Aryl and aryloxy groups may be substituted by 1, 2 or 3 substituents. Examples of such substituents are (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy, halogen, cyano and nitro.

Preferred dyestuffs according to the present invention are dyestuffs of the formula

(Ia)

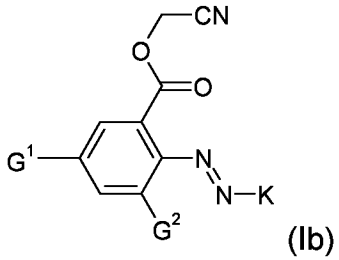


(Ia)

wherein G^1, G^2 and K are defined as given above.

In especially preferred dyestuffs of the formula (Ia) each of G^1 and G^2, independently is hydrogen, chlorine, bromine, nitro or cyano and K is a coupling component of the formula (IIa), (IIb), (IIc) or (IId), favourably an especially preferred coupling component as defind above.

Further preferred dyestuffs according to the present invention are dyestuffs of the formula (Ib)

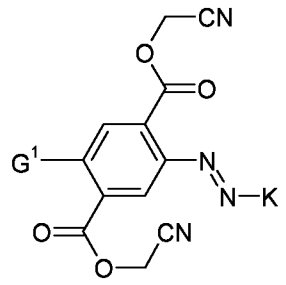


(Ib)

wherein G^1, G^2 and K are defined as given above.

In especially preferred dyestuffs of the formula (Ib) G^2 is hydrogen, chlorine, bromine, nitro or cyano, G^1 is hydrogen or nitro, if G^2 is hydrogen, is nitro if G^2 is nitro or cyano, is chlorine or nitro if G^2 is chlorine and is bromine or nitro if G^2 is bromine, and K is a coupling component of the formula (IIa), (IIb), (IIc) or (IId), favourably an especially preferred coupling component as defind above.

Still further preferred dyestuffs according to the present invention are dyestuffs of the formula (Ic)

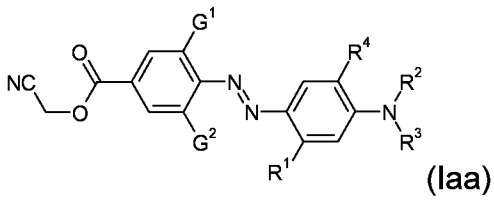


(Ic)

wherein G^1 and K are defined as given above.

In especially preferred dyestuffs of the formula (Ic) G^1 is nitro and K is a coupling component of the formula (IIa), (IIb), (IIc) or (IId), favourably an especially preferred coupling component as defind above.

Especially preferred dyestuffs are the dyestuffs of the formula (Iaa)



(Iaa)

wherein

each of G^1 and G^2, independently is hydrogen, chlorine, bromine, nitro or cyano;

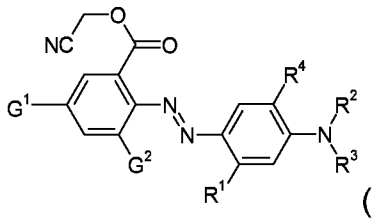
R^1 is hydrogen, methyl, ethyl, methylsulfonylamino, acetylamino and propionylamino;

each of R^2 and R^3, independently is hydrogen, methyl, ethyl, propyl or butyl or methyl, ethyl, propyl or butyl which is substituted by hydroxy, cyano, $-COOCH_3$, $-COOC_2H_5$,

-COOphenyl, $-OCOCH_3$, $-OCOC_2H_5$, -OCOphenyl, methoxy, ethoxy or phenyl, or is allyl; and

R^4 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine.

Further especially preferred dyestuffs are the dyestuffs of the formula (Iba)



(Iba)

wherein

G^2 is hydrogen, chlorine, bromine, nitro or cyano;

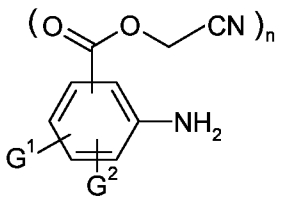
G^1 is hydrogen or nitro, if G^2 is hydrogen, is nitro if G^2 is nitro or cyano, is chlorine or nitro if G^2 is chlorine and is bromine or nitro if G^2 is bromine;

R^1 is hydrogen, methyl, ethyl, methylsulfonylamino, acetylamino and propionylamino;

each of R^2 and R^3, independently is hydrogen, methyl, ethyl or propyl or methyl, ethyl or propyl which is substituted by hydroxy, cyano, $-COOCH_3$, $-COOC_2H_5$, -COOphenyl, $-OCOCH_3$, $-OCOC_2H_5$, -OCOphenyl, methoxy, ethoxy or phenyl, or is allyl; and

R^4 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine.

The compounds of the formula (I) may be obtained by usual methods for the preparation of azo compounds such as by diazotisation of an amine of the formula (III)



(III)

wherein G^1, G^2 and n are defined as given above,

and coupling onto a compound of the formula (IV)

H-K (IV)

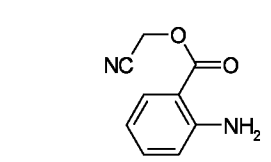
wherein K is defined as given above.

Typically the amine of the formula (III) may be diazotised in an acidic medium, such as acetic, propionic or hydrochloric acid using a nitrosating agent such as nitrosylsulphuric acid, sodium nitrite or methylnitrite at a temperature from -10°C to 10°C. Coupling onto the compound of the formula (IV) may be achieved by adding the diazotised amine to the compound of the formula (IV) under conditions described in literature and known to the skilled persons.

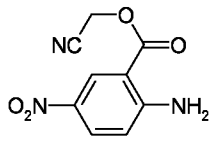
After coupling the compound of the formula (I) may be recovered from the reaction mixture by any convenient means such as filtration.

Cyanomethyl ester containing amines of the formula (III) can be prepared from commercially available or literature described starting materials by a number of ways

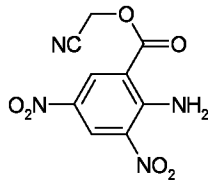
which are known to a person of ordinary skill in the art and which are described in literature. Using methods described for example in Tetrahedron Lett. 2004, pp969-972; Helv. Chim. Acta 1964, pp2444-2448 and Synthesis 1995, pp1483-1484, the compounds of formulae (IIIa) to (IIIg) can be produced.



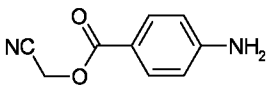
(IIIa)



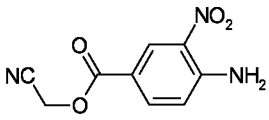
(IIIb)



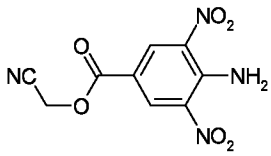
(IIIc)



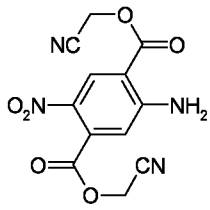
(IIId)



(IIIe)



(IIIf)



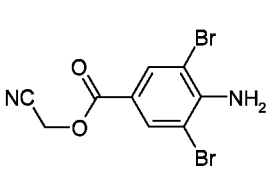
(IIIg)

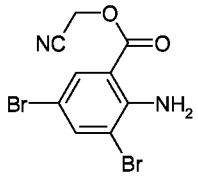
In some circumstances, a mixture of reaction products is produced, resulting from reaction on oxygen and/or nitrogen. These mixtures can be used directly, since only the required selective oxygen reacted products undergo diazotization and coupling to form the final dyestuff.

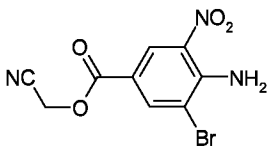
The compounds of the formulae (IIIa), (IIIb), (IIId), (IIIe) or (IIIg) can be mono- or di-brominated by treating them with 1 (compounds (IIIb), (IIIe) and (IIIg)) or 2 (compounds (IIIa) and (IIId)) mole equivalents of bromine in acetic acid, in the presence of sodium acetate.

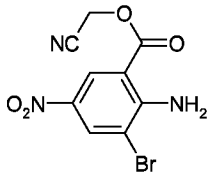
The compounds of the formulae (IIIa), (IIIb), (IIId), (IIIe) or (IIIg) can also be mono- or di-chlorinated by treating them with 1 (compounds (IIIb), (IIIe) and (IIIg)) or 2 (compounds (IIIa) and (IIId)) mole equivalents of an oxidizing agent, such as hydrogen peroxide, in a mixture of hydrochloric and acetic acid.

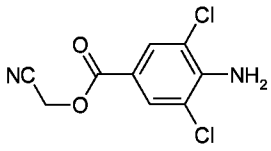
As such, the compounds of formulae (IIIh) to (IIIq) can be prepared.

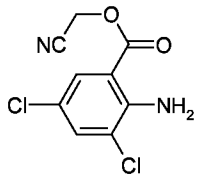

(IIIh)

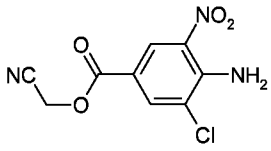

(IIIj)

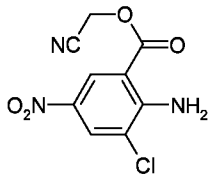

(IIIk)


(IIIm)


(IIIn)


(IIIo)


(IIIp)


(IIIq)

The compounds of the formulae (IV) are known or are easily prepared under standard conditions known to those skilled in the art.

The compounds of the formula (I) are useful for dyeing and printing of synthetic textile material particularly polyester textile materials and fibre blends thereof with for example cellulosic materials like cotton, to which they impart colours which have excellent wet fastness properties.

Dyeing of the fibre goods mentioned with the dyestuffs of the formula (I) can be carried out in a manner known per se, preferably from aqueous dispersions, if appropriate in the presence of carriers, at between 80 and 110°C, by the exhaust process or by the HT process in a dyeing autoclave at 110 to 140°C, and by the so-called thermofixing process, in which the goods are padded with the dye liquor and then fixed at about 180 to 230°C.

The fibre goods mentioned can as well be printed in a manner known per se by a procedure in which the dyestuffs of the formula (I) are incorporated into a printing paste and the goods printed with the paste are treated, if appropriate in the presence of a carrier, with HT steam, pressurized steam or dry heat at temperatures between 180 and 230°C to fix the dyestuff.

The dyestuffs of the formula (I) should be present in the finest possible dispersion in the dye liquors and printing pastes employed in the above applications.

The fine dispersion of the dyestuffs is effected in a manner known per se by a procedure in which the dyestuff obtained during preparation is suspended in a liquid

medium, preferably in water, together with dispersing agents and the mixture is exposed to the action of shearing forces, the particles originally present being comminuted mechanically to the extent that an optimum specific surface area is achieved and sedimentation of the dyestuff is as low as possible. The particle size of the dyestuffs is in general between 0.5 and 5 µm, preferably about 1 µm.

The dispersing agents used can be nonionic or anionic. Nononic dispersing agents are, for example, reaction products of alkylene oxides, such as, for example, ethylene oxide or propylene oxide, with alkylatable compounds, such as for example fatty alcohols, fatty amines, fatty acids, phenols, alkylphenols and carboxylic acid amines. Anionic dispersing agents are, for example, lignin-sulphonates, alkyl- or alkylarylsulphonates or alkylaryl polyglycol ethersulphates.

For most methods of use, the dyestuff formulations thus obtained should be pourable. The dyestuff and dispersing agent content is therefore limited in these cases. In general, the dispersions are brought to a dyestuff content of up to 50 per cent by weight and a dispersing agent content of up to 25 per cent by weight. For economic reasons, the dyestuff contents usually do not fall below 15 per cent by weight.

The dispersions can also comprise other auxiliaries, for example those which act as oxidizing agents or fungicidal agents. Such agents are well known in the art.

The dyestuff dispersion thus obtained can be used very advantageously for the preparation of printing pastes and dye liquors.

For certain fields of use, powder formulations are preferred. These powders comprise the dyestuff, dispersing agents and other auxiliaries, such as, for example, wetting agents, oxidizing agents, preservatives and dust removal agents.

A preferred preparation process for pulverulent dyestuff formulations comprises removing the liquid from the liquid dyestuff dispersions described above, for example by vacuum drying, freeze drying, by drying on roller dryers, but preferably by spray drying.

In addition, the inventive dyestuffs of formula (I) can advantageously be used in inks for digital ink jet printing.

Consequently, the present invention also refers to an ink for injet printing which contains at least one dyestuff of the formula (I).

Inks for use in digital ink jet printing usually are aqueous inks and further comprise

from 0.1% to 20% of a dispersant. Useful dispersants include for example sulfonated or sulfomethylated lignins, formaldehyde condensates of aromatic sulfonic acids, formaldehyde condensates of substituted or unsubstituted phenol derivatives, polyacrylates and copolymers thereof, styrene oxide polyethers, modified polyurethanes, reaction products of alkylene oxides with alkylatable compounds such as for example fatty alcohols, fatty amines, fatty acids, carboxamides, resin acids and also substituted or unsubstituted phenols.

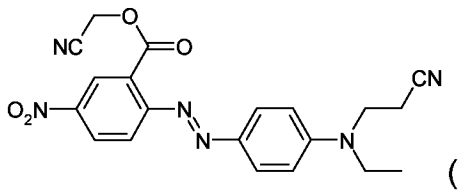
Inks to be used in the continuous flow process can be adjusted to a conductivity in the range from 0.5 to 25 mS/cm by addition of electrolyte.

Useful electrolytes include for example lithium nitrate and potassium nitrate.

In addition the inventive inks may further comprise typical ink jet organic solvents in a total amount of 1-60% and preferably of 5-40% by weight.

Example 1

2-{4-[(2-Cyano-ethyl)-ethyl-amino]-phenylazo}-5-nitro-benzoic acid cyanomethyl ester

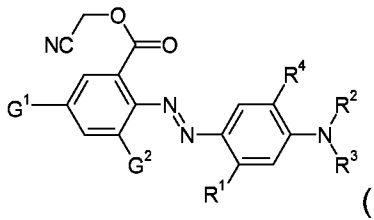


(Ibb)

3.3 parts of compound (IIIb), 20 parts of propionic acid and 40 parts of acetic acid were charged and cooled to 5°C. 5.1 parts of 40% (w/w) nitrosyl sulfuric acid were added, whilst the temperature was held below 10°C. The diazotization mixture was stirred for a further 2 hrs at 5-10°C. To a separate vessel were charged 2.7 parts of 3-(ethyl-phenyl-amino)-propionitrile, 100 parts of methanol, 1 part sulfamic acid and 100 parts of ice. With stirring, the diazotization mixture was slowly added followed by a further 300 parts of ice. The reaction mixture was stirred over night and the product was isolated by filtration, washed with water and dried to yield 4.9 parts of 2-{4-[(2-cyano-ethyl)-ethyl-amino]-phenylazo}-5-nitro-benzoic acid cyanomethyl ester. λmax = 496nm (DMF).

When applied to polyester materials from an aqueous dispersion, red shades with excellent wet fastness properties were seen.

According to the procedure outlined in Example 1, inventive dyes of formula (Iba) [Table 1] were prepared (λmax was determined in DMF and is given in nm)



(Iba)

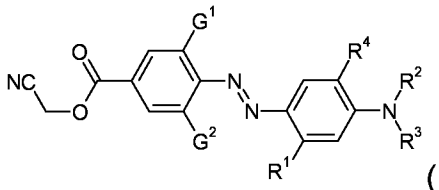
Table 1

	G^2	G^1	R^1	R^2	R^3	R^4	λmax
2	H	NO_2	H	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	480
3	H	NO_2	H	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	496
4	H	NO_2	H	$CH_2CO_2CH_3$	CH_2CH_2CN	H	472
5	H	NO_2	H	$CH_2CO_2CH_3$	$CH_2CO_2CH_3$	H	468
6	Cl	NO_2	H	CH_2CH_3	CH_2CH_2CN	H	494
7	Cl	NO_2	H	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	486
8	Cl	NO_2	H	$CH_2CO_2CH_3$	CH_2CH_2CN	H	488
9	Br	NO_2	H	$CH_2CO_2CH_3$	CH_2CH_2CN	H	488
10	Cl	NO_2	H	$CH_2CO_2CH_3$	$CH_2CO_2CH_3$	H	484
11	Br	NO_2	H	$CH_2CO_2CH_3$	$CH_2CO_2CH_3$	H	480
12	H	H	CH_3	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	442
13	H	H	CH_3	CH_2CH_3	CH_2CH_2CN	H	432
14	H	H	CH_3	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	440
15	H	H	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	430
16	H	NO_2	CH_3	CH_2CH_3	CH_2CH_2CN	H	504
17	H	NO_2	CH_3	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	512
18	H	NO_2	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	490
19	Cl	Cl	CH_3	CH_2CH_3	CH_2CH_2CN	H	468
20	Br	Br	CH_3	CH_2CH_3	CH_2CH_2CN	H	466
21	Cl	Cl	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	466
22	Br	Br	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	464
23	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	480
24	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	480
25	NO_2	NO_2	CH_3	CH_2CH_3	CH_2CH_3	H	574*
26	H	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	560*
27	H	NO_2	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	512
28	Cl	Cl	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	500

	G^2	G^1	R^1	R^2	R^3	R^4	λmax
29	Br	Br	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	500
30	Br	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	558
31	Br	NO_2	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	550
32	NO_2	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	573*
33	Cl	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	594
34	Br	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	592
35	Cl	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	578
36	Br	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	576
37	Cl	NO_2	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	OCH_3	582
38	Cl	NO_2	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	OCH_3	562
39	NO_2	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	595*

* = λmax measured in acetone

According to the procedure outlined in Example 1, dyes of formula (Iaa) [Table 2] were prepared (λmax was determined in DMF and is given in nm).



(Iaa)

Table 2

	G^1	G^2	R^1	R^2	R^3	R^4	λmax
40	Br	Br	H	CH_3	CH_3	H	430
41	Br	Br	H	CH_2CH_3	CH_2CH_3	H	434
42	Br	Br	H	$CH_2CH_2CH_2CH_3$	$CH_2CH_2CH_2CH_3$	H	436
43	Cl	Cl	H	CH_2CH_3	CH_2CH_2CN	H	422
44	Br	Br	H	CH_2CH_3	CH_2CH_2CN	H	422
45	Cl	Cl	H	$CH_2CH_2CH_2CH_3$	CH_2CH_2CN	H	422
46	Br	Br	H	$CH_2CH_2CH_2CH_3$	CH_2CH_2CN	H	422
47	Cl	Cl	H	CH_2CH_3	CH_2Ph	H	432
48	Br	Br	H	CH_2CH_3	CH_2Ph	H	428
49	Cl	Cl	H	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	430
50	Br	Br	H	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	432
51	Cl	Cl	H	CH_2CH_3	$CH_2CH_2CO_2C_2H_5$	H	428

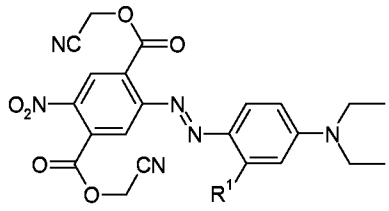
	G^1	G^2	R^1	R^2	R^3	R^4	λmax
52	Br	Br	H	CH_2CH_3	$CH_2CH_2CO_2C_2H_5$	H	428
53	Cl	Cl	H	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	430
54	Br	Br	H	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	426
55	Br	Br	H	CH_2CH_2CN	CH_2Ph	H	412
56	Br	Br	H	CH_2CH_2CN	CH_2CH_2Ph	H	422
57	Br	Br	H	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	422
58	Br	Br	H	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	H	420
59	NO_2	Br	H	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	506
60	NO_2	Br	H	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	494
61	Cl	Cl	CH_3	CH_2CH_3	CH_2CH_2CN	H	436
62	Br	Br	CH_3	CH_2CH_3	CH_2CH_2CN	H	434
63	Cl	Cl	CH_3	$CH_2CH_2CH_2CH_3$	CH_2CH_2CN	H	434
64	Cl	Cl	CH_3	CH_2CH_3	CH_2Ph	H	444
65	Br	Br	CH_3	CH_2CH_3	CH_2Ph	H	444
66	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	446
67	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2CO_2CH_3$	H	444
68	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2CO_2C_2H_5$	H	444
69	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2CO_2C_2H_5$	H	442
70	Cl	Cl	CH_3	$CH_2CH_2CH_2CH_3$	$CH_2CH_2CO_2C_2H_5$	H	446
71	Br	Br	CH_3	$CH_2CH_2CH_2CH_3$	$CH_2CH_2CO_2C_2H_5$	H	446
72	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2CO_2Ph$	H	442
73	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2CO_2Ph$	H	444
74	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2CH_2CO_2Ph$	H	452
75	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2CH_2CO_2Ph$	H	450
76	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	444
77	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2OC(O)CH_3$	H	444
78	Cl	Cl	CH_3	CH_2CH_3	$CH_2CH_2OC(O)Ph$	H	444
79	Br	Br	CH_3	CH_2CH_3	$CH_2CH_2OC(O)Ph$	H	442
80	Cl	Cl	CH_3	CH_2Ph	CH_2CH_2CN	H	428
81	Br	Br	CH_3	CH_2Ph	CH_2CH_2CN	H	428
82	Cl	Cl	CH_3	CH_2Ph	CH_2CH_2OH	H	444
83	Br	Br	CH_3	CH_2Ph	CH_2CH_2OH	H	444
84	Cl	Cl	CH_3	CH_2Ph	$CH_2CH_2OC(O)CH_3$	H	434
85	Br	Br	CH_3	CH_2Ph	$CH_2CH_2OC(O)CH_3$	H	432
86	Cl	Cl	CH_3	CH_2Ph	$CH_2CH_2OC(O)Ph$	H	432

	G^1	G^2	R^1	R^2	R^3	R^4	λmax
87	Br	Br	CH_3	CH_2Ph	$CH_2CH_2OC(O)Ph$	H	432
88	Cl	Cl	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	434
89	Br	Br	CH_3	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	436
90	Cl	Cl	CH_3	$CH_2CH_2CO_2C_2H_5$	$CH_2CH_2CO_2C_2H_5$	H	436
91	Br	Br	CH_3	$CH_2CH_2CO_2C_2H_5$	$CH_2CH_2CO_2C_2H_5$	H	434
92	Cl	Cl	CH_3	CH_2CH_2CN	$CH_2CH_2OC(O)CH_3$	H	428
93	NO_2	NO_2	CH_3	CH_2CH_3	CH_2CH_3	H	564*
94	Cl	Cl	OH	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	462
95	Br	Br	OH	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	450
96	Cl	Cl	$HNSO_2CH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	444
97	Br	Br	$HNSO_2CH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	444
98	H	H	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	496
99	Br	Br	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	468
100	Br	Br	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	458
101	Cl	Cl	$HNCOCH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	452
102	Br	Br	$HNCOCH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	454
103	NO_2	H	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	545*
104	NO_2	Br	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	556
105	NO_2	Br	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H	536
106	NO_2	Br	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	534
107	NO_2	Br	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	H	490
108	NO_2	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	569*
109	Cl	Cl	$HNCOCH_3$	H	$CH_2CH(OH)CH_3$	Cl	444
110	Br	Br	$HNCOCH_3$	H	$CH_2CH(OH)CH_3$	Cl	444
111	Br	Br	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	502
112	Br	Br	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	486
113	Br	Br	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	OCH_3	476
114	NO_2	Cl	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	580
115	NO_2	Br	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	582
116	NO_2	Cl	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	566
117	NO_2	Br	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	566
118	NO_2	Br	$HNCOCH_3$	$CH_2CH=CH_2$	CH_2CH_2CN	OCH_3	556
119	NO_2	Br	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH(OH)CH_2OCH_3$	OCH_3	576
120	NO_2	Br	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	OCH_3	570

	G^1	G^2	R^1	R^2	R^3	R^4	λmax
121	NO_2	Br	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	OCH_3	556

* = λmax measured in acetone

According to the procedure outlined in Example 1, dyes of formula (Ica) [Table 3] were prepared (λmax was determined in DMF and is given in nm).

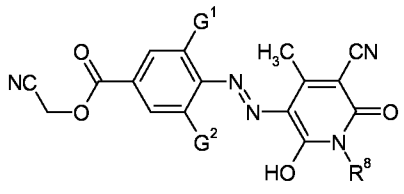


(Ica)

Table 3

	R^1	λmax
122	$HNCOCH_3$	572
123	CH_3	568

According to the procedure outlined in Example 1, dyes of formula (Iab) [Table 4] were prepared (λmax was determined in DMF and is given in nm).



(Iab)

Table 4

	$G^1 = G^2$	R^8	λmax
124	H	CH_3	422
125	Br	CH_3	410
126	Br	CH_2CH_3	412

According to the procedure outlined in Example 1, dyes of formula (Ibc) [Table 5] were prepared (λmax was determined in DMF and is given in nm).

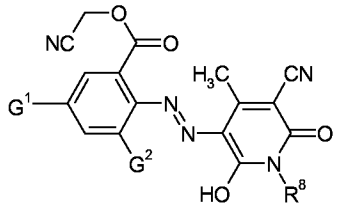

(Ibc)

Table 5

	$G^1 = G^2$	R^8	λmax
127	H	CH_3	430
128	Cl	CH_3	422
129	Br	CH_3	422
130	H	CH_2CH_3	430

According to the procedure outlined in Example 1, dyes of formula (Iac) [Table 6] were prepared (λmax was determined in DMF and is given in nm).

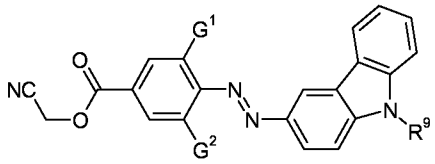

(Iac)

Table 6

	$G^1 = G^2$	R^9	λmax
131	Br	CH_2CH_3	396
132	Br	CH_2CH_2OH	398

According to the procedure outlined in Example 1, dyes of formula (Iad) [Table 7] were prepared (λmax was determined in DMF and is given in nm).

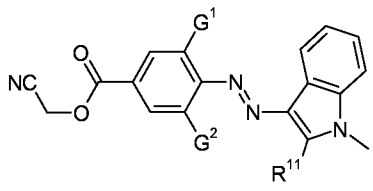
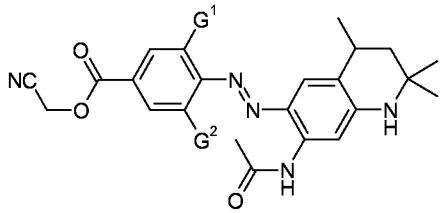

(Iad)

Table 7

	$G^1 = G^2$	R^{11}	λmax
133	Br	CH_3	396

134	Br	Phenyl	384

According to the procedure outlined in Example 1, dyes of formula (Iae) [Table 8] were prepared (λmax was determined in DMF and is given in nm).



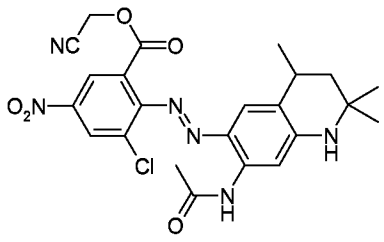
(Iae)

Table 8

	G^1	G^2	λmax
135	Br	Br	488
136	Br	NO_2	552

Example 137

According to the procedure outlined in Example 1, the dyestuff of the formula (Ibd).

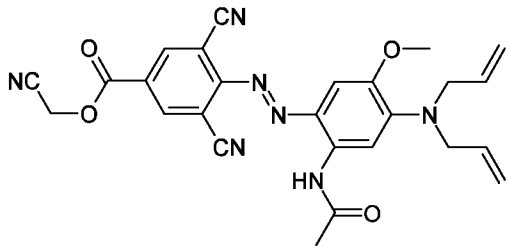


(Ibd)

λmax = 566 nm (DMF)

Example 138

4-(2-Acetylamino-4-diallylamino-5-methoxy-phenylazo)-3,5-dicyano-benzoic acid cyanomethyl ester

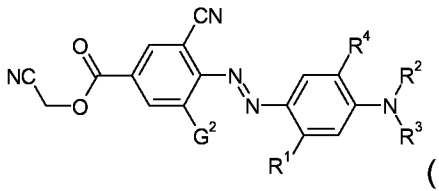


(Iaf)

6.7 parts of the dyestuff of Example 112, 3.2 parts of copper (I) cyanide, 0.3 parts of imidazole, 0.2 parts of sodium iodide and 25 parts of *N*-methyl-2-pyrolidinone were charged and heated for 30 minutes at 60-70°C. 70 parts of 2-propanol were added drop wise and the reaction stirred at ambient temperature over night. The precipitate was isolated by filtration and then stirred for 1hr in 600 parts of an aqueous 6% iron (III) chloride solution. The product was filtered off, washed with 200 parts water and dried to yield 4.8 parts of 4-(2-acetylamino-4-diallylamino-5-methoxy-phenylazo)-3,5-dicyano-benzoic acid cyanomethyl ester. λmax = 614nm (DMF).

When applied to polyester materials from an aqueous dispersion, blue shades with excellent wet fastness properties were seen.

According to the procedure outlined in Example 138, dyes of formula (Iag) [Table 9] were prepared (λmax was determined in DMF and is given in nm).



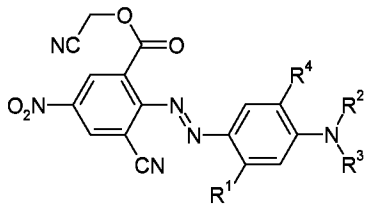
(Iag)

Table 9

	Educt	G^2	R^1	R^2	R^3	R^4	λmax
139	41	CN	H	CH_2CH_3	CH_2CH_3	H	550
140	44	CN	H	CH_2CH_3	CH_2CH_2CN	H	530
141	57	CN	H	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	534
142	58	CN	H	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	H	530
143	95	CN	OH	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	544
144	97	CN	$HNSO_2CH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	556
145	99	CN	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	594
146	100	CN	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	588
147	102	CN	$HNCOCH_3$	$CH_2CH_2CO_2CH_3$	$CH_2CH_2CO_2CH_3$	H	572
148	105	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	H	560

	Educt	G^2	R^1	R^2	R^3	R^4	λmax
149	106	NO_2	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	562
150	104	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	564
151	111	CN	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	620
152	113	CN	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	OCH_3	614
153	115	NO_2	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	618
154	117	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	612
155	120	NO_2	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	OCH_3	614
156	121	NO_2	$HNCOCH_3$	$CH_2CH_2OC(O)CH_3$	$CH_2CH_2OC(O)CH_3$	OCH_3	596
157	119	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH(OH)CH_2OCH_3$	OCH_3	616
158	118	NO_2	$HNCOCH_3$	$CH_2CH=CH_2$	CH_2CH_2CN	OCH_3	598

According to the procedure outlined in Example 138, dyes of formula (Ibe) [Table 10] were prepared (λmax was determined in DMF and is given in nm).



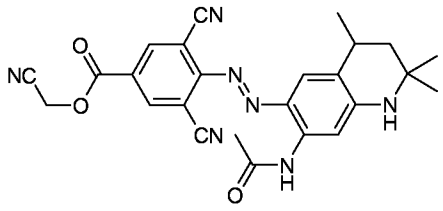
(Ibe)

Table 10

	Educt	R^1	R^2	R^3	R^4	λmax
159	36	$HNCOCH_3$	$CH_2CH=CH_2$	$CH_2CH=CH_2$	OCH_3	622
160	34	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	OCH_3	632
161	30	$HNCOCH_3$	CH_2CH_3	CH_2CH_3	H	576
162	31	$HNCOCH_3$	$CH_2CH_2OCH_3$	$CH_2CH_2OCH_3$	H	572

Example 163

According to the procedure outlined in Example 138, the dyestuff of the formula (Iah) was prepared from the dyestuff of example 135

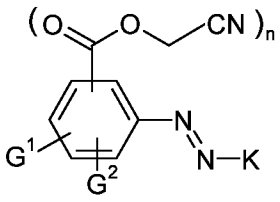


(Iah)

λmax = 604 nm (DMF)

Patent Claims

1. Dyestuff of the formula (I)



(I)

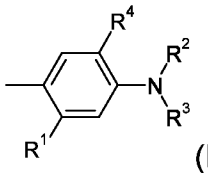
wherein

each of G^1 and G^2, independently is hydrogen, (C_1-C_4)-alkyl, trifluoromethyl, halogen, nitro, cyano or -SO_2-T, wherein T is halogen, (C_1-C_4)-alkyl, (C_1-C_4)-alkoxy, aryl or aryloxy;

K is a coupling component; and

n is 1 or 2.

2. Dyestuff according to claim 1 wherein K is of the formula (IIa)



(IIa)

wherein

R^1 is hydrogen, hydroxyl, (C_1-C_4)-alkyl, (C_1-C_4)-alkylsulfonamino or (C_1-C_4)-acylamino;

each of R^2 and R^3, independently is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imide group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imide group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$,

-$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino an imide group or aryl;

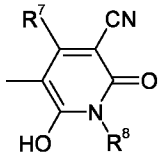
R^4 is hydrogen, (C_1-C_4)-alkyl, (C_1-C_4)-alkoxy or halogen; or

R^2 and R^4 together are (C_2-C_5)-alkylen, (C_2-C_5)-alkylen, which is substituted by (C_1-C_4)-alkyl, hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl, (C_2-C_5)-alkenylen or (C_2-C_5)-alkenylen, which is substituted by (C_1-C_4)-alkyl, hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl;

R^5 is hydrogen or (C_1-C_4)-alkyl; and

R^6 is hydrogen or (C_1-C_4)-alkyl;

or is of the formula (IIb)



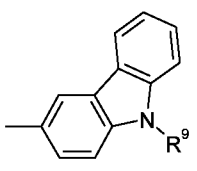
(IIb)

wherein

R^7 is hydrogen, (C_1-C_4)-alkyl or Trifluormethyl; and

R^8 is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl;

or is of the (IIc)

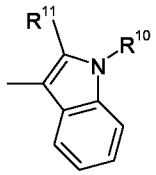


(IIc)

wherein

R^9 is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, $COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, $COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl;

or is of the formula (IId)



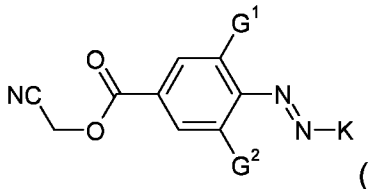
(IId)

wherein

R^{10} is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_1-C_6)-alkenyl, (C_1-C_6)-alkenyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl, (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7, or (C_2-C_6)-alkyl which is interrupted by 1, 2 or 3 heteroatoms selected from the group consisting of -O-, -S- and -NR^7 and which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$COONR^5R^6$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino, an imido group or aryl; and

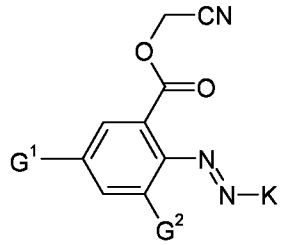
R^{11} is hydrogen, (C_1-C_6)-alkyl, (C_1-C_6)-alkyl which is substituted by hydroxyl, cyano, nitro, -$COOR^5$, -$SO_2NR^5R^6$, -SO_3R^5, (C_1-C_4)-acyloxy, (C_1-C_4)-acylamino or aryl or is aryl.

3. Dyestuff according to claim 1 and/or 2 of the formula (Ia)


(Ia)

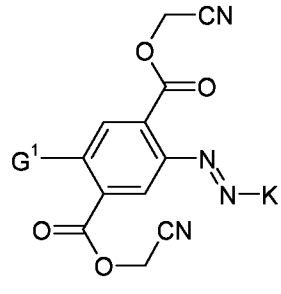
wherein G^1, G^2 and K are defined as given in claim 1.

4. Dyestuff according to claim 1 and/or 2 of the formula (Ib)


(Ib)

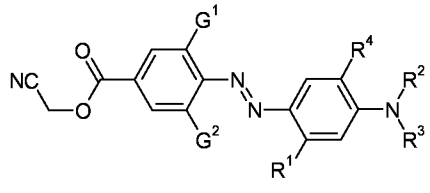
wherein G^1, G^2 and K are defined as given above.

5. Dyestuff according to claim 1 and/or 2 of the formula (Ic)


(Ic)

wherein G^1 and K are defined as given above.

6. Dyestuff according to claim1 of the formula (Iaa)


(Iaa)

wherein

each of G^1 and G^2, independently is hydrogen, chlorine, bromine, nitro or cyano;

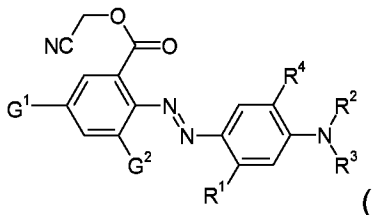
R^1 is hydrogen, methyl, ethyl, methylsulfonylamino, acetylamino and propionylamino;

each of R^2 and R^3, independently is hydrogen, methyl, ethyl, propyl or butyl or methyl, ethyl, propyl or butyl which is substituted by hydroxy, cyano, -$COOCH_3$, -

$COOC_2H_5$, -COOphenyl, $-OCOCH_3$, $-OCOC_2H_5$, -OCOphenyl, methoxy, ethoxy or phenyl, or is allyl; and

R^4 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine.

7. Dyestuff according to claim1 of the formula (Iba)



(Iba)

wherein

G^2 is hydrogen, chlorine, bromine, nitro or cyano;

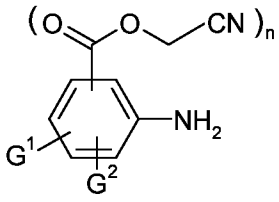
G^1 is hydrogen or nitro, if G^2 is hydrogen, is nitro if G^2 is nitro or cyano, is chlorine or nitro if G^2 is chlorine and is bromine or nitro if G^2 is bromine;

R^1 is hydrogen, methyl, ethyl, methylsulfonylamino, acetylamino and propionylamino;

each of R^2 and R^3, independently is hydrogen, methyl, ethyl, propyl or butyl or methyl, ethyl, propyl or butyl which is substituted by hydroxy, cyano, $-COOCH_3$, $-COOC_2H_5$, -COOphenyl, $-OCOCH_3$, $-OCOC_2H_5$, -OCOphenyl, methoxy, ethoxy or phenyl, or is allyl; and

R^4 is hydrogen, methyl, ethyl, methoxy, ethoxy or chlorine.

8. Process for the preparation of a dyestuff as claimed in one or more of claims 1 to 7, which comprises diazotisation of an amine of the formula III



(III)

wherein G^1, G^2 and n are defined as given in claim 1, and coupling onto a compound of the formula IV

H-K (IV)

wherein K is defined as given in claim 1.

9. The use of a dyestuff as claimed in one or more of claims 1 to 7 for dyeing and printing of synthetic textile material and fibre blends thereof.

10. Ink for injet printing which contains at least one dyestuff of the formula (I) according to one or more of claims 1 to 7.