

alkyl as R_1 and/or R_2 is 2-hydroxyethyl. More preferred are compounds of formula I, wherein R_1 is hydrogen or 2-hydroxyethyl and R_2 is 2-hydroxyethyl. Most preferred is the compound, wherein R_1 is hydrogen and R_2 is 2-hydroxyethyl.

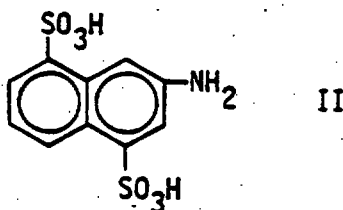
- 5 Preferred mixtures of compounds of formula I are those in which in a compound A R_1 is hydrogen and R_2 is 2-hydroxyethyl, and in a compound B R_1 and R_2 are both 2-hydroxyethyl. Preferably, these mixtures contain the compounds A and B in a molar ratio range of from 90:10 to 10:90, more preferably 75:25 to 25:75.

- 10 The cations of the sulfo groups when the compounds of formula I are in salt form may be any of those non-chromophoric cations common in the chemistry of reactive dyestuffs. Examples of suitable cations are alkali metal cations and unsubstituted or substituted ammonium ions, such as lithium, sodium, potassium, ammonium, mono-,
15 di-, tri- and tetra-methylammonium, triethylammonium and mono-, di- and tri-ethanolammonium.

The preferred cations are the alkali metal cations and ammonium, with sodium being the most preferred.

- 20 The present invention further provides a process for the preparation of the compounds of formula I comprising reacting the following components: -

- the diazotized amino compound of formula II,



- the coupling component of formula III,

atom may be effected at temperatures of from 20° up to 55°C in an alkaline medium.

The compounds of formula I may be isolated in accordance with known methods, for example, by conventional salting out with alkali metal salt, filtering and drying in a vacuo. Depending on the reaction- and isolation-conditions a compound of formula I is obtained in free acid or preferably salt form or even mixed salt forms containing, for example, one or more of the above mentioned cations. It may be converted from free acid form to a salt form or mixture of salt forms or vice versa or from one salt form to another by conventional means.

The starting materials, compounds of formula II, III and IV, are either known or may be prepared in accordance with known methods from available starting materials.

The compounds of formula I and mixtures thereof which are preferably in salt form, are useful as reactive dyestuffs for dyeing or printing hydroxy group- or nitrogen-containing organic substrates. Preferred substrates are leather and textiles containing or consisting of natural or synthetic polyamides such as wool, silk and nylon, natural or regenerated cellulose such as cotton, viscose and spun rayon. The most preferred substrate is textile material containing or consisting of cotton.

Dyeing or printing is effected in accordance with known methods. Since the compounds of formula I exhaust well from the dyebath they are suitable for all conventional dyeing processes using the exhaust dyeing method. They may be applied according to conventional methods per se or in combination with appropriate other fibre-reactive dyestuffs having analogous dyeing properties and, since they are well compatible, also in important three component dye mixtures. The dye-

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Example 1

75.8 Parts 2-aminonaphthalene-4,8-disulphonic acid are diazo-
tized in accordance with known methods. To the resulting diazo sus-
pension a solution of 34.3 parts 2-amino-1-methoxy-4-methylbenzene
5 in a mixture of water and hydrochloric acid are added dropwise, and
coupling is effected whilst gradually adding a total amount of
42.5 parts sodium bicarbonate with stirring. After four hours the
resulting monoazo dyestuff is isolated by heating the reaction mix-
ture to 60° and adding hydrochloric acid up to pH 1. The dyestuff
10 which precipitates is filtered and washed with a solution of a mix-
ture of water, sodium chloride and 30% hydrochloric acid.

The thus obtained product is stirred in 1000 parts water and
completely dissolved by the addition of ca. 25 parts 30% sodium hy-
droxide solution to give a medium with pH 8. This solution is
15 stirred overnight. After the addition of 500 parts ice the tempera-
ture is reduced to -1°. Subsequently, 46 parts cyanuric chloride
are added, the condensation reaction starts at about 7°. The reac-
tion is completed in approximately two hours whereby the tempera-
ture is raised to 30° for the last hour.

20 For the next condensation step 19.8 parts monoethanolamine di-
luted with 50 parts water are added to the reaction mixture within
5 minutes whereby the pH rises to 11.2. Stirring is effected for
15 minutes and the temperature is then elevated to 50°. After a
further 20 minutes stirring the pH falls to 7 and stirring is con-
25 tinued for approximately three hours. Then, further 2 parts mono-
ethanolamine diluted with water are added and stirring is continued
until a pH of ca. 8.8 is reached which remains unchanged.

The product is isolated by portionwise adding of 300 parts
sodium chloride, filtering and drying in a vacuo at 60°. The thus
30 obtained dyestuff which in form of the free acid corresponds to the
formula

40° and pH 7 during ten hours.

In accordance with the reaction and isolation conditions as described the dyestuffs of Examples 1 to 5 are obtained in the sodium salt form. They may, depending on the reaction /isolation conditions or by reacting the sodium salts in accordance with known methods, also be obtained in free acid form or in other salt forms, for example those salt forms containing one or more cations indicated in the description hereinbefore.

In the following examples the application of the dyestuffs of this invention is illustrated.

Application Example A

To a dyebath consisting of 1000 parts water, 20 parts Glauber's salt (calcined), 2.5 parts sodium carbonate (calcined) and 1 part of the sodium salt of 1-nitrobenzene-3-sulphonic acid 50 parts mercerized cotton fabric are added. The bath is heated to 40°, then 1 part of the dye of Example 1 is added. The temperature is raised to 98° within 45 minutes; during this time 20 parts Glauber's salt (calcined) are added after 15 minutes and again 20 parts Glauber's salt (calcined) are added after further 15 minutes. At the end of this time 7.5 parts sodium carbonate (calcined) are added. Dyeing is continued at the boil for 45 to 60 minutes. Subsequently, the dyed fabric is rinsed hot and soaped at the boil for 20 minutes in 500 parts water and 0.5 parts sodiumalkylsulphonate. After rinsing and drying a yellow cotton dyeing with good fastness properties is obtained.

Application Example B

To a dyebath consisting of 1000 parts water, 60 parts Glauber's salt (calcined), 15 parts sodium carbonate (calcined) and 1 part

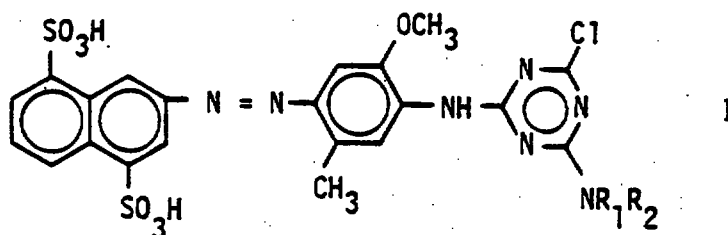


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CLAIMS: -

1. A compound of formula I,



and mixtures thereof, in which

- 5 either R_1 is hydrogen or hydroxy- C_{2-3} alkyl,
and R_2 is hydroxy- C_{2-3} alkyl,
or, R_1 is hydrogen or 2-cyanoethyl,
and R_2 is $-CH_2CH_2OCH_2CH_2OH$,

which compounds and mixtures are in free acid or salt form.

- 10 2. A compound or mixture according to Claim 1, wherein R_1 is
hydrogen or 2-hydroxyethyl and R_2 is 2-hydroxyethyl.

3. A compound according to Claim 1, wherein R_1 is hydrogen
and R_2 is 2-hydroxyethyl, which compound is in free acid or salt
form.

- 15 4. A mixture according to Claim 2, consisting of compound A
which is a compound of formula I wherein R_1 is hydrogen and R_2 is
2-hydroxyethyl, and of compound B which is a compound of formula I
wherein R_1 and R_2 are both 2-hydroxyethyl.

5. A mixture according to Claim 4, containing the compounds A
and B in a molar ratio range of from 90:10 to 10:90.

- 20 6. A mixture according to Claim 5, wherein said molar ratio
range is of from 75:25 to 25:75.



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in free acid or salt form,
with a compound of formula IV,



wherein R_1 and R_2 are as defined in Claim 1,

5 or a mixture thereof.

10. A process for the preparation of a compound of formula I,
as defined in Claim 1, or a mixture thereof, substantially as here-
inbefore described with reference to any one of Examples 1 to 5.

11. A compound of formula I or a mixture thereof, whenever
10 obtained by a process according to any one of Claims 8 to 10.

12. A process for dyeing or printing hydroxy group- or nitrogen-
containing organic substrates comprising applying a compound of for-
mula I or a mixture thereof according to any one of Claims 1 to 7
or 11 as dyeing or printing agent.

15 13. A process according to Claim 12, wherein said substrate is
leather or a textile containing or consisting of natural or regene-
rated cellulose.

14. A process according to Claim 13, wherein said substrate
is a textile containing or consisting of cotton.

20 15. Dyed or printed substrates whenever obtained by a process
according to any one of Claims 12 to 14.
