

ALIEN PROPERTY CUSTODIAN

SULPHONATION PRODUCTS AND A PROCESS FOR THE MANUFACTURE OF THE SAME

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This invention relates to sulphonation products of allyl substituted aromatic oxy compounds and a process for the manufacture of the same.

According to the invention aromatic oxy compounds comprising at least one allyl radicle or at least one substituted allyl radicle linked to the aromatic nucleus and/or to a hydroxyl oxygen and which are advantageously substituted in addition on the aromatic nucleus by at least one other hydrocarbon radicle, by treatment with agents of sulphonating action are converted into valuable capillary active substances.

By the addition of sulphonating agents, such as sulphuric acid or chloro sulphonic acid and advantageously sulphuric acid in admixture with acetic anhydride or acetyl sulphuric acid, the sulphonic acid group apparently becomes attached to the allyl radicle. In general it is to be recommended to cool the reaction mixture during the action of the sulphonating agent with ice.

Among the said aromatic oxy compounds may be mentioned phenols, such as phenol, cresol, xylenol, oxydiphenyl, pyrocatechine, resorcinol, halogenated phenols, such as chloro phenol or bromo cresol, nitro phenols, furthermore naphthol, chloro naphthol, methyl or ethyl naphthol, finally functional derivatives of a phenol, such as anisol, phenetol, phenyl acetate, phenyl propionate, naphthyl methyl ether, naphthyl ethyl ether and so on. To the aromatic nucleus and/or to a hydroxyl oxygen of these aromatic oxy compounds are linked one or more allyl radicles or one or more substituted allyl radicles, that is to say, unsaturated hydrocarbon radicles in which the position of attachment to the aromatic nucleus or to the hydroxyl oxygen is separated from a double bond by a singly linked carbon atom, for example a crotyl radicle, a pentenyl radicle, a hexenyl radicle, a heptenyl radicle and so on. Furthermore the aromatic oxy compounds are advantageously substituted in addition on the aromatic nucleus by at least one other hydrocarbon radicle, for example a propyl, butyl, hexyl, octyl, dodecyl, octadecyl or benzyl radicle.

Thus the following aromatic compounds can be sulphonated with advantage according to the process of this invention: o- and p-allyl phenol, crotyl phenol, o-hydroxy phenyl-1-hexene-2, di- and triallyl phenol, phenyl allyl ether, phenyl crotyl ether, allyl phenyl allyl ether, chloro allyl phenol, bromo allyl phenol, nitro allyl phenol, allyl cresol, eugenol, allyl eugenol, eugenol allyl ether, acetyl allyl phenol, allyl anisol, isododecyl allyl phenol, isododecyl allyl phenyl ether, n-octadecyl allyl phenol, allyl- α -naphthol, allyl- β -naphthol, naphthyl allyl ether.

Likewise there are suitable as starting materials allylated phenol carboxylic acids, for example allyl salicylic acid and their derivatives alkylated in the nucleus.

Among the sulphonic acids thus obtainable those exhibit particularly good properties which altogether include at least 8 side chain carbon atoms.

The sulphonic acids of this invention may be employed as such or especially in the form of the alkali salts as capillary active compounds, for example as wetting or dispersing agents in the manner known in the art.

The invention is illustrated but not restricted by the following examples; the parts are by weight:

Example 1

Into 500 parts of acetic anhydride with ice cooling 200 parts of concentrated sulphuric acid are stirred within 60 minutes. Then, likewise with ice cooling, 435 parts of isododecyl allyl phenol (boiling point 160-180° C. under 1 mm) are added during 60 minutes. After 1 hour the reaction product is soluble in water to a clear solution. After dilution with water the whole is neutralised with caustic soda lye and thereby at the same time the sulphonic acid salt produced salted out. After drying in vacuum it constitutes a light yellow powder which is distinguished by good wetting and foaming effect.

The isododecyl allyl phenol is obtained in such a manner that from an isododecylene, produced by polymerisation of propylene, and phenol, in the known manner isododecyl phenol is produced, this is converted with allyl chloride and alkali into its allyl ether and the latter rearranged by heating into the o-allyl-p-isododecyl phenol.

Example 2

Into 500 parts of acetic anhydride with ice cooling 200 parts of concentrated sulphuric acid are stirred within 60 minutes. Thereupon 435 parts of isododecyl allyl phenyl ether are added within 60 minutes. After 5 hours complete water solubility results. The working up is carried out in the manner described in example 1. The product likewise possesses good wetting and foaming effect.

Example 3

Into 125 parts of acetic anhydride are stirred with ice cooling within 30 minutes 34 parts of concentrated sulphuric acid. Thereupon 110 parts of allyl n-octadecyl phenol (boiling point 220-240° C. under 1 mm) are dropped in. After 5 hours reaction complete water solubility is achieved. The working up takes place in the manner set out in the preceding examples. The sulphonic acid salt obtained is distinguished in this case by particularly good washing properties.

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