

ALIEN PROPERTY CUSTODIAN

PRODUCTION OF SUBSTITUTED AROMATIC SULPHONIC ACIDS

Fritz Guenther, Heidelberg, and Hans Haussmann, Mannheim, Germany; vested in the Alien Property Custodian

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The present invention relates to the production of substituted aromatic sulphonic acids.

We have found that products having very valuable industrial properties are obtained by esterifying hydroxyalkyl ethers of phenols, naphthols or aliphatic-aromatic alcohols with high molecular weight aliphatic carboxylic acids or the derivatives thereof, which ethers contain sulphonic acid groups in the aromatic nucleus, or derivatives of the same, or by esterifying hydroxyalkyl ethers, free from sulphonic acid groups, of phenols, naphthols or aliphatic-aromatic alcohols with saturated aliphatic carboxylic acids and introducing sulphonic acid groups into the resulting esters by sulphonation. The term aliphatic carboxylic acids in the present case is intended to comprise open chain aliphatic as well as cyclic aliphatic carboxylic acids.

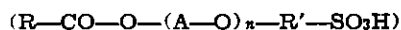
As acids suitable for the esterification, which may be carried out in any known manner, there may be mentioned high molecular weight aliphatic or cycloaliphatic carboxylic acids having at least 8 carbon atoms or their esterifiable derivatives, such as acid chlorides, acid anhydrides or esters, with low molecular weight alcohols, as for example methyl alcohol. The salts of the said carboxylic acids may also be used when mineral acid esters of the said hydroxyalkyl ethers are used for the esterification. As carboxylic acids there may be mentioned for example capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, montanic acid or mixtures of such acids, such as are obtained for example by saponifying fats or waxes or by oxidizing high molecular weight aliphatic hydrocarbons. Naphthenic acids or hydrogenated resinic acids may also be used. Unsaturated fatty acids and/or fatty acids containing hydroxy groups may also be used if the hydroxyalkyl ethers or their mineral acid esters, as for example hydroxyalkylphenyl ethers or chloralkylphenyl ethers, which are used for the esterification already contain sulphonic groups.

As hydroxyalkyl ethers of phenols, naphthols or aliphatic-aromatic alcohols there may be mentioned for example alkylene glycol monophenyl-, -tolyl- or xylyl ethers or alkylene glycol benzyl ethers. In particular, the ethers of ethylene glycol or of propylene or butylene glycols or of glycerine are suitable. Hydroxyalkyl ethers of polyalkylene glycols and phenols, naphthols or aliphatic-aromatic alcohols, as for example di-

ethylene glycol monophenyl ether, may also be used as initial materials.

The sulphonation is carried out under the conditions known for the production of true sulphonic acids of the aromatic series while employing sulphuric acid, oleum, chlorosulphonic acid or SO_3 in the presence or absence of solvents or diluents, such as carbon tetrachloride, trichloroethane, nitrobenzene, diethyl ether, pyridine and/or with the addition of organic or inorganic acids, acid anhydrides or acid chlorides capable of binding water.

In the manner as described there are obtained true sulphonic acids of the general formula:



wherein R is a high molecular aliphatic radicle, A is a low molecular alkylene radicle, n is a whole number and R' is an aryl or an aralkyl radicle. The said products may be used with advantage, as such or in the form of their salts, in neutral, alkaline or acid baths or in hard water. They have in particular a high cleansing, wetting, dispersing and solvent power.

The following example will further illustrate how the said invention may be carried out in practice, but the invention is not restricted to this example. The parts are by weight.

Example

274 parts of palmitic acid chloride are introduced into 235 parts of glycol monocresyl ether and heated for a short time to 60°C . The resulting palmitic acid ester is then sulphonated with 300 parts of sulphuric acid monohydrate at from 35° to 40°C . The sulphonation mixture is poured onto ice and neutralized with caustic soda solution and then worked up in usual manner. A product having a good washing power is thus obtained.

Instead of palmitic acid chloride there may also be used a corresponding amount of naphthenic acid chloride, a product having similar properties being obtained.

An analogous product is obtained by condensing palmitic acid chloride with the sulphonic acid of glycol monocresyl ether containing the sulphonic acid group attached to the aromatic nucleus of the cresylic radicle.

FRITZ GUENTHER,
HANS HAUSSMANN.