CLAIMS

[Claim 1]

A bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt obtained by reacting the bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine with a tertiary amine having a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom.

[Claim 2]

The bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt according to claim 1, wherein the tertiary amine is triethylamine, or N,N-dimethylisopropylamine.

[Claim 3]

A mixture comprising 80% by mole or more of a bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt obtained by reacting the mixture comprising 5% by mole or less of bis(2-methylphenyl)(6-methyl-3-sulphophenyl)phosphine, 80% by mole or more of bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine, and 15% by mole or less of tris(6-methyl-3-sulphophenyl)phosphine with a tertiary amine having a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom.

[Claim 4]

A method for producing bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine, comprising:

a step of reacting 2.5 moles to 4.5 moles of sulphur trioxide with 1 mole of tris(2-methylphenyl)phosphine in the presence of concentrated sulphuric acid to obtain a sulphonation reaction liquid, and diluting the obtained sulphonation reaction liquid with water to obtain a diluted liquid;

a step of neutralizing the diluted liquid with an alkali metal hydroxide; and

a step of bringing the aqueous solution obtained in the neutralization step into contact with a strongly acidic cation exchange resin.

[Claim 5]

A method for producing a bis(6-methyl-3-sulphonatophenyl)(2-

methylphenyl)phosphine diammonium salt by reacting bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine produced by the method according to claim 4 with a tertiary amine having a total of 3 to 27 carbon atoms in groups bonded to one nitrogen atom.

[Claim 6]

The method according to Claim 5, wherein the tertiary amine has a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom.

CLAIMS

[Claim 1]

A bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt which consists of a bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine and a tertiary amine having a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom.

[Claim 2]

The bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt according to claim 1, wherein the tertiary amine is triethylamine, or N,N-dimethylisopropylamine.

[Claim 3]

A mixture comprising 80% by mole or more of a bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt which consists of a mixture and a tertiary amine having a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom, wherein the mixture comprises 5% by mole or less of bis(2-methylphenyl)(6-methyl-3-sulphophenyl)phosphine, 80% by mole or more of bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine, and 15% by mole or less of tris(6-methyl-3-sulphophenyl)phosphine.

[Claim 4]

A method for producing a bis(6-methyl-3-sulphonatophenyl)(2-methylphenyl)phosphine diammonium salt, comprising:

a step of reacting 2.5 moles to 4.5 moles of sulphur trioxide with 1 mole of tris(2-methylphenyl)phosphine in the presence of concentrated sulphuric acid to obtain a sulphonation reaction liquid, and diluting the obtained sulphonation reaction liquid with water to obtain a diluted liquid;

a step of neutralizing the diluted liquid with an alkali metal hydroxide;

a step of bringing the aqueous solution obtained in the neutralization step into contact with a strongly acidic cation exchange resin to obtain a bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine; and a step of reacting the bis(6-methyl-3-sulphophenyl)(2-methylphenyl)phosphine with a tertiary amine having a total of 3 to 27

carbon atoms in groups bonded to one nitrogen atom.

[Claim 5]

The method according to Claim 4, wherein the tertiary amine has a total of 5 to 10 carbon atoms in groups bonded to one nitrogen atom.