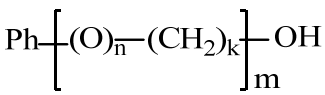
WHAT IS CLAIMED IS:

1. A process for the preparation of 2-(*n*-decylthio)ethylamine HCl comprising reacting decene and cysteamine HCl with (a) a catalyst, (b) water, and (c) an Additive of the Formula (A):



Formula (A)

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wherein:

Ph is phenyl;

n is 0 or 1;

k is 2; and

m is 1-2;

wherein the amount of Additive used in the reaction is from 10 to 49 wt%;

to provide the 2-(*n*-decylthio)ethylamine HCl as a concentrated reaction mixture in about >90% yield, wherein such concentrated reaction mixture is further diluted with water, wherein the amount of Additive present after the dilution with water is from 1 to 30 wt%, to provide a low temperature stable (LTS) liquid product.

2. The process of Claim 1 wherein additional Additive is added directly to the concentrated reaction mixture, or as a part of the dilution with water, or after the dilution with water.

3. The process of Claim 1 or 2 wherein the Additive is 2-phenoxyethanol (PE), 2-phenylethanol (PA) or diethyleneglycol phenylether (DiEPh).

4. The process of Claim 1 or 2 wherein the catalyst is H_2O_2 or an azo catalyst.

5. The process of Claim 4 wherein the azo catalyst is 2,2'-azo*bis*[2-(2-imidazolin-2-yl)propane] dihydrochloride; 2,2'-azo*bis*(2-methylpropionamidine) dihydrochloride; 2,2'-azo*bis*[*N*-(2-carboxyethyl)-2-methylpropionamidine]; 2,2'-azo*bis*[2-methyl-*N*-(2-hydroxyethyl)propionamide]; or 4,4'-azo*bis*(4-cyanovaleric acid).

6. The process of Claim 5 wherein the azo catalyst is 2,2'-azo*bis*(2-methylpropionamidine) dihydrochloride.

7. The process of Claim 1 wherein stable liquid product means without separation of a second phase or solids formation.

8. The process of Claim 1 wherein the Additive is 2-phenoxyethanol (PE), 2-phenylethanol (PA) or diethyleneglycol phenylether (DiEPh) and the catalyst is 2,2'-azo*bis*(2-methylpropionamidine) dihydrochloride.

9. The process of Claim 1 wherein the Additive is 2-phenoxyethanol (PE), 2-phenylethanol (PA) or diethyleneglycol phenylether (DiEPh) and the catalyst is H_2O_2.

10. The process of Claim 1 wherein 2-(*n*-decylthio)ethylamine HCl after the dilution with water is present from 2 to 25 wt%.

11. The process of Claim 1 wherein 2-(*n*-decylthio)ethylamine HCl after the dilution with water is present from 5 to 15 wt%.

12. The process of Claim 1 wherein the amount of Additive present after the dilution with water is present from 2 to 20 wt%.

13. The process of Claim 1 wherein the reaction is run under an inert atmosphere, at a temperature from 70°C to 79°C.