

CLAIMS

1. Process for separating unsaturated hydrocarbons from a mixture of saturated and unsaturated hydrocarbons, which process comprises the steps of
- 5 (a) contacting the mixture with a solvent;
- (b) allowing to form two phases in equilibrium, a first phase comprising solvent and unsaturated hydrocarbons and a second phase comprising the remainder of the mixture;
- 10 (c) removing the phases separately; and
- (d) removing from at least one of the phases the hydrocarbons to obtain at least one product stream and regenerated solvent for use in step (a),
- wherein the solvent comprises dihydrolevoglucosenone or a derivative of dihydrolevoglucosenone.
- 15 2. Process according to claim 1, comprising the steps of
- (1) feeding the mixture into a distillation column having a stripping section and a rectifying section located below the stripping section, wherein the mixture is introduced between
- 20 the stripping section and the rectifying section;
- (2) introducing the solvent at or near the top of the distillation column;
- (3) removing from the bottom of the distillation column a bottom stream comprising solvent and unsaturated
- 25 hydrocarbons;
- (4) reheating part of the bottom stream to obtain a vapour stream that is introduced into the bottom of the distillation column, below the stripping section;
- (5) removing unsaturated hydrocarbons from the remainder of
- 30 the bottom stream to obtain a first product stream comprising unsaturated hydrocarbons and regenerated solvent for use in step (2);

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(6) removing from the top of the distillation column a vapour stream comprising the remainder of the mixture; and

(7) condensing the vapour stream and returning at least part of the condensed vapour stream as reflux into the top of the distillation column, and withdrawing the remainder as distillate.

3. Process according to claim 1, comprising the steps of

(1) feeding the mixture in liquid form together with the solvent into a suitable contactor;

10 (2) allowing in the contactor the formation of two phases, a liquid extract comprising solvent and unsaturated hydrocarbons and a liquid raffinate comprising the remainder of the mixture;

(3) removing the liquid extract from the contactor;

15 (4) removing unsaturated hydrocarbons from the liquid extract to obtain a first product stream comprising unsaturated hydrocarbons and regenerated solvent for use in step (1);

(5) removing the liquid raffinate from the contactor; and

20 (6) removing hydrocarbons from the liquid raffinate to obtain a second product stream comprising the remainder of the mixture and regenerated solvent for use in step (1).