C L A I M S

1. A continuous or non-continuous ionic liquid alkylation process comprising a step for solids removal, the process further comprising the steps
(a) measuring with a measuring device the solids content in the ionic liquid alkylation process stream by on line (in situ) or off line sampling;
(b)in response to the solids measurement signal, regulating the flow of the ionic liquid side stream to be sent to the solids removal device;
(c) regulating the flow of the fresh ionic liquid inlet stream,
for controlling the solids content in the ionic liquid alkylation process to a pre-defined level.

2. The process according to claim 1, wherein the process is a continuous process and wherein Focused Beam Reflectance Measurement (FRBM$^{(R)}$) technology is used for on line measurement of solids content in step (a).

3. The process according to claim 1 or 2, wherein the solids content is measured in the inlet line for introducing ionic liquid into the reaction zone.

4. The process according to claim 3, wherein through the inlet line a combined stream of fresh and recycled ionic liquid is introduced into the reaction zone.

5. The process according to any one of the preceding claims, wherein the signal produced by the device measuring the solids content,
controls a pump that regulates the flow of the ionic liquid side stream to be sent to the solids removal device.

6. The process according to any one of the preceding claims, wherein the signal produced by the device

measuring the solids content,
controls a pump that pumps fresh ionic liquid into the system.

7. The process according to any one of the preceding claims, wherein the signal produced by the device measuring the solids content,
controls a valve that controls the flow of spent ionic liquid bleed.

8. The process of any one of the preceding claims, wherein the ionic liquid is a composite ionic liquid comprising ammonium cations and anions being composite coordinate anions derived from two or more metal salts.