

Title (en)
PRODUCTION OF SOLAR AND ELECTRONIC GRADE SILICON FROM ALUMINOSILICATE CONTAINING MATERIAL

Title (de)
HERSTELLUNG VON SILICIUM MIT SOLAR- UND ELEKTRONIKQUALITÄT AUS ALUMINOSILIKATHALTIGEM MATERIAL

Title (fr)
PRÉPARATION DE SILICIUM DE QUALITÉ SOLAIRE ET ÉLECTRONIQUE À PARTIR DE MATÉRIAUX CONTENANT DES ALUMINOSILICATES

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Abstract (en)
[origin: WO2007116326A2] The present invention relates to the recovery of silica from aluminosilicate-containing material and the production of solar and/or electronic grade silicon there from. In particular, a process for manufacturing silicon comprises subjecting highly pure and particulate silica in amorphous form to an in-flight plasma carbothermic reduction in a plasma reactor comprising a plasma torch and a vessel suitable for plasma-associated chemical reaction of silica and collection of liquid silicon. The highly pure and particulate silica is preferably produced using a process for manufacturing silica and/or alumina from an aluminosilicate-containing material comprising mixing the material with a metal chloride, preferably calcium chloride, being in the form of a solution or slurry, subjecting the wet mixture to a granulation step, burning the granules at a temperature of 900-1300 °C, leaching the obtained heated mixture with hydrochloric acid to obtain a salt solution and insoluble silica, separating insoluble silica from the salt solution, and recovering dry silica. Alumina may be produced by crystallizing AlCl_3 from the salt solution and heating the $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ crystals to produce alumina.

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