

Abstract

Process for preparing chlorine from hydrogen chloride, which comprises the steps:

- a) feeding of a stream a1 comprising hydrogen chloride and of a stream a2 comprising oxygen into an oxidation zone and catalytic oxidation of hydrogen chloride to chlorine, giving a product gas stream a3 comprising chlorine, water, oxygen, carbon dioxide and inert gases;
- b) contacting of the product gas stream a3 with aqueous hydrochloric acid I in a phase contact apparatus and partial separation of water and of hydrogen chloride from the stream a3, leaving a gas stream b comprising hydrogen chloride, chlorine, water, oxygen, carbon dioxide and possibly inert gases, with at least 5% of the hydrogen chloride comprised in the stream a3 remaining in the gas stream b;
- c) drying of the gas stream b) to leave a gas stream c which is substantially free of water and comprises hydrogen chloride, chlorine, oxygen, carbon dioxide and possibly inert gases;
- d) partial liquefaction of the gas stream c by compression and cooling, giving an at least partially liquefied stream d;
- e) gas/liquid separation of the stream d into a gas stream e1 comprising chlorine, oxygen, carbon dioxide, hydrogen chloride and possibly inert gases and a liquid stream e2 comprising hydrogen chloride, chlorine, oxygen and carbon dioxide and, if appropriate, recirculation of at least part of the gas stream e1 to step a);
- f) separation of the liquid stream e2 into a chlorine stream f1 and a stream f2 consisting essentially of hydrogen chloride, oxygen and carbon dioxide by distillation in a column, with part of the hydrogen chloride condensing at the top of the column and running back as runback into the column, as a result of which a stream f2 having a chlorine content of < 1% by weight is obtained.