

PROCESS AND PLANT FOR THE PURIFICATION OF TRICHLOROSILANE AND SILICON TETRACHLORIDE

ABSTRACT

The invention concerns a process (and a corresponding plant) for the purification of trichlorosilane and/or silicon tetrachloride comprising the following steps of treating technical grade trichlorosilane and/or technical grade silicon tetrachloride: complexation of the boron impurities (trichloride BCl_3) and other metallic impurities by addition of diphenylthiocarbazon and/or triphenylchloromethane, with the formation of complex macromolecules having high boiling point, first column distillation of the complexation step products, wherein the complexed boron impurities, together with other metallic impurities are removed as bottoms, and second column distillation of the tops of the previous distillation, wherein electronic grade trichlorosilane (plus dichlorosilane possible present) and/or silicon tetrachloride are obtained as tops and phosphorus chlorides PCl_3 and phosphorus containing compounds, arsenic chlorides AsCl_3 and arsenic containing compounds, aluminium compounds, antimony compounds and in general all the present metals and metalloids compounds and carbo-silanes compounds, having a certain residual amount of trichlorosilane and/or silicon tetrachloride, are obtained as bottoms.

Figure 1