

Method and facility for purifying a feed gas stream comprising at least 90% CO₂

A method for purifying a feed gas stream comprising at least 90% CO₂ on a dry basis, at least 20% relative humidity and at least one impurity chosen from the chlorinated, nitrated, fluorinated or sulfur compounds, comprising the following successive steps: a) a step of subjecting the feed gas stream to a catalytic oxidation in such a way as to produce a gas stream comprising at least one acid impurity chosen from among HCl, NO_x, SO_x or hydrofluoric acid; b) a step of maintaining the temperature of the gas stream coming from step a) above the highest value between the dew point of water and the dew point of the acid or acids contained in the gas downstream of the catalytic process; c) a step of removing at least a part of the acid impurities by placing the gas stream coming from step b) in contact with at least one corrosion-resistant heat exchanger in such a way as to condense the acid compounds while regulating the temperature of the gas stream exiting below the dew point of water; and d) a step of separating the acid condensates of the gas stream coming from step c) by means of a corrosion-resistant separator in such a way as to produce a CO₂ enriched gas stream.

[No Suitable Figure]