

Abstract

The present invention relates to an apparatus for purifying a process gas (22) containing at least one pollutant gas, having a reactor vessel which is formed as a centrifugal separator, has a cylindrical region (5) and a tapering region (9), and into which oxygen or an oxygen-containing gas can be introduced as a reaction gas (21) into at least one gas inlet (1, 2, 3) arranged on the cylindrical region (5) and can be discharged through at least one gas outlet (10, 11) arranged on the tapering region (9). The at least one gas inlet (1, 2, 3) is arranged and formed to introduce a defined volumetric flow of the reaction gas (21) into the reactor vessel tangentially to a circumferential surface of the cylindrical region (5). The apparatus further comprises a pollutant gas inlet (8) arranged at the cylindrical region (5), which is designed to introduce a defined volumetric flow of the process gas (22) containing at least one pollutant gas into the reactor vessel, so that the at least one pollutant gas and the reaction gas (21) are mixed with each other in the direction of the gas outlet (10, 11) and chemically react with each other on their way through the reactor vessel. The gas outlet (10, 11) is arranged and configured to discharge process gas not reacted in the chemical reaction and reaction products of the chemical reaction from the reactor vessel.

(Fig. 1)