

PROCESS FOR THE PRODUCTION OF ANHYDRIDES

Abstract

A process for the production of anhydrides by contacting a gaseous feed stream with a particulate catalyst, said process being carried out in a tubular reactor having an inlet and an outlet, said outlet being located downstream of the inlet, said reactor comprising one or more tubes having located therein one or more carriers for said particulate catalyst and cooling medium in contact with said tubes;

wherein said catalyst carrier comprises:

an annular container for holding catalyst in use, said container having a perforated inner wall defining a tube, a perforated outer wall, a top surface closing the annular container and a bottom surface closing the annular container;

a surface closing the bottom of said tube formed by the inner wall of the annular container;

a skirt extending upwardly from the perforated outer wall of the annular container from a position at or near the bottom surface of said container to a position below the location of a seal; and

a seal located at or near the top surface and extending from the container by a distance which extends beyond an outer surface of the skirt; said process comprising:

- (a) introducing the gaseous reactants through the inlet;
- (b) passing said reactants downwardly through said at least one tube to the upper surface of the, or the first catalyst carrier where they pass into the passage defined by the inner perforated wall of the container before passing radially through the catalyst bed towards the perforated outer wall;
- (c) allowing reaction to occur as the gas contacts the catalyst;
- (d) passing unreacted reactant and product out of the container through the perforated outer wall and then upwardly between the inner surface of the skirt and the outer wall of the annular container until they reach the seal where they are directed over the end of the skirt and caused to flow downwardly between the outer surface of the skirt and the inner surface of the reactor tube where heat transfer takes place;
- (e) repeating steps (b) to (d) at any subsequent catalyst carrier; and
- (f) removing product from the outlet.