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Mass and heat transfer surface

as well as

mass and heat transfer reactor with such a

mass and heat transfer surface

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Abstract

A mass and heat transfer reactor is described, which contains mass and heat transfer surfaces (18), which enable the formation of a very thin and continuous liquid film (26), which extends to the entire mass and heat transfer surface. The mass and heat transfer reactor comprises two duct systems (14,16), which are separated with regard to the mass flow but are in contact with each other with regard to the heat transfer. In one duct system (the heat transfer duct system) (14) a liquid or gaseous heating or cooling media HKM is circulating, while in the other duct system (mass transfer duct system) (16) a gaseous media GM and a further liquid media FM are circulating. Furthermore, at least one reactor double plate (2) is provided, whereby the mass and heat transfer surfaces are at its surface. These mass and heat transfer surfaces are coated with a thin layer of solid particles (21, 22) in such a way, that between the solid particles, gaps and voids are formed due to shape and arrangement of the particles. This coating reduces the surface tension and enables a continuous and durable moistening of the mass and heat transfer surfaces.

(Fig. 1)