

The invention relates to the field of chemical industry, namely to hydrogen production, and can be used in hydrogen power engineering.

The reactor for producing hydrogen comprises a body (1) of nonmagnetic material, for example stainless steel or copper, with a cooling jacket (2), placed in a stator bore (10) of an electric motor. The body (1) is provided from the bottom with a nozzle (6) for water vapor inlet from a water heater (5) and a reaction product and condensate drainage nozzle (16), and from the top with an aluminum particle (9) supply nozzle (17) and a hydrogen removal nozzle (7). Inside the body are fixed immobile electrodes (3), connected to a direct current power supply (4), and are placed mobile particles (8) of soft magnetic material, made in the form of wire with a length of 1.5...3 times smaller than the distance between the immobile electrodes (3) and with the length-to-diameter ratio equal to 12...14, and the volume of the mobile particles (8) is 1...3% of the volume of the body (1) of the reactor.

The process for producing hydrogen consists in that is formed a rotating magnetic field of 25...32 mT in the body (1) of the reactor with its cooling, are continuously fed into the gap between the immobile electrodes (3), connected to the power supply (4) with the voltage of 40...90 V, the aluminum particles (9) with dimensions of  $10^2...10^6$  nm and water vapors, are produced the electrical discharges between the mobile particles (8) and the electrodes (3), and is removed the hydrogen from the body (1) of the reactor.

Claims: 2

Fig.: 2

