

# Laboratory Evaporator for Reformation Technology

Contact	Dr. Stefan Kurze IMM Carl-Zeiss-Str.18-20 D-55129 Mainz kurze@imm-mainz.de
Extension	+49 6131 / 990 - 174
Fax	+49 6131 / 990 - 205
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## New micro structured test reactor for vaporization of liquids

The Institut für Mikrotechnik Mainz GmbH (IMM) has developed a compact evaporator as test reactor for liquids like water and methanol. The Laboratory Evaporator LEVP is to be used for test series for the production of different gas mixtures in reformation technology. Quick preheating, free vaporization of liquids and overheating take place in one component. Temperatures can be measured at four spots within the vaporization unit.

The stainless steel evaporator consists of a control unit and the welded main component. In the latter, the zones for preheating, vaporization and overheating are integrated. Preheating is carried out electrically by four heating elements with a maximum power consumption of 400 watt. The structure of the LEVP also allows an energy supply through hot gas. This makes it possible to use flows of hot process gas in compact reformer systems.

The LEVP is designed for an operating temperature of 550° C and a pressure stability of up to 5 bar. The capacity of the vaporization volume reaches around 650 grams per hour for methanol and 320 grams for water. Standardized in- and outgoing connectors by Swagelok (USA) and measurements of 160 x 130 x 55 millimetres guarantee the compatibility with and possibility of integration in many test plants.

For the operation of water vapour reformers, water needs to be overheated in an evaporator prior to reformation. The steam is then mixed with a fuel and, in a reformer, converted to hydrogen and carbon oxides.

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Hall 13 (Energy – Hydrogen & Fuel Cell), booth E57/1  
[www.hannovermesse.de](http://www.hannovermesse.de)

11-14 May 2004, Analytica, Munich  
19<sup>th</sup> International Trade Fair and Analytica Conference  
Hall A4, booth 373  
[www.analytica.de](http://www.analytica.de)

11-15 May 2004, ACHEMASIA, Beijing, China  
6th International Exhibition-Congress on Chemical Engineering and Biotechnology  
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