

Determination of Emission Coefficient

- For long-wave radiation
- In the spectral range from 2.5 to 40 μm
- Measurement range from 0.02 to 0.99

Scope of Application

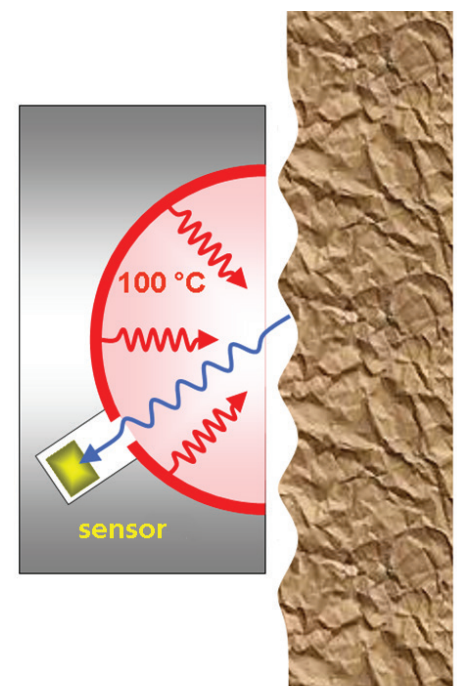
The measuring device allows the non-destructive determination of the emission coefficient of almost all surfaces. In addition to the spectral measurement principle according to DIN EN 12898:2001 non-plane surfaces and large components can be investigated. If required, in situ measurements are also possible on surfaces preferably mounted in vertical position ($\pm 30^\circ$). Besides investigations of already existing buildings, quality control during production represents an additional scope of application. To achieve precise measurement, the surfaces must be opaque to long-wave radiation. Due to the flexible measuring method, measurements can usually be performed at short notice.

Measuring Method

The measuring device has the size of a shoe box and therefore it is portable. The measuring principle is based on the radiation exchange of two opposing surfaces at different temperature levels. The device contains a hemispherical membrane with a constant temperature at 100 $^\circ\text{C}$, whereas the specimen has usually ambient temperature. The geometry of the emitter allows precise measurements of even structured surfaces with elevations of some millimetres in height. The reflected IR radiation is measured by a sensor and compared with the reference values of two calibration standards by means of evaluation electronics. The method meets the requirements of DIN EN 15976 and DIN EN 16012, Annex D.

Requirements Concerning the Specimens

- Dimensions: Standard 1 m^2 or optional as available, in special cases, e. g. in case of prototypes, measurements are possible from 100 mm x 100 mm
- Opaque to IR radiation
- Varnishes and paints on substrate as agreed



emissimeter

sample

Fraunhofer-Institute for Building Physics

Nobelstraße 12
70569 Stuttgart
Germany

Department Hygrothermics

Dipl.-Ing. Michael Würth
Phone +49 711 970-3438
Fax +49 711 970-7033438
michael.wuerth@ibp.fraunhofer.de