



| Measured Value | Method/Apparatus | Temperature °C | Material/Sample Size in mm/ml | Additional Information | Contact | Institute | e-mail | WWW |
|-------------------------|---|----------------|--|--|-----------------------------------|---|---|--------------------------|
| infrared optical values | emittance / emissivity: spectral and total, directional and hemispherical | 200 ... 3000 | solids, coatings, powders, liquids, gases ca. 20 x 20 or $\varnothing = 20$ and on request | wavelength: 0.5 ... 25 μm angle: $-90^\circ \dots +90^\circ$ pressure: $10^{-3} \dots 10$ bar atmosphere: air, inert gas, vacuum | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | transmittance / transmissivity: spectral and total, directional-hemispherical | 200 ... 1600 | solids, coatings, powders, liquids, gases ca. 20 x 20 or $\varnothing = 20$ and on request | wavelength: 0.5 ... 25 μm angle: $-90^\circ \dots +90^\circ$ pressure: $10^{-3} \dots 10$ bar atmosphere: air, inert gas, vacuum | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | reflectance / reflectivity: spectral and total, directional-hemispherical | 0 ... 200 | solids, coatings, powders, liquids min. 20 x 20 or $\varnothing = 20$ and on request | wavelength: 1.4 ... 35 μm atmosphere: air | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | transmittance / transmissivity: spectral and total, directional-hemispherical | 0 ... 200 | solids, coatings, powders, liquids min. 20 x 20 or $\varnothing = 20$ and on request | wavelength: 1.4 ... 35 μm atmosphere: air | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | reflectance / reflectivity: spectral and total, directional-directional | -200 ... +200 | solids, coatings, powders, liquids 40 x 40 ... 40 x 60 and on request | wavelength: 0.5 ... 500 μm angle: $-90^\circ \dots +90^\circ$ pressure: $10^{-6} \dots 1$ bar atmosphere: air, inert gas, vacuum | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | transmittance / transmissivity: spectral and total, directional-directional | -200 ... +200 | solids, coatings, powders, liquids 40 x 40 ... 40 x 60 and on request | wavelength: 0.5 ... 500 μm angle: $-90^\circ \dots +90^\circ$ pressure: $10^{-6} \dots 1$ bar atmosphere: air, inert gas, vacuum | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | extinction coefficient, albedo, scattering coefficient and absorption coefficient | -200 ... 1600 | solids, coatings, powders, liquids, gases sample size on request | wavelength: 0.5 ... 500 μm | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | complex index of refraction and complex dielectric function | -200 ... 1600 | solids, coatings, powders, liquids, gases sample size on request | wavelength: 0.5 ... 500 μm | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | spectrometer, radiation thermometer (pyrometer), IR-detector and IR-camera | -200 ... 3000 | solids, coatings, powders, liquids, gases | wavelength: 0.5 ... 500 μm | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | black body radiator, panel radiator, fixed-point radiator and lamp for calibration issues | -200 ... 3000 | solids, coatings, powders, liquids, gases | wavelength: 0.5 ... 500 μm | Dr. Jochen Manara | Center for Applied Energy Research e.V. | jochen.manara@cae-zeroarbon.de | www.cae-zeroarbon.de |
| infrared optical values | directional emittance | 700 ... 1500 | solids, coatings $\varnothing: \sim 15$ thickness: $\sim 4 \dots 6$ | atmosphere: air, inert gas, vacuum wavelength: 0.5 ... 8 μm | Marc Linder Dr. Rudi Kulenovic | IKE, Universität Stuttgart | marc.linder@ike.uni-stuttgart.de / rudi.kulenovic@ike.uni-stuttgart.de | www.ike.uni-stuttgart.de |
| infrared optical values | high resolution IR camera | | | | Jan König | Fraunhofer IPM | jan.koenig@ipm.fraunhofer.de | www.ipm.fraunhofer.de |
| infrared optical values | FT-IR | RT ... 200 | thin films and solids | | Jan König | Fraunhofer IPM | jan.koenig@ipm.fraunhofer.de | www.ipm.fraunhofer.de |