

# ISO 19618:2025-01 (E)

## Fine ceramics (advanced ceramics, advanced technical ceramics) - Measurement method for normal spectral emissivity using blackbody reference with an FTIR spectrometer

---

<b>Contents</b>		<b>Page</b>
Foreword		iv
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>1</b>
<b>4</b>	<b>Principle</b>	<b>2</b>
<b>5</b>	<b>Apparatus</b>	<b>2</b>
5.1	Measurement system	2
5.2	Fourier transform infrared spectrometer (FTIR)	2
5.3	Specimen heating device	2
5.4	Blackbody furnace	4
5.5	Temperature measuring devices and thermometer	4
5.6	Mirror	4
<b>6</b>	<b>Test specimens</b>	<b>4</b>
<b>7</b>	<b>Measurement preparation</b>	<b>5</b>
7.1	Position of a blackbody furnace and a specimen	5
7.2	Wavelength calibration	6
7.3	Verification of linearity	6
7.4	Verification of stability	7
7.5	Validation of measurement system	7
<b>8</b>	<b>Test condition</b>	<b>7</b>
<b>9</b>	<b>Test procedure</b>	<b>7</b>
9.1	Background infrared radiance spectrum measurement	7
9.2	Specimen installation	7
9.3	Infrared radiance spectrum measurement	7
<b>10</b>	<b>Calculations</b>	<b>8</b>
10.1	Normal spectral emissivity	8
10.2	Normal quasi-total emissivity	8
<b>11</b>	<b>Test report</b>	<b>9</b>
<b>Annex A</b> (informative)	<b>Calculation of theoretical infrared radiance spectrum <math>L_{\lambda,T}</math> using Planck's blackbody radiation function</b>	<b>10</b>
<b>Annex B</b> (informative)	<b>Christiansen effect</b>	<b>11</b>
<b>Annex C</b> (informative)	<b>Validity of normal quasi-total emissivity</b>	<b>12</b>
<b>Bibliography</b>		<b>13</b>