

Contents

| | |
|-------------|--|
| | Foreword |
| | Introduction |
| 1 | Scope |
| 2 | Normative references |
| 3 | Terms and definitions |
| 4 | Determination of wet-film thickness |
| 4.1 | General |
| 4.2 | Mechanical methods |
| 4.2.1 | Principle |
| 4.2.2 | Field of application |
| 4.2.3 | General |
| 4.2.4 | Method 1A — Comb gauge |
| 4.2.4.1 | Description of instrument |
| 4.2.4.2 | Procedure |
| 4.2.5 | Method 1B — Wheel gauge |
| 4.2.5.1 | Description of instrument |
| 4.2.5.2 | Procedure |
| 4.2.6 | Method 1C — Dial gauge |
| 4.2.6.1 | Instrument and reference materials (reference standard) |
| 4.2.6.1.1 | Dial gauge [see Figure 3 a) and b)] |
| 4.2.6.1.2 | Reference material for zeroing the gauge |
| 4.2.6.2 | Procedure |
| 4.3 | Gravimetric method |
| 4.3.1 | Principle |
| 4.3.2 | Field of application |
| 4.3.3 | General |
| 4.3.4 | Method 2 — By difference in mass |
| 4.3.4.1 | Apparatus |
| 4.3.4.2 | Procedure |
| 4.4 | Photothermal method |
| 4.4.1 | Principle |
| 4.4.2 | Field of application |
| 4.4.3 | General |
| 4.4.4 | Method 3 — Determination using thermal properties |
| 4.4.4.1 | Instrument and reference materials (reference specimens) |
| 4.4.4.1.1 | Measurement system |
| 4.4.4.1.2 | Reference material |
| 4.4.4.2 | Calibration |
| 4.4.4.3 | Procedure |
| 5 | Determination of dry-film thickness |
| 5.1 | General |
| 5.2 | Mechanical methods |
| 5.2.1 | Principle |
| 5.2.2 | Field of application |
| 5.2.3 | General |
| 5.2.4 | Method 4A — By difference in thickness |
| 5.2.4.1 | Description of instrument |
| 5.2.4.1.1 | Micrometre |
| 5.2.4.1.1.1 | General |

- 5.2.4.1.1.2 Version 1 — Fixed to a stand
- 5.2.4.1.1.3 Version 2 — Hand-held (see Figure 5)
- 5.2.4.1.2 Dial gauge
 - 5.2.4.1.2.1 General
 - 5.2.4.1.2.2 Version 1 — Fixed to a stand
 - 5.2.4.1.2.3 Version 2 — Hand-held
- 5.2.4.2 Procedure
- 5.2.5 Method 4B — Depth gauging
 - 5.2.5.1 Instruments and reference materials (reference specimens)
 - 5.2.5.1.1 Version 1 — Micrometer depth gauge (see Figure 8)
 - 5.2.5.1.2 Version 2 — Dial depth gauge (see Figure 9)
 - 5.2.5.1.3 Reference materials for zeroing the gauge
 - 5.2.5.2 Procedure
- 5.2.6 Method 4C — Surface profile scanning
 - 5.2.6.1 Description of instrument
 - 5.2.6.2 Procedure
- 5.3 Gravimetric method
 - 5.3.1 Principle
 - 5.3.2 Field of application
 - 5.3.3 General
 - 5.3.4 Method 5 — By difference in mass
 - 5.3.4.1 Apparatus
 - 5.3.4.2 Procedure
- 5.4 Optical methods
 - 5.4.1 Principle
 - 5.4.2 Field of application
 - 5.4.3 General
 - 5.4.4 Method 6A — Cross-sectioning
 - 5.4.4.1 Version 1 — By grinding
 - 5.4.4.1.1 Apparatus and materials
 - 5.4.4.1.1.1 Grinding and polishing machine
 - 5.4.4.1.1.2 Embedding medium
 - 5.4.4.1.1.3 Grinding and polishing media
 - 5.4.4.1.1.4 Measuring microscope
 - 5.4.4.1.2 Procedure
 - 5.4.4.2 Version 2 — By cutting
 - 5.4.4.2.1 Apparatus
 - 5.4.4.2.1.1 Cutter
 - 5.4.4.2.1.2 Measuring microscope
 - 5.4.4.2.2 Procedure
 - 5.4.5 Method 6B — Wedge cut
 - 5.4.5.1 Apparatus
 - 5.4.5.1.1 General
 - 5.4.5.1.2 Cutter
 - 5.4.5.1.3 Measuring microscope or digital measurement equipment
 - 5.4.5.2 Procedure
 - 5.4.6 Method 6C — White-light interferometry
 - 5.4.6.1 Instrument and reference material
 - 5.4.6.1.1 White-light interferometer
 - 5.4.6.1.2 Reference material
 - 5.4.6.2 Procedure
- 5.5 Magnetic methods
 - 5.5.1 Principle
 - 5.5.2 Field of application
 - 5.5.3 General
 - 5.5.4 Method 7A — Magnetic pull-off gauge
 - 5.5.4.1 Description of instrument
 - 5.5.4.2 Procedure
 - 5.5.5 Method 7B.1 — Magnetic-flux gauge
 - 5.5.5.1 Description of instrument
 - 5.5.5.2 Procedure
 - 5.5.6 Method 7B.2 — Magnetic field change, magnetic-induction principle
 - 5.5.6.1 Description of instrument
 - 5.5.6.2 Procedure

- 5.5.7 Method 7C — Eddy-current gauge
 - 5.5.7.1 Description of instrument
 - 5.5.7.2 Procedure
- 5.6 Radiological method
 - 5.6.1 Principle
 - 5.6.2 Field of application
 - 5.6.3 General
 - 5.6.4 Method 8 — Beta backscatter method
 - 5.6.4.1 Description of instrument
 - 5.6.4.2 Verification
 - 5.6.4.3 Procedure
- 5.7 Photothermal method
 - 5.7.1 Principle
 - 5.7.2 Field of application
 - 5.7.3 General
 - 5.7.4 Method 9 — Determination using thermal properties
 - 5.7.4.1 Instruments and reference materials (reference specimens)
 - 5.7.4.1.1 Measurement system
 - 5.7.4.1.2 Reference materials
 - 5.7.4.2 Verification
 - 5.7.4.3 Procedure
- 5.8 Acoustic method
 - 5.8.1 Principle
 - 5.8.2 Field of application
 - 5.8.3 General
 - 5.8.4 Method 10 — Ultrasonic reflection
 - 5.8.4.1 Description of instrument
 - 5.8.4.2 Procedure
- 5.9 Electromagnetic method
 - 5.9.1 Method 11 — Terahertz method
 - 5.9.1.1 Description of instrument
 - 5.9.1.2 Field of application
 - 5.9.1.3 General

6 Determination of thickness of uncured powder layers

- 6.1 General
- 6.2 Gravimetric method
 - 6.2.1 Principle
 - 6.2.2 Field of application
 - 6.2.3 General
 - 6.2.4 Method 12 — By difference in mass
 - 6.2.4.1 Apparatus
 - 6.2.4.2 Procedure
- 6.3 Magnetic methods
 - 6.3.1 Principle
 - 6.3.2 Field of application
 - 6.3.3 General
 - 6.3.4 Method 13A — Magnetic-induction method
 - 6.3.4.1 Description of instrument
 - 6.3.4.2 Procedure
 - 6.3.5 Method 13B — Eddy-current
 - 6.3.5.1 Description of instrument
 - 6.3.5.2 Procedure
- 6.4 Photothermal method
 - 6.4.1 Principle
 - 6.4.2 Field of application
 - 6.4.3 General
 - 6.4.4 Method 14 — Determination using thermal properties
 - 6.4.4.1 Instruments and reference materials (reference specimens)
 - 6.4.4.1.1 Measurement system
 - 6.4.4.1.2 Reference materials
 - 6.4.4.2 Verification
 - 6.4.4.3 Procedure

7 Test report

Annex A (informative) Overview of methods

Annex B (informative) Measurement of film thickness on rough surfaces

- B.1 General**
- B.2 Apparatus and materials**
- B.3 Procedure**
 - B.3.1 Verification**
 - B.3.2 Measurement**
 - B.3.3 Number of readings**

Annex C (informative) Factors affecting the precision of readings obtained when measuring on wooden substrates

- C.1 General**
- C.2 Random sampling**
- C.3 Penetrating coating material**
- C.4 Orientation of measurements**

Page count: 49