

# DIN EN 16782:2016-07 (E)

## Conservation of cultural heritage - Cleaning of porous inorganic materials - Laser cleaning techniques for cultural heritage

---

<b>Contents</b>		<b>Page</b>
European foreword .....		3
Introduction .....		4
1	Scope .....	5
2	Normative references .....	5
3	Terms and definitions .....	5
4	Symbols and abbreviations .....	8
5	Key features of the laser system with respect to the cleaning of porous inorganic materials .....	9
5.1	General .....	9
5.2	Wavelength .....	9
5.3	Laser pulse duration .....	9
5.4	Regime of pulsed emission .....	9
5.5	Stability of laser emission .....	10
5.6	Transmission system of the radiation .....	10
5.7	Handpiece .....	10
5.8	Irradiated area .....	10
5.9	Targeting system .....	10
6	Preliminary cleaning tests for selecting laser operating parameters .....	10
6.1	General .....	10
6.2	Working fluence .....	11
6.3	Working spot size .....	13
6.4	Repetition rate .....	13
7	Cleaning test report .....	13
7.1	Laser instrument .....	13
7.2	Preliminary tests for selecting laser operating parameters .....	14
Annex A (informative) Measurement of the ablation curve .....		15
Annex B (informative) Optical absorption .....		16
Annex C (informative) Duration of laser pulse .....		17
Annex D (informative) Role of water .....		18
Annex E (informative) Repetition frequency .....		19
Annex F (informative) Reflectance measurement .....		20
Annex G (informative) Possible harmful effects of laser cleaning on objects .....		21
Annex H (informative) Health and safety .....		22
Bibliography .....		23