



**Coating Innovations
for Electronics**

Lackwerke Peters GmbH & Co. KG
Hooghe Weg 13 · 47906 Kempen · Deutschland

Telefon: +49 2152 2009-0
E-Mail: peters@peters.de



Examination Report

**Comparison of MSTECH- UV-LED
with conventional UV technology**

ELPEGUARD® UV Twin-Cure® DSL 1600 E-FLZ/75

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Subject

Comparison of a specific UV-LED from MSTECH with conventional UV technology
ELPEGUARD® UV Twin-Cure® DSL 1600 E-FLZ/75

Test specimen

ELPEGUARD® UV Twin-Cure® DSL 1600 E-FLZ/75 **(UV)**
ELPEGUARD® UV Twin-Cure® DSL 1600 E-FLZ/75 **(UV-LED)**

Measuring Equipment & Standards

A) Dielectric strength	IPC-TM-650, 2.5.6.1
B) Moisture insulation resistance	85/85 test (3d, 85°C/ 85% r.h)
C) Surface isolation resistance under condensation based on ISO 6270-2	(BIAS 12V, 40°C, 100 % r.h.)
D) Thermal shock resistance	(acc. to IPC-CC-830C 3.7.2; -40 to +125°C)

Sample Treatment

- Coating of test-specific specimens and curing trough
- UV-LED (SnapCure UV-LED provided by MSTECH)
 - 4400 mJ; 20sec.
 - UV (Hg-lamp; 120W)
 - 3000 mJ

Procedure & Results

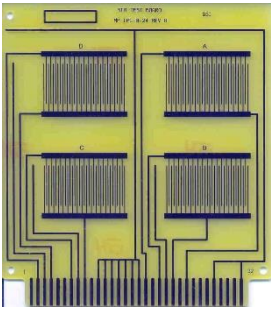
A) Dielectric strength

DSL 1600 E- FLZ/75 (UV)	69 kV/mm
DSL 1600 E- FLZ/75 (UV-LED)	71 kV/mm
Technical datasheet	≥ 60 kV/mm

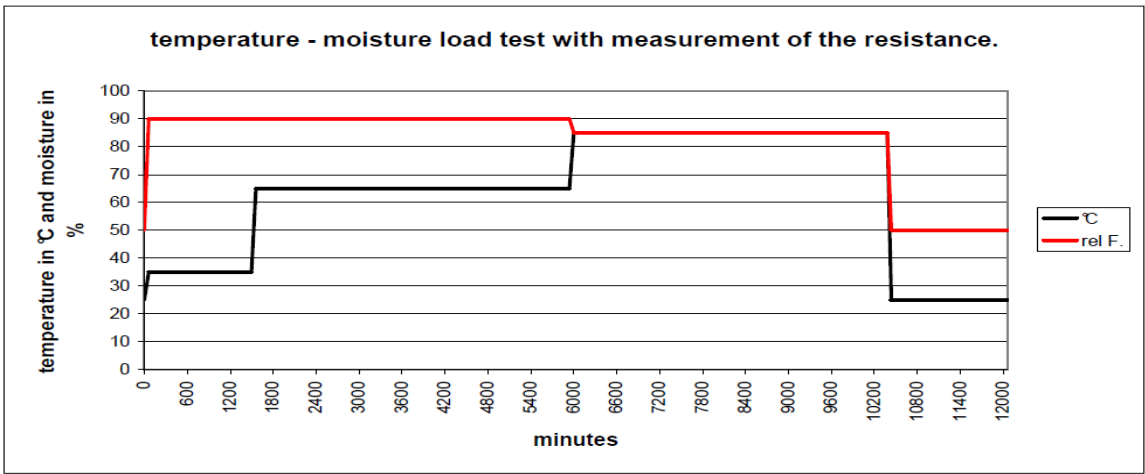
Result: no significant deviation.

B) Moisture insulation resistance

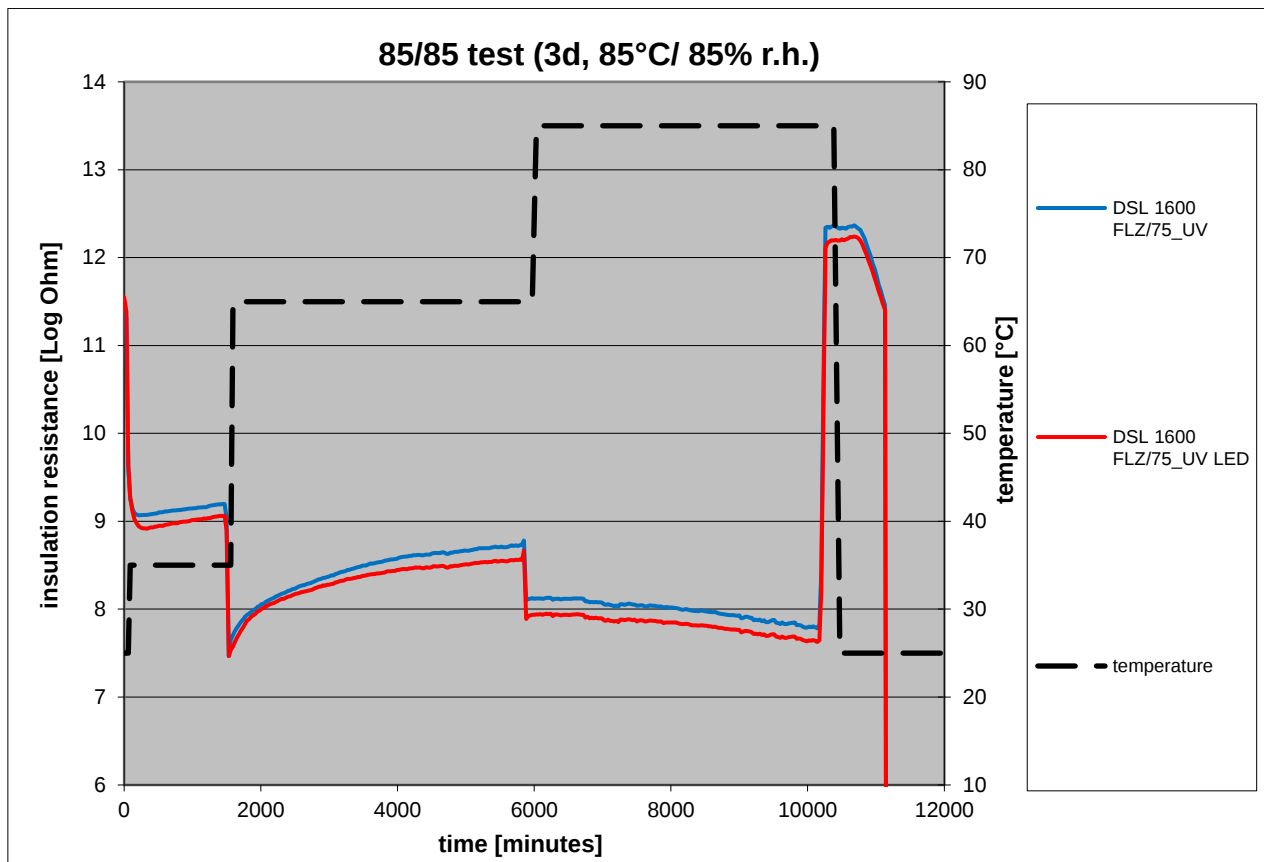
Testboard



Lacquer layer thickness: approx. 200 µm cured
Curing: according to the respective technical data sheet
Test conditions: gradual increase of temperature in combination with moisture,
Bias 50 V; measuring voltage 100 V



Flow chart 85/85 Test



Blue: DSL 1600 E- FLZ/75 (UV)
Red: DSL 1600 E- FLZ/75 (UV-LED)

Result: no significant deviation.

C) Surface isolation resistance under condensation

Testboard



Lacquer layer thickness:

approx. 200 µm cured

Curing:

according to the respective technical data sheet

Test conditions:

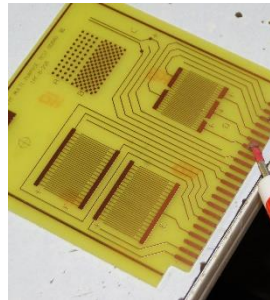
96 hours, 40°C condensation; Bias 12 V;
measuring voltage 100 V

DSL 1600 E- FLZ/75 (UV)	$4,0 \times 10^8 \text{ Ohm}$
DSL 1600 E- FLZ/75 (UV-LED)	$4,5 \times 10^8 \text{ Ohm}$
Technical datasheet	$\geq 2,0 \times 10^8 \text{ Ohm}$

Result: no significant deviation.

D) Thermal shock resistance

Testboard



Lacquer layer thickness:	$\leq 130\mu\text{m}$
Curing:	according to the respective technical data sheet
Test conditions:	-40 °C to +125 °C, 100 cycles, 15 minutes dwell time; change < 10 seconds

DSL 1600 E-FLZ/75 (UV)	fulfilled
DSL 1600 E-FLZ/75 (UV-LED)	fulfilled

Conclusion and interpretation

Based on the tests carried out, no significant difference were observed in the conformal coating ELPEGUARD® UV Twin-Cure® DSL 1600 E-FLZ/ 75 when a specific UV-LED technology was used instead of conventional UV curing.

The applied tests comply with state-of-the-art methods and precision. The specified results in no way represent a legal warranty of certain product properties or the suitability of the products for a specific purpose. The evaluated specimen does not offer any direct conclusion with respect to the entire test entity.

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Lackwerke Peters GmbH & Co. KG

Hooghe Weg 13 · 47906 Kempen · Deutschland
T +49 2152 2009-0 · F +49 2152 2009-70
www.peters.de · peters@peters.de

Kempen, 2024-04-24

performed by
Olga Quasigroch
Project manager ELPEGUARD

reviewed by
Johannes Tekath
Head of Research and Development / Head of Labor