ELANTAS

Distributeur : JBG-METAFIX

EN

Preliminary Technical Data Sheet

Elan-glue®

AC 1650

Electronic Adhesive

Modified Acrylic - One Component - UV Cure
Transparent - High Thermal Resistance

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Description

Elan-glue® AC 1650 represents a single component, solvent free, thixotropic formulation based on acrylate resin. After cure by UV-light Elan-glue® AC 1650 forms in thin layer a transparent, and colorless hard material suitable for a wide range of adhesive applications. In comparison to other acrylate systems, this material exhibits a very high glass transition temperature and a minimal shrinkage during curing.

- satisfies the requirements of RoHS.

Areas of application

Elan-glue® AC 1650 has been designed to provide the electronic industry with a highly transparent, colorless high temperature adhesive. Elan-glue® AC 1650 is especially intended to create substantial and reliable glass/glass or glass/metal bonding for opto-electronic applications. By this purpose Elan-glue® AC 1650 can also be used to create excellent adhesion on predominantly polar surfaces such as on PMMA, PC, ABS, SAN.
The combination of UV-cure with a thixotropic behavior allows an indefinite open time until UV-radiation takes place. The applied material will remain in place before curing. The thixotropic flow behavior and excellent wettability supports for an automated application as well.

Properties of cured product

- Transparent in thin layer
- Good adhesion to many substrates, especially glass but also metal, PMMA, PC, ABS, SAN
- Thermal resistance in the range of -40 °C - +150 °C
- Very high Tg of 150 °C
- Excellent stability against UV radiation
- Low thermal expansion coefficient
- Resistance against moisture and migration
- Resistance against organic and inorganic solvents

Storage and stability

Elan-glue® AC 1650 is supplied in syringes in sealed packages. The product shall be stored at a temperature between -10°C and +25°C in its original sealed container to avoid any potential contamination. Protection against any kind of UV light is essential. Store accordingly to any specific instruction listed on the product label. Product should be used prior to the expiry date marked on the label.

Preparation

Prior to application of Elan-glue® AC 1650, as for any other adhesive, appropriate pre-conditioning of the substrate surface is recommended. Such procedures could include cleaning and/or activation. In any case the surface must be dry, free from traces of oil and dust to provide fully satisfactory results. Being an UV-curing material, the material should be handled under yellow-light conditions. Preliminary tests of compatibility are highly recommended.

Processing methods

Elan-glue® AC 1650 should be applied directly from the packages with a dispenser or similar system. During dispensing, the shear applied to the resin, governed by the diameter, length and applied pressure on the dispensing needle, substantially reduces the viscosity allowing fast processing. Any UV-light will start the cure reaction willingly or unintentionally. If Elan-glue® AC 1650 is transferred to a second package or applicator, ensure proper protected against UV-light.

Curing/Post-curing

Mercury-Halogen-UV-Lamps as well as LED with 365 nm have shown capacity to cure Elan-glue® AC 1650.
Typical protocol with proven success has been 10 seconds using an UV-lamp supplying UV-radiation between 350nm and 420 nm and an energy density of approximately 60 to 70 mW/cm^2 . Increased UV-energy reduces the curing time.
A thermal post treatment may improve the adhesion further.

Handling precautions

Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

Sales specifications

Properties	Conditions	Test Method	Value	M/U
Viscosity	25 °C - D = 20 1/s	DIN 53019 (Internal Test V18/b/c)	7000 ÷ 9000	mPa·s
	25 °C - D = 5 1/s		12000 ÷ 16000	mPa·s

Typical system properties

Properties	Conditions	Test Method	Value	M/U
Colour		--	Transparent	
Shelf life	-10 °C to +25 °C	Internal Test	6	months
Density	25 °C	ISO 2811-1 (Internal Test S12)	1,01 ÷ 1,09	g/cm³
Non volatile content	10 g , 2 min. , UV-lamp	ISO 3251 (Internal Test M01)	99,8	%

Typical mechanical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Hardness Shore D	23 °C	ISO 868 (Internal Test M30b)	80 ÷ 90	Shore D

Typical thermal properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Temperature range		Internal Test	-40 ÷ +150	°C
Linear expansions coefficient	Below Tg	TMA (Internal Test M56)	100 ÷ 150	ppm/K
Glass transition temperature (Tg)	DSC	DIN EN ISO 11357 (Internal Test M52)	145 ÷ 155	°C

Typical chemical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Water Absorption	23 °C / 24 h	DIN EN ISO 62 (Internal Test M09a/b)	0,12 ÷ 0,18	%
	100 °C / 0,5 h		0,21 ÷ 0,27	%
Behavior against liquids	Iso-Propanol	ISO 175 (Internal Test M10)	partly stable	
	n-Heptane		stable	
	Xylene		not stable	
	Glycol		stable	
	Detergent solution		not stable	
	Acetic acid 5%		not stable	

Typical dielectric properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Volume resistivity	22 °C - Initial value	IEC 60464 -2 (Internal Test M5)	> 10^{14}	Ω·cm
	22 °C - After 7d water immersion		> 10^{14}	Ω·cm
Dielectric Strength	23 °C	IEC 60455-2 (Internal Test M31)	35 ÷ 41	kV/mm
Comparative tracking index (CTI)	23 °C - 6,5 mm thickness - test solution C	IEC 60112 (Internal Test M26)	> 600	V
Dielectric constant at 10 kHz	21 °C	IEC 60250 (Internal Test M03b)	4,2	
	155 °C		4,9	
Dielectric dissipation at 10 kHz	21 °C	IEC 60250 (Internal Test M03b)	< 0,01	
	155 °C		< 0,06	
Volume resistivity at temperature	21 °C	IEC 60464 (Internal Test M13)	> 10^{14}	Ω·cm
	156 °C		> 10^{10}	Ω·cm