

DELO DUALBOND[®] MF4990

modified acrylate | 1C | UV- / VIS- / humidity-curing

free of solvents | unfilled | dual-curing

Special features of product

- compliant with RoHS Directive 2015/863/EU
- compliant with limits of VOC content in adhesive acc. to GB33372-2020

Typical area of use

- -40 - 120 °C
- glass/metal bondings
- mixed bondings with plastics

Curing

Suitable lamp types	LED 365 nm, LED 400 nm, UVA	
Typical irradiation time		
<i>intensity 55 - 60 mW/cm² UVA</i>	15	s
<i>intensity 200 mW/cm² LED 400 nm</i>	9	s

Processing

Conditioning time (typical)		
<i>when stored in cold conditions in containers up to 50 ml</i>	30	min
<i>when stored in cold conditions in containers up to 1,000 ml</i>	4	h
Processing time		
<i>at rt approx. +23 °C</i>	15	d
Storage life in unopened original container		
<i>at 0 °C to +10 °C</i>	6	month(s)

Technical properties

Color in cured condition in 0.1 mm layer thickness	red
Transparency in cured condition in 0.1 mm layer thickness	transparent

Fluorescence red + blue fluorescent

Parameters

Density 1.06 g/cm³
liquid

Viscosity 59000 mPa·s
liquid | Rheometer | Shear rate: 2 1/s | Gap: 500 µm

Thixotropy index 3.8
liquid | Rheometer | Gap: 500 µm

Compression shear strength 4 MPa
*DELO Standard 5 | **Glass | AI** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 5 MPa
*DELO Standard 5 | **Glass | Stainless steel** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 7 MPa
*DELO Standard 5 | **Glass | FR4** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 9 MPa
*DELO Standard 5 | **Glass | Glass** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 8 MPa
*DELO Standard 5 | **Glass | PA6** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Compression shear strength 4 MPa
*DELO Standard 5 | **Glass | PBT** | 60 mW/cm² | 60 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h*

Tensile strength 6 MPa
by the criteria of DIN EN ISO 527 | 60 mW/cm² | 90 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h

Elongation at tear 80 %
by the criteria of DIN EN ISO 527 | 60 mW/cm² | 90 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h

Young's modulus 26 MPa
by the criteria of DIN EN ISO 527 | 60 mW/cm² | 90 s | Plus | at approx. +23 °C | Rel. air humidity: 50 % | 72 h

Shore hardness A <i>by the criteria of DIN EN ISO 868 60 mW/cm² 90 s Plus at approx. +23 °C Rel. air humidity: 50 % 3 h</i>	70	
Glass transition temperature <i>DMTA 400 nm 200 mW/cm² 60 s Plus at approx. +23 °C Rel. air humidity: 50 % 72 h</i>	70	°C
Shrinkage <i>DELO Standard 13 60 mW/cm² 90 s Plus at approx. +23 °C Rel. air humidity: 50 % 72 h</i>	3.6	vol. %
Water absorption <i>by the criteria of DIN EN ISO 62 Layer thickness: 2 mm 60 mW/cm² 90 s Plus at approx. +23 °C Rel. air humidity: 50 % 72 h Type of storage: Media Medium: Distilled water Storage temperature: at approx. +23 °C</i>	2.8	%

Converting table

°F = (°C x 1.8) + 32	1 MPa = 145.04 psi
1 inch = 25.4 mm	1 GPa = 145.04 ksi
1 mil = 25.4 µm	1 cP = 1 mPa·s
1 oz = 28.3495 g	1 N = 0.225 lb

General curing and processing information

The curing time stated in the technical data was determined in the laboratory. It can vary depending on the adhesive quantity and component geometry and is therefore a reference value. Increasing or decreasing the curing temperature and / or irradiation intensity and / or irradiation time shortens or prolongs the curing time and can lead to changed physical properties. All curing or light fixation parameters depend on material thickness and absorption, adhesive layer thickness, lamp type and distance between lamp and adhesive layer. Values measured after 24 h at approx. 23 °C / 50 % r.h., unless otherwise specified.

General

The data and information provided are based on tests performed under laboratory conditions. Reliable information about the behavior of the product under practical conditions and its suitability for a specific purpose cannot be concluded from this. It is the customer's responsibility to test the suitability of a product for the intended purpose by considering all specific requirements and by applying standards the customer deems suitable (e. g. DIN 2304-1). Type, physical and chemical properties of the materials to be processed with the product, as well as all actual influences occurring during transport, storage, processing and use, may cause deviations in the behavior of the product compared to its behavior under laboratory conditions. All data provided are typical average values or uniquely determined parameters measured under laboratory conditions. The data and information provided are therefore no guarantee for specific product properties or the suitability of the product for a specific purpose.

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All products provided by DELO are subject to DELO's General Terms of Business. Verbal ancillary agreements are deemed not to exist.

Instructions for use

You can find further details in the instructions for use.
The instructions for use are available on www.DELO-adhesives.com.
We will be pleased to send them to you on demand.

Occupational health and safety

See material safety data sheet.

Specification

Nothing contained in this Technical Datasheet shall be interpreted as any express warranty or guarantee. This Technical Datasheet is for reference only and does not constitute a product specification. Please ask our responsible Sales Engineer for the applicable product specification which includes defined ranges. DELO is neither liable for any values and content of this Technical Datasheet nor for oral or written recommendations regarding the use, unless otherwise agreed in writing. This limitation of liability is not applicable for damages resulting from intent, gross negligence or culpable breach of cardinal obligations, nor shall it apply in case of death or personal injury or in case of liability under any applicable compulsory law.

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