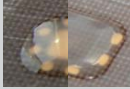
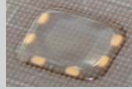
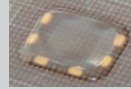
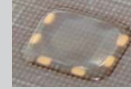





# Smart Card Encapsulation | Material selection guide

Product group	DELO-KATIOBOND			
	4670	DF698	4668	KB694
Standard product	x	x		
Customer-specific product			x	x
Minimum order quantity	1 PU	1 PU	25 kg	25 kg
Available containers	1 kg bottle 15 kg barrel**	800 g cartridge	1 kg bottle 10 kg barrel	1,250 g cartridge
Color	transparent – light gray translucent	light gray transparent – light gray translucent	transparent – light gray translucent	light gray
Application	glob top / Fill	Dam	Fill	Dam
Combination	KB DF698	KB 4670	KB KB694	KB 4668
Example figure				
Curing	light-curing in a UVA wavelength range from 320 to 380 nm	light-curing in a UVA wavelength range from 320 to 380 nm	light-curing in a UVA wavelength range from 320 to 380 nm	light-curing in a UVA wavelength range from 320 to 380 nm
Recommended curing time until final strength	30 s @ 120 mW/cm <sup>2</sup> / 60 s @ 60 mW/cm <sup>2</sup> + 24 h room temperature	30 s @ 120 mW/cm <sup>2</sup> / 60 s @ 60 mW/cm <sup>2</sup> + 24 h room temperature	40 s @ 90 mW/cm <sup>2</sup> + 24 h room temperature	40 s @ 90 mW/cm <sup>2</sup> + 24 h room temperature
Viscosity [mPas]	4,800 (SP/U 4/5)	180,000 (SP/U 7/5)	3,300 (SP/U 4/5)	180,000 (SP/U 7/5)
Young's modulus [MPa]	1,700	160	5,390	3,700
Elongation at tear [%]	6	20	0.9	2
Glass transition temperature	+62 °C rheometer	+35 °C rheometer	+130 °C rheometer	+130 °C rheometer
Coefficient of linear expansion [ppm/K] (+30 °C to +150 °C) TMA	150	147	α <sub>1</sub> 65 α <sub>2</sub> 162	α <sub>1</sub> 81 α <sub>2</sub> 146
Processing time	24 h after tumbling	10 days	24 h after tumbling	10 days
Storage life	@ room temp. 4 weeks	10 days	4 weeks	10 days
	@ 0 °C to +10 °C 6 months	6 months	6 months	6 months
Adhesion to different substrates	very good strength on <b>FR4 tape</b>	very good strength on <b>FR4 tape</b>	very good strength on <b>FR4 tape</b>	very good strength on <b>FR4 tape</b>
Special features of product	Fill for Dam&Fill or glob top tough-hard low-viscous high ion purity → low corrosion potential best-selling encapsulant worldwide	Dam for Dam&Fill tough-hard high-viscous high ion purity → low corrosion potential KB 4696 successor best-selling encapsulant worldwide	Fill for Dam&Fill hard low-viscous high ion purity → low corrosion potential hard standard product	Dam for Dam&Fill hard high-viscous high ion purity → low corrosion potential hard standard product
Halogen-free	 halogen-free according to IEC 61249-2-21	 halogen-free according to IEC 61249-2-21		

\*\* Customer-specific container size

DELO-DAM&FILL				DELOMONOPOX
DF570	DF580	DF VE 112349	DF VE 112341	DF VE 112403
x	x			
25 kg	25 kg	25 kg	25 kg	25 kg
1 kg bottle	900 g cartridge	1 kg bottle	900 g cartridge	900 g cartridge
black	black	black	black	black
Dam&Fill	Dam&Fill	Dam&Fill	Dam&Fill	glob top
DF580	DF570	DF VE 112341	DF VE 112349	
				
heat-curing at min.: +110 °C max.: +130 °C	heat-curing at min.: +110 °C max.: +130 °C	heat-curing at min.: +110 °C max.: +130 °C	heat-curing at min.: +110 °C max.: +130 °C	heat-curing at min.: +110 °C max.: +130 °C
2 min @ +130 °C 10 min @ +110 °C	2 min @ +130 °C 10 min @ +110 °C	150 s @ +130 °C 10 min @ +110 °C	150 s @ +130 °C 10 min @ +110 °C	150 s @ +130 °C 10 min @ +110 °C
10,000 (SP/U 4/10)	195,000 (SP/U 7/5)	15,000 (SP/U 4/10)	180,000 (SP/U 7/5)	45,000 (SP/U 4/10)
8,000	6,800	9,000	10,000	6,800
0.5	0.9	0.9	0.8	1.3
+127 °C TMA	+107 °C TMA	+139 °C TMA	+114 °C TMA	+99 °C TMA
55	87			87
24 h after tumbling	1 week	1 week	1 week	1 week
1 week	1 week	24 h after tumbling	1 week	1 week
6 months	6 months	3 months	3 months	3 months
very good strength on metal, plastic, especially on <b>Al, FR4, PBT, PET, PEI</b>	very good strength on metal, plastic, especially on <b>Al, FR4, PBT, PET, PEI</b>	very good strength on metal, plastic, especially on <b>Al, FR4, PBT, PET, PEI</b>	very good strength on metal, plastic, especially on <b>Al, FR4, PBT, PET, PEI</b>	very good strength on metal, plastic, especially on <b>Al, FR4, PBT, PET, PEI</b>
Fill for Dam&Fill hard opaque heat-curing epoxy high ion purity → low corrosion potential mold-like protection; FIPS-compliant	Dam for Dam&Fill hard opaque heat-curing epoxy high ion purity → low corrosion potential mold-like protection; FIPS-compliant	Fill for Dam&Fill tough-hard opaque heat-curing epoxy high ion purity → low corrosion potential	Dam for Dam&Fill tough-hard opaque heat-curing epoxy high ion purity → low corrosion potential	glob top tough-hard opaque heat-curing epoxy high ion purity → low corrosion potential
 halogen-free by the criteria of IEC 61249-2-21	 halogen-free by the criteria of IEC 61249-2-21	 halogen-free by the criteria of IEC 61249-2-21	 halogen-free by the criteria of IEC 61249-2-21	 halogen-free by the criteria of IEC 61249-2-21

Our material selection guides are a technical selection aid giving an overview of various product variants. We will be pleased to provide you with sales details, such as available container sizes, stock availability and minimum order quantities, on request.

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 user's responsibility to test the suitability of the product for the intended purpose by considering all specific requirements. 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. Nothing contained herein shall be construed to indicate the non-existence of any relevant patents or to constitute a permission, encouragement or recommendation to practice any development covered by any patents, without permission of the owner of this patent. All products provided by DELO are subject to DELO's General Terms of Business. Verbal ancillary agreements are deemed not to exist.

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## MATERIAL SELECTION GUIDE

### Smart Card Encapsulation

