

Die Attach Adhesives | Material Selection Guide

Product		isotropic conductive adhesives (ICA)			
		DELO DUALBOND	DELO MONOPOX		
		IC343	DA375	DA772	
General	Basis	mCD	mCD	anhydride	
	Color	silver gray	gray	gray	
	Filler	silver	silver	silver	
	Filling degree [%]	70	75	75	
Process	Snap cure	✓	✓	✓	
	Heat pulse				
	Dual curing	✓			
Properties	Low-temperature curing	< +100 °C	✓	✓	
		> +100 °C		✓	
	Viscosity	high			
		moderate	✓	✓	
		low			✓
	Flexibility	high	✓	✓	
		moderate			
		low			✓
	Reliability: Die shear strength [N] *** <small>2x2 mm², shear height 40 µm, preplated leadframe</small>	24 h rt	78	96	121
		168 h 85/85	30	34	91
168 h 85/85 + 3x reflow		82	157	147	
Reliability: Die shear strength [N] *** <small>2x2 mm², shear height 40 µm, FR4 tape</small>	24 h rt	85	111	102	
	168 h 85/85	35	45	74	
Curing	Curing temp. in air convection oven [°C]	min.	+80	+80	+140
		max.	+150	+180	+180
	Possible heat curing parameters	2 min @ +175 °C 10 min @ +100 °C 30 min @ +80 °C	2 min @ +175 °C 10 min @ +100 °C 30 min @ +80 °C	10 min @ +175 °C 30 min @ +150 °C	
Mechanical value	Young's modulus [MPa]	on request	3,800 at +25 °C, DMTA	5,000 at +25 °C, DMTA	
	Glass transition temperature T _g [°C]	on request	116 DMTA	173 DMTA	
	Coefficient of linear expansion [ppm/K]	below T _g	150	65	50
		above T _g	temperature range +35 to +150 °C	160	150
	Spec. electrical resistance [Ωcm] on Au		1.4 × E ⁻⁴	1 × E ⁻⁴	1.3 × E ⁻⁴
Specific thermal conductivity [W/m*K]		1.54	2.3	0.4	
Storage	Storage life	at room temperature	72 h	48 h	48 h
		at 0 °C to +10 °C	-	-	-
		at -18 °C	6 months	4 months**	6 months
Available container sizes		5 cc, 10 cc	5 cc, 10 cc	5 cc	
Halogen-free by the criteria of IEC 61249-2-21					

* thermode curing
 ** at -40 °C in unopened original container
 *** average values of a series of 10, harmonized measurement, not comparable with specific data sheet values

electrically non-conductive adhesive (NCA)				
DELO MONOPOX				DELO DUALBOND
DA254	DA255	DA358	DA587	AD340
epoxy resin	epoxy resin	mCD	epoxy resin	mCD
black	white	beige	white	beige
unfilled	unfilled	minerals	unfilled	unfilled
-	-	-	-	-
✓	✓	✓	✓	✓
		✓		✓
		✓		✓
	✓	✓		✓
✓		✓		
	✓		✓	
✓	✓			✓
			✓	
✓	✓			
96	244	72	169	135
60	72	38	160	110
34	44	32	96	65
243	228	196	271	182
60	87	153	177	60
+90	+90	+80	+120	+80
+150	+150	+170	+170	+130
3 min @ +150 °C 20 min @ +120 °C 15 s @ +190 °C* 6 s @ +210 °C*	2 min @ +150 °C 8 min @ +120 °C 8 s @ +170 °C* 6 s @ +180 °C*	1 min @ +140 °C 10 min @ +100 °C 30 min @ +80 °C	2 min @ +150 °C 5 min @ +130 °C	10 min @ +100 °C 30 min @ +80 °C
3,800 at +25 °C, DMTA	3,200 at +25 °C, DMTA	2,300 at +25 °C, DMTA	3,500 at +25 °C, DMTA	1,100 at +25 °C, DMTA
120 DMTA	139 DMTA	65 DMTA	84 DMTA	50 DMTA
57	58	189 temperature range +55 to +150 °C	94	115
193	170		168	182
-	-	-	-	-
-	-	-	-	-
1 week	72 h	72 h	5 days	72 h
-	-	-	-	-
6 months				
10 cc, 30 cc	10 cc	10 cc	10 cc, 30 cc	10 cc, 30 cc, 158 cc
				

AD = ADhesive DA = Die Attach IC = Isotropic Conductive

CONTACT

DELO Industrial Adhesives
Headquarters

► **Germany** · Windach / Munich

- **China** · Shanghai
- **Japan** · Yokohama
- **Malaysia** · Kuala Lumpur
- **Singapore**
- **South Korea** · Seoul
- **Taiwan** · Taipei
- **Thailand** · Bangkok
- **USA** · Sudbury, MA

..... www.DELO-adhesives.com

Our selection charts/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 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. 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.

© DELO – This brochure including any and all parts is protected by copyright. Any use not expressly permitted by the Urheberrechtsgesetz (German Copyright Act) shall require DELO's written consent. This shall apply without limitation to reproductions, duplications, disseminations, adaptations, translations and microfilms as well as to the recording, processing, duplication and/or dissemination by electronic means.

07/17

ADHESIVES

DISPENSING

CURING

CONSULTING

DELO

MATERIAL SELECTION GUIDE

Die Attach Adhesives

