

# DELO

## Instructions for Use & General Information on the Product Group

### DELO DUALBOND®

Aminic



### Application areas

Aminic DELO DUALBOND® products are predominantly used in electronics, microelectronics, electrical and mechanical engineering and precision engineering for bonding and fixing. Fixation is possible using a light source with the wavelength range specified in the Technical Data Sheet. DELOLUX® curing lamps are suitable. Curing until final strength and in shadowed areas requires a heat curing step. Aminic DELO DUALBOND® adhesives can be cured by heat only. Curing by light only is not possible.

## Preparation of the components to be bonded

For optimal bond strength, the surfaces to be bonded must be free of dust, oil, grease, separating agents and other contaminations. Our DELOTHEN cleaners are available for this purpose. You can draw more detailed information from the Technical Information “Cleaners”.

Condensation water on the substrate should be prevented at all or should have been evaporated before adhesive application.

After cleaning, adhesion can be improved by suitable pretreatment methods. For more details, please refer to the Technical Information “Surface Pretreatment”.

The suitability and strength of the adhesive must be verified on original components under the application-specific conditions.

## Preparation of the adhesive

The products are usually supplied ready for use. In case of cool or refrigerated storage, the containers must be conditioned to room temperature before use. The containers are conditioned at room temperature (max. +77 °F / +25 °C). Heat addition is not permitted. The conditioning times depend on the container size and the storage time.

	Conditioning time for containers up to			
	10 ml	50 ml	310 ml	600 ml
Storage at 32 °F to +50 °F (0 °C to +10 °C)	approx. 0.5 h	approx. 1 h	approx. 3 h	approx. 5 h
Storage at -0.4 °F (-18 °C)	approx. 0.5 h	approx. 1 h	approx. 3 h	approx. 5 h
Storage at -40 °F (-40 °C)	approx. 1 h	approx. 2 h	approx. 2 h	approx. 4 h

You can draw further information from the respective Technical Data Sheet.

Condensation water on the adhesive should be prevented.

The adhesive must not be frozen and thawed again.

## Processing

After conditioning to room temperature, the products can be directly applied from the container or with a dispensing system.

Dispensing valves and product-bearing elements must be carefully cleaned before use, residues of other products must be completely removed. Acetone, Nikutex 500 and BDGA (butyl diglycol acetate) are recommended as detergents. The cleaner to be used also depends on the dispensing equipment manufacturer's specifications.

We recommend using dispensing valves and product-bearing elements made of inert and totally opaque material. Suitable materials include PE, HDPE, PP, PTFE and stainless steel. Other materials require compatibility assessment. We do not recommend using polyurethane.

DELO DUALBOND® adhesives are intended to be used at temperatures between +64 and +77 °F (+18 and +25 °C) and a relative air humidity between 20 to 65 % (normal room climate and preferably low room humidity). So far, we have not made any negative experience as to processing under these room temperature and air humidity conditions.

The products could be processed very well under laboratory conditions, and no impairment of the processing properties could be recognized.

You can draw detailed information about how to handle the products from the specific Technical Data Sheet.

After adhesive application, the components are to be joined and possibly fixed speedily as curing of the products may already start through room lighting and scattered radiation. Shielding the work station from light in the adhesive's curing spectrum can prevent a starting and undefined curing reaction. Adhesive containers and dispensing tips must be protected or shielded against light. When exchanging the container, no scattered light may reach the inside of the container as this may trigger the polymerization.

Containers must be closed when not used. Dispensing needles must be cleaned or exchanged after downtimes.

## Curing

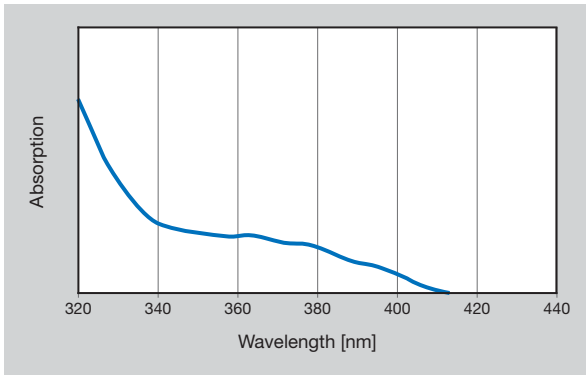
The adhesive can be cured by heat addition as well as by a combination of light and heat. Complete curing by light is not possible. Adhesive which is not reached by light can be completely cured by subsequent heat addition.

The irradiation times as well as curing temperatures and times are product-specific and can be drawn from the respective Technical Data Sheet. When selecting a lamp, attention must be paid to the emission spectrum. DELO® offers a lamp range tailored to the adhesives. The intensity reached at the adhesive must be checked with a DELOLUXcontrol light intensity meter at regular intervals.

The curing reaction of the aminic DELO DUALBOND® adhesives is significantly influenced by irradiation parameters, adhesive quantity, temperature and duration of the heat curing step. In order to obtain reproducible process results, these parameters must be kept consistent in production. The values for the curing parameters specified in the Technical Data Sheet are determined according to DELO® Standards with specified methods, devices and specimens.

Polymerization of the adhesive is an exothermic reaction. When using large adhesive quantities, the heat released during this reaction may damage the component or the adhesive.

## Wavelength ranges



Absorption spectrum of the photoinitiator (wavelength range between 320 and 420 nm) of the UV-/light- and heat-curing aminic DELO DUALBOND® products.

The heating time of the components must be added to the heat curing time. The heating time should not exceed approx. 15 min.

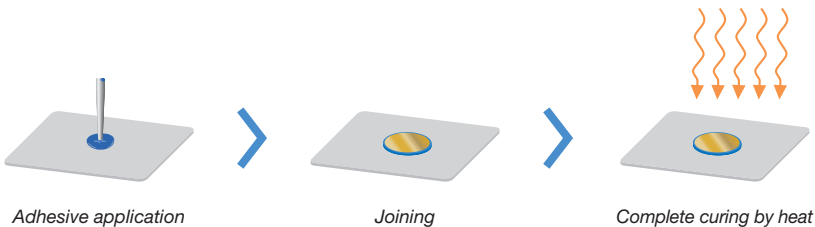
Heating can proceed in air convection ovens, with IR transmitters, or with other suitable heat sources.

The curing temperature must be reached directly at the adhesive. If the temperatures used for curing are below the temperature ranges specified in the Technical Data Sheet, the product cures slower, incompletely or not at all.

The adhesive must not be heated beyond the maximum curing temperature specified in the Technical Data Sheet. When bonding large areas, tensions during heating, curing and cooling must be prevented (e.g. by tempering).

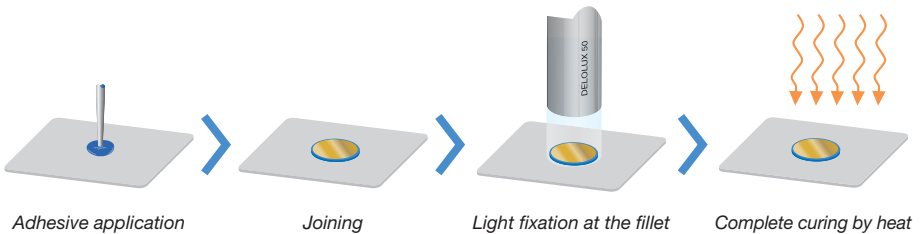
### Production flow for bonding components without light fixation:

1. Preparation of the adhesive and the components
2. Adhesive application to one component
3. Joining
4. Curing of the adhesive by heat



### Production flow for bonding components with light fixation:

1. Preparation of the adhesive and the components
2. Adhesive application to one component
3. Joining
4. Light fixation of the components with the suitable light spectrum at the fillet
5. Complete curing of the adhesive by heat



Light fixation of adhesive subareas, for example the fillet, can cause initial strength of the joined connection, so transport to the next step of heat curing is possible without any component fixation. Final curing is performed in a later mandatory heat curing step.

You can draw the detailed, product-specific information on the processing of each product from the respective Technical Data Sheet.

### Instructions and advice for occupational health and safety

See Material Safety Data Sheet.

Skin and eyes must be protected against UV radiation or glare of the lamp. A respective screening of the lamp by means of yellow-colored plastic or grey glass and colored protective glasses (e.g. green or brown) is recommended for eye protection.

## Storage

After delivery, remove the package from the dry ice and condition to the storage temperature in unopened condition for at least 4 h.



Please make sure that frozen container is only minimally touched as large temperature difference between container and adhesive may lead to the adhesive becoming “detached” from the inner cartridge wall. It is recommended that the container is removed at its rear end or thermally insulating gloves are used.

Storage life and storage temperature can be drawn from the Technical Data Sheet.

Storage in unopened original container.

The container must not be exposed to direct solar radiation. This may lead to an unintended decrease in reactivity or even curing.

Außen/Outside

**DELO**

Instructions for  
**cooled package (0 °C – +10 °C)**  
How to handle cooled DELO adhesives after arrival

► **Storage**  
Store in a fridge at 0 °C to +10 °C

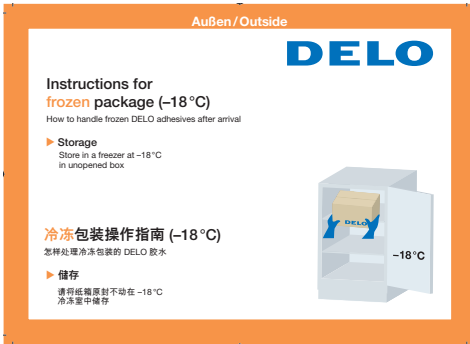
**冷藏包装操作指南 (0 °C – +10 °C)**  
怎样处理冷藏包装的 DELO 胶水

► **储存**  
请在 0 – +10 °C 冷藏室中储存

0 °C – +10 °C

*Handling of cooled package*

*+32 °F – +50 °F (0 °C – +10 °C) storage*



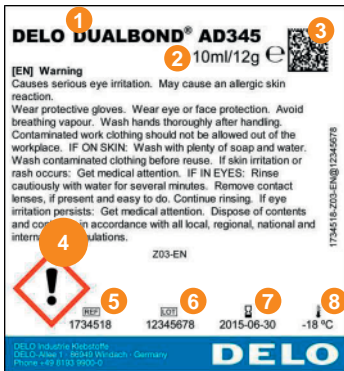
Handling of dry ice package -0.4°F (-18°C) storage



Handling of dry ice package -40°F (-40°C) storage

## Label

Typical design of a GHS label at DELO®. Depending on the container size, the design and content of the label may vary.



- 1** Product name
- 2** Container content (volume/weight)
- 3** Datamatrix  
Extended article number@Batch@Expiry date@Product name  
(1734518-Z03-EN@12345678@2015-06-30@DELO DUALBOND AD345)
- 4** GHS labeling
- 5** Article number
- 6** Batch number
- 7** Expiry date
- 8** Storage temperature

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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.

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