



DELO

SUSTAINABLE PRACTICES

DELO is paving the way





Forward thinking is an integral part of our company's strategy. DELO has set for itself the goal of making a positive contribution to a more sustainable environment through active engagement. The company is adapting with society's needs, and plays an active part in environmental protection and conservation. **Innovations are the key to balanced developments.** We use innovative solutions to grow in developing markets. This is how we ensure our future – it is directly linked to DELO's **innovative drive.**

Bonding – a sustainable joining method

DELO strives to have a long-term positive influence on the environment. As a consequence, DELO invests in technologies that can reduce energy and raw materials usage, saving valuable resources.



DELO's adhesives are solvent-free (100 % solids), and therefore VOC*-free. This means that no VOCs are emitted at the customer's site.

**VOC = Volatile organic compound[s] is the collective term for carbonaceous (organic) substances that easily evaporate (are volatile) or are present as gases even at low temperatures.*

DELO confidently offers the joining method of bonding to achieve the highest efficiency through, for example, miniaturization and light-weight construction.

What is more, DELO's adhesives have an only negligible share in the overall carbon footprint of a product. "Carbon footprint" means nothing more than: "How much CO₂ is emitted by a product?" The larger the carbon footprint is, the worse its effects on the environment are. Therefore, bonding is the best choice for products with a small carbon footprint due to the sustainable production of the adhesive itself and the small amount of adhesive required in the end product.



Energy-saving LED technology

LEDs are the illuminant of the future and are increasingly being used in the automotive and consumer industries. Reasons for this phenomenon include their environmental friendliness: LED lamps do not contain lead or mercury and significantly reduce the CO₂ emitted to the environment due to their energy-economy.

Economical and environmentally friendly advantages:

- Maintenance-free LED technology
- 20 times longer service life can be achieved by LEDs
- Low operating costs

LED vs. light bulb

→ **LED lamps (for example DELOLUX 20) consume about 1,500 kWh less power per year than discharge lamps. The annual CO₂ volume emitted is reduced by about 850 kg.**





Environmental technologies by bonding

E-cars

A combustion car produces an average of 150 g of CO₂ per kilometer driven. If all vehicles on our road were equipped with electric motors, CO₂ emissions would be reduced by a total of at least 30 million tons. If the electricity these motors require came from regenerative sources only, several million tons more could be saved.
(source: www.elektro-autos.info)

DELO supplies the application-specific adhesives for various bonding tasks in e-cars, including magnet bonding in e-motors and sensor casting.

Adhesives save weight

→ **A 100 kg reduction in weight saves approx. 0.3 liters of gasoline per 100 km, which reduces carbon dioxide emissions by 10 grams**

(source: FAZ Spezial Ingenieure)

Photovoltaics

Regenerative energies, such as photovoltaics, have been gaining ground for a long time and are no longer just an alternative. As they are considered practically inexhaustible, more and more people switch to solar cells for power generation.

In the wafer cutting process, silicon blocks (ingots), from which the plates (wafers) are cut, are bonded to a carrier plate and then debonded. Therefore, the adhesives used must adhere well, but must also be removable.

The contacting of thin-film cells using DELO's conductive adhesives is a very gentle method and has a broad variety of advantages over soldering and welding. Primarily that mechanical tensions, microcracks and cell fracture can be minimized thanks to the adhesives' tension-equalizing properties.



Environmentally friendly production technologies

DELO attaches great importance to high quality standards and is proud of its industrial products “made in Germany”. In particular, it is the quality of our products and the development of new production technologies that ensure long-term competitiveness.

Even here, sustainability is a key aspect. The reason for this is that the significance of efficient and resource-conserving production technologies is ever-expanding. As a

consequence, DELO pursues resource efficiency in production processes.

Being a company approved by the BImSchG (German Federal Immission Control Act), DELO aims at protecting humans, animals and plants from harmful environmental effects and risks especially those arising from the operation of regulated systems.



Pollution and emissions

*Recycling first,
disposal second*

→ Raw materials in recycling containers

In terms of waste, DELO follows the general principle: “Prevention before reduction before recycling before disposal”. Adhesive containers are recycled and then reprocessed by external partners. The same applies to cleaners – these are redistilled. Hazardous waste is separated according to the European Waste Catalogue (EWC). On the basis of this index, the European Union classifies waste according to their risk level, assigning 6-digit waste code numbers.

In general, DELO documents and records all disposal processes electronically. This is how incorrect recycling and separation are systematically prevented.

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DELO does not cause any noise pollution as goods are only transported during the day during normal working hours. All systems causing noise are enclosed and located within the buildings, so that no noise can reach the outside even at night. Our operations undershoot the maximum allowable noise value of 54 dB emitted to the neighboring town significantly.

*Minimization
of emissions*

→ Dust filters

In addition, there are no odor emissions and DELO does not fall within the TA-Luft.

The total carbon concentration limits for organic substances are always met, and are often clearly undershot. DELO's efficient dust filter system works to minimize dust emissions.



The guidelines regulating hazardous air pollutants (TA-Luft [Clean-Air Guidelines]) were issued in 1986, and are a set of rules on environmental protection addressed to the enforcement authorities. Acc. to § 48 BImSchG, the TA-Luft mainly includes immission values, emission values and measuring methods for pollutants. (source: www.umweltdatenbank.de)

Building

All of DELO's buildings are equipped with an ultra-modern heating system with electronic pumps, separately controlled heating and cooling circuits, and electronic radiator valves. As the system runtimes are perfectly adapted to their actual use time, the temperature of the heating system is reduced to a minimum level at night, over the weekend and on non-working days.

→ We promote modern environmental awareness with modern buildings

of the base plates at low temperature. What is more, DELO largely abandons air conditioning systems and uses auxiliary cooling facilities only where strictly necessary (warehouse, laboratories).

Warehouse and production facilities are heated by thermal component activation

The process of generating compressed air is very energy- and cost-intensive. However, DELO has a very efficient load-controlled compressor system which offers large savings potential. An average of 30 % of the energy consumption can be saved by optimizing compressed air systems.

Motion and presence detectors in rooms used infrequently activate illumination only when necessary. In addition, the lights are automatically switched off in all buildings as soon as the alarm system is activated. This saves 5 – 10 % of DELO's energy consumption every year.



Company



Responsible behavior paves the way for long-term sustainability

DELO's passion for the development of customer-specific solutions is reflected in both the development of new technologies and our

consulting services to

maximize our value to the customer.

In addition, DELO offers measures for the promotion of its employees in the form of further education and training. DELO also does not miss out on social commitment, promoting projects and institutions from society, education, science, sports and culture.

Promote strong points – expand expertise

Seminars and workshops

DELO has already been offering bonding seminars to its customers for decades. Their purpose is to provide and share important knowledge about bonding and joining. The seminars are customer-specific and are presented by DELO's adhesive experts.

Project-related on-site training courses

Aside from Technical Sales, DELO's Engineering Department is an important division for the adhesive user. In close collaboration with Product Management and R&D, customized solutions are developed and tested. Engineers in the Technical Sales give on-site advice and professionally support the customer in the configuration of optimal production processes.

Competent and satisfied employees

Every colleague receives various basic and job-specific intensive training courses that are both theoretical and hands-on.

Interesting tasks with a lot of freedom for professional development, short decision-making processes and modern technical equipment provide creative and technophilic employees with every opportunity to be actively involved and engage with our customers.

As a rule, all employees are specifically supported and promoted and therefore grow in responsibility, with their team and, of course, the company. Collaboration at DELO is characterized by respect and trust. This is the foundation for our innovation process.

Graduates and apprentices

DELO is a “Great Place to Work” [Germany’s Best Employers 2013 Award], focused on cutting-edge industries. This is particularly interesting for young and innovative people. Apprentices have the ability to influence and share in DELO’s success.



One team, one goal

DELO attaches great importance to a good work-life balance. Therefore, the company supports, promotes and provides many after-work activities.

For example, the employees can use the in-house fitness studio at no charge. In addition, DELO is located near Lake Ammersee, inviting an after-work swim.

By participating in German-wide activities, including “B2Run” or “Bike to Work” organized by the AOK health insurance company, DELO supports trans-departmental interaction, team spirit, and the awareness that goals can be achieved together.

DELO is also a sponsor of several recreational events in the region, ensuring that the employees benefit from sponsoring activities, including theater, film and music festivals, as well as kindergartens. DELO’s employees show great social commitment by supporting children’s homes.





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