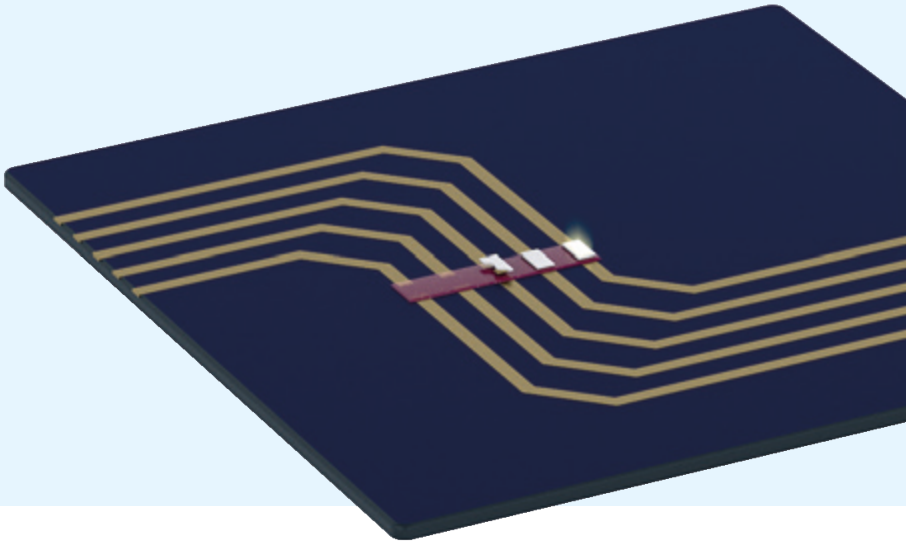
HIGH-TECH ADHESIVES
for mini- & microLEDs



New display technologies

Self-emissive display technologies come with their benefits, including more efficient power consumption, increased robustness, higher brightness, and display-inlaid sensors.

These aspects are important for AR and VR devices, as well as automotive interior displays, and have the potential to set these displays apart in the premium segment.

For backlit units, miniLEDs are appearing more and more, demanding new materials and technologies besides the usual soldering process.

DELOs directional conductive adhesives enable both an electrical and a mechanical connection on flexible and rigid substrates, respectively. This material is inherently electrically conductive in one direction. Its proof-of-concept shows that adhesives or functional polymers can prevent short circuits and thus enable wider openings in printing mask designs.

This, in turn, allows designers and engineers to develop innovative display products and applications.

About DELO

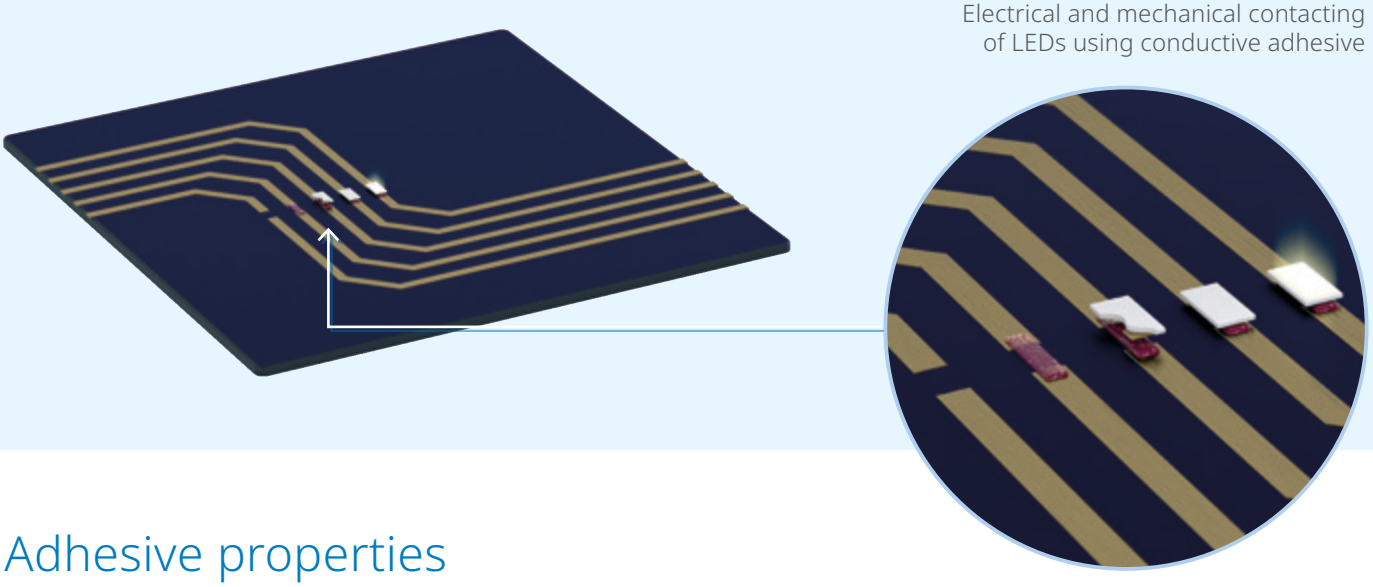
DELO is a family-owned company based in Germany, with a long-proven track record in developing innovative functional materials for LED packaging and display applications.

The continued refinement of our adhesive portfolio, plus our network of equipment manufacturers, chip suppliers, panel makers and research institutions, facilitate alternative processes for the ongoing miniaturization of LED dice. Moreover, adhesive properties can also be tailored to customer-specific processes and needs.

Discuss your project and your requirements with our experts:

optoelectronics-experts@DELO.de

Bonding mini- & microLEDs to substrate



Electrical and mechanical contacting of LEDs using conductive adhesive

Adhesive properties

Electrical connection
- Conductive adhesives for electrical & mechanical connection
- Low bondline thickness of < 15 µm
- Pitch of < 30 µm
- Tailored dispensing possible, e. g., stencil printing, dipping, and stamping
- Optimized for contact materials, e. g., gold, silver, and copper
- Standard portfolio available
- In-house testing possible

Additional solutions
- Underflow material
- Corner fill material
- Infrared (IR) coatings

In-house testing methods for adhesive development

You can test LED dice with > 80 µm edge lengths, as well as BESI Datacon 2200 evo, in our specialized engineering laboratory using the pick-and-place method. Our test board is designed to compare the reliability of different adhesives and miniLEDs in both single and daisy-chain measurements. The effectiveness of automated dispensing methods like dipping or stamping can also be analyzed.

The electrical connection is then verified by measuring its U-I-charateristics. Reliability testing at parameters such as +85 °C at 85 % r. h. for up to 1,000 hours can be tested using in-house climate chambers.

Download our white paper
for further information

DELO

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