hönle group

panacol adhesives & more

High-tech Adhesives for E-Mobility and Automotive Electronics

State-of-the-art adhesive systems for applications in the automotive industry:

Electric Motors
Cell Contacting Systems
Thermal Management
Automotive Electronics
Charging Stations
Interior

Adhesives for Automotive and E-Mobility

Adhesives have become an indispensable bonding technology in motor vehicle production. Components in the chassis, engine or interior that previously had to be soldered, screwed or welded, can now be bonded securely with long-term stability and the added benefit of reduced weight. Panacol adhesives are primarily used in vehicle electronics and sensors. The technical, mechanical and physical demands placed on adhesives in terms of durability, chemical and temperature resistance are continuously increasing. Panacol develops customized adhesive solutions that meet the high requirements of the automotive industry. Panacol offers proven standard products as well as innovative new introductions for the best possible assembly solutions.

E-Mobility

Adapted to the special requirements of electromobility, Panacol adhesives contribute to faster and more efficient processes for the production of cell contact systems, battery packs, and charging systems. Our products are also used for thermal management, anti-corrosion coating, and vibration protection. Unique adhesive, potting and sealing systems are available for a wide range of applications.

more information on page 4 + 5

Cell Contacting Systems

High-performance battery packs and cell contacting systems for electric and hybrid vehicles require high-performance adhesives. Panacol offers specialized adhesives for electrical connection and sealing of welded joints.

more information on page 4

Charging Infrastructure for Electric Vehicles

Panacol adhesives are suitable for a wide range of EV assembly applications. They include ruggedizing PCB components for vibration resistance and the temperature-resistant attachment of electronic components to circuit boards in charging stations. Our adhesives can also protect the sensitive contacts in charging cables from moisture and contamination.

more information on page 5

UV-Curing Systems

Suitable UV and UV LED devices for curing Panacol UV adhesives can be found on

page 12

Magnet Bonding for E-Motors

Performance, weight, and space saving are crucial for electronic drives. Adhesives are the perfect solution for their manufacture, as they not only optimize magnet bonding assembly, but are also able to protect and insulate the coil windings.

more information on page 4

Sensors

Sensors must function without failure under harsh environmental conditions. Panacol offers a broad portfolio of adhesives for heat dissipation, electrical connection and shielding, fixturing, and environmental protection of the sensors.

more information on page 4 - 8

Thermal Management

Wherever electricity is present wasted heat is generated. This includes battery packs, electric drives and electronic components. Efficient cooling is essential, and heat-dissipating adhesives can provide the most effective solutions.

more information on page 4

Automotive Electronics

From conductive adhesives to products for attaching surface mounted devices (SMDs) on printed circuit boards: The Panacol portfolio offers numerous options for bonding and securing electronic components.

more information on page 6 - 8

CIPG Sealing Systems

Adhesives can be used in the automotive sector as Cured in Place Gaskets (CIPG). CIPGs are applied in liquid form to complex geometries and then cured with UV light.

more information on page 11

Camera Sytems/ADAS, Lidar

Many components in Advanced Driver Assistance Systems (ADAS) are bonded. Our special adhesives are tailored to the respective materials and are used for bonding plastic housings or for affixing lenses.

more information on page 9

Interior/Dashboard

Components in the dashboard or decorative elements and displays can be reliably bonded and sealed with Panacol products. They also contribute to the refinement of Human Machine Interfaces (HMI) and In-Mold Electronics (IME).

more information on page 11

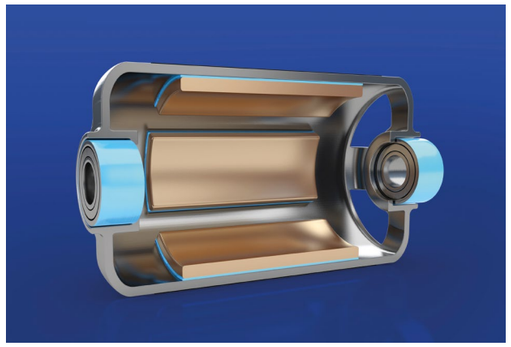
Light Management

Adhesives for interior and exterior lighting typically bond plastic housings, attach LEDs to chips, and can be formed as lenses to create the scattered light of light carpets..

more information on page 10

E-Motors

Electric drives are becoming more powerful and efficient. At the same time, the component volume is decreasing. This has increased demands for materials to provide higher mechanical, chemical, and thermal resistance in order to ensure long-lasting operation. Panacol's new adhesives meet these requirements. They adhere particularly well to various metals, ferrites and copper coils, and are suitable for a wide range of applications such as magnet bonding, stator pack assembly, and potting bar magnets.

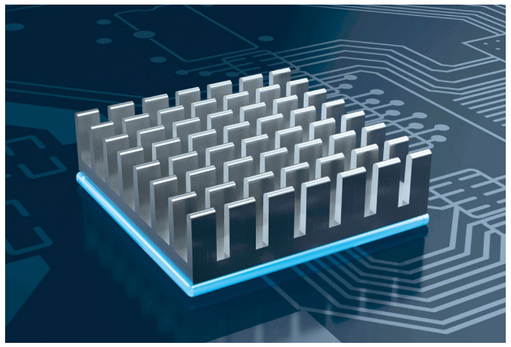


Cell Contacting Systems

Efficient connecting of cell systems in batteries with simultaneous flexibility can only be achieved with adhesives. Adhesives compensate for the different thermal expansion coefficients of the bonded materials. Specially developed UV glob tops and coatings protect against corrosion and at the same time offer high adhesion to the surfaces to be protected. Panacol adhesive solutions are not only suitable for battery cells, but also for modules and battery packs.

Thermal Management

There are components throughout the vehicle that generate heat during operation. In addition, these components are becoming smaller and more powerful, which also increases the thermal load. This not only shortens the lifespan, but also reduces performance. Panacol developed a high-performance line of adhesives that offer efficient heat dissipation and enable a form-fit, mechanically stable lightweight construction. They are used in the production of batteries, electric motors, control units, sensors and headlights.

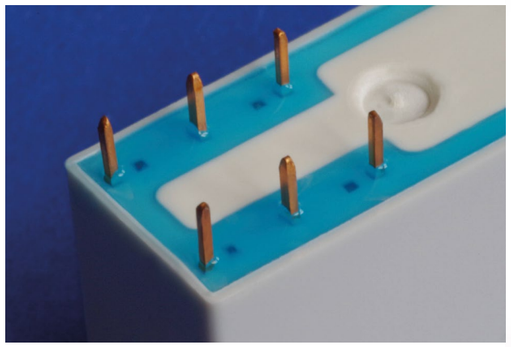


Dual-Curing Adhesives

Panacol offers adhesives that cure using UV light and moisture. They are used for components whose substrates are only partially translucent and have areas that are shadowed from the curing light.
The adhesives' polymerization process is initiated by exposure to UV light and continues in shadowed areas through contact with the humidity in the air and the moisture present on the substrates.

Charging Infrastructure for Electric Vehicles

Adhesives and sealants have many applications in charging stations for electric vehicles. Various SMD components are bonded or encapsulated on the circuit board to make them resistant to shock and vibration. These components can also be reliably protected against temperature fluctuations, moisture, and other climatic influences by applying a conformal coating on the entire circuit board. Cured-in-place gaskets (CIPG) are used to enclose the electronic components and seal the housing from the infiltration of chemicals, moisture, and other contaminants.



Connector Sealing

When potting connectors, switches and relays, room temperature-curing, two-component or thermally curing (one-part) adhesives are mainly used. Panacol also offers UV light-curing products, which are characterized by their ability to cure quickly, even in thick layers. This results in shorter production cycle times. Our products are developed with low halogen content to meet the highest standards of the electronics industry.

Typical Adhesives for E-Mobility

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® UV E-2113	Cell contacting systems, Wire rope corrosion protection	25,000 - 35,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS	Fast curing, high chemical resistance
Vitralit® UV E-2115	Cell block spacer, Battery packs	80,000 - 120,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS	High thixotropy index
Vitralit ® UD 5180	Encapsulation of the soldering & welding joints of connectors	4,000 - 6,000 Rheometer $10s^{-1}$	1-part Epoxy	UV/thermal	High adhesion to flexible conductors, low halogen content
Vitralit® UD 4292 F	Ball bearing e-motors	40 - 70 LVT, Sp.2/30 rpm	Acrylate	UV/VIS/ anaerobic	Capillary flow, anaerobic post-curing
Vitralit® UD 8050	Weld joint potting, Cell contacting systems	8,000 - 11,000 Rheometer $5s^{-1}$	Acrylate	UV/VIS/ humidity	Jettable, moisture post-curing, low halogen content
Vitralit® UD 8055	Battery packs, Cell contacting systems	4,000 - 7,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS/ humidity	High Tg, moisture post-curing, deep through-curing
Vitralit® E-VBB-1	Connector sealing	1,300 - 1,600 Rheometer $10s^{-1}$	Acrylate	UV/VIS	Very flexible, stress equalizing
Elecolit® 6207	Thermal management, potting	9,000 - 12,000	2-part Epoxy	RT/thermal	UL94 V-0, thermally conductive
Elecolit® 6603	Thermal management	20,000 - 40,000 Rheometer $10s^{-1}$	1-part Epoxy	thermal	UL94 HB, good metal adhesion, thermally conductive
Structalit® 5802	Condensator bonding Cornerbond	40,000 - 65,000 Rheometer $10s^{-1}$	2-part Epoxy	RT/thermal	General structural bonding, very good dielectric properties
Structalit® 5803	Magnet bonding	100,000 - 160,000 Rheometer $10s^{-1}$	2-part Epoxy	RT/thermal	High Tg, impact resistant
Structalit® 5858	Magnet bonding	82,000 - 100,000 Rheometer $10s^{-1}$	1-part Epoxy	thermal	High Tg, impact resistant, high strength
Structalit® 8801	Structural bonding, magnet bonding, potting	30,000 - 45,000 LVT, Sp.4/6 rpm	1-part Epoxy	thermal	Good oil resistance, low outgassing, high Tg

*UV = 320 - 390 nm; VIS = 405 nm, RT = Room temperature

Bonding Electronic Components and Securing Components

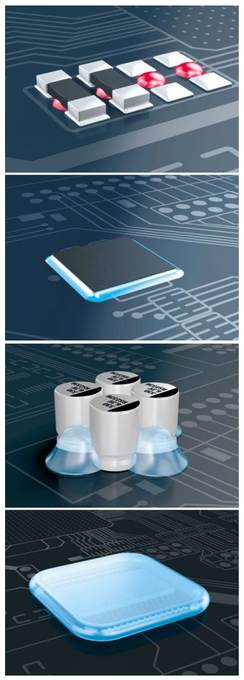
Adhesives have a wide range of applications in automotive electronics. They not only fulfill the purpose of mechanical fastening, but they also protect the sensitive components from environmental influences or can be used for electrical shielding.

UV and structural adhesives are suitable for attaching electronic components (SMDs) on printed circuit boards.

In flip-chip processes, capillary-flowing adhesives are required for the underfilling of semiconductor chips (ball grid arrays - BGA) in order to provide reliable and fast attachment.

An alternative to classic underfilling is edge and corner bonding. The adhesive is only applied to the corners and not over the entire surface of the component. This allows components to be fixed before reflow soldering, and prevents them from slipping during the soldering process.

Frame and fill is a process in which two adhesives of different viscosities are applied wet-on-wet. First, a perimeter "frame" is drawn using a higher viscosity adhesive. The interior area is then filled quickly with a low-viscosity adhesive, (the "fill"). These adhesives are available as single-component, thermally curing systems (usually dyed black), or as transparent UV-curable systems, which permit very short cycle times. These adhesives are designed to minimize stress on the component connections pre and post curing.



All Panacol adhesives developed for electronics applications have a high level of ionic purity and meet the rigid requirements of the automotive sector in terms of adhesion, temperature, chemical, vibration, and climate resistance. In addition, many adhesives can be individually adapted to the specific application. For example, many adhesive viscosities can be adjusted to optimize dispensing and flow properties. Color or fluorescence can be added to the adhesive to optimize process control in production. The rheological properties of Panacol's (SMD) adhesives are suitable for high volume applications that utilize screen printing or jet dispensing.

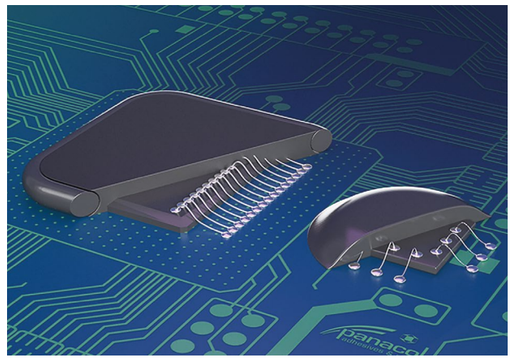
Typical Adhesives for Fixing Electronic Components

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Ion purity	Characteristics
Strucalit® 3060-1	Fixing electrical components	4,000 - 8,000 Rheometer, $10s^{-1}$	1-part Epoxy	thermal	●	Very fast curing, high flexibility
Stuctalit® 5604	Component protection SMD	25,000 - 40,000 Rheometer, $10s^{-1}$	1-part Epoxy	thermal	●	Red color, resistant to soldering temperatures up to 270 °C
Structalit® 8202	Underfill	300 - 400 Rheometer, $10s^{-1}$	1-part Epoxy	thermal	●	Capillary flow behavior, high Tg
Vitralit® E-1671	NTC Glop Top, Frame	9,000 - 14,000 Rheometer, $10s^{-1}$	1-part Epoxy	UV/thermal	●	Stable, low water absorption, high Tg
Vitralit® 1605	Fill	200 - 400 LVT, Sp.2/30 rpm	1-part Epoxy	UV/thermal	●	Ion purity, high Tg
Vitralit® 6104 VT	Condensator fixing	8,000 - 17,000 Rheometer, $10s^{-1}$	Acrylate	UV/thermal	●	Stable, high temperature resistance
Structalit® 5704	Frame	60,000 - 100,000 Rheometer, $10s^{-1}$	1-part Epoxy	thermal	●	Black color, stable, high Tg
Structalit® 5720	Fill	10,000 - 15,000 Rheometer, $5s^{-1}$	1-part Epoxy	thermal	●	High Tg

*UV = 320 - 390 nm; VIS = 405 nm; RT = Room temperature ● = Semicon-grade: DIN-EN ISO 10304-1 (D20) ● = Electronic-grade: (IEC 61249-2-21)

Encapsulation of High-Power Electronics (Powertrain)

Adhesives are used as encapsulants (glob tops) to protect sensitive electronic components from mechanical, thermal, and chemical influences. Good dielectric properties are important here, such as high dielectric strength, tracking resistance (CTI) and a high specific resistance in order to shield closely spaced electrical contacts from each other. In addition, encapsulation protects sensitive components from direct access and manipulation.



Typical Adhesives for Encapsulation

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Ion purity	Characteristics
Vitralit® UD 5180	Encapsulation on flex conductors	4,000 - 6,000 Rheometer $10s^{-1}$	1-part Epoxy	UV/thermal	●	High adhesion to PI
Structalit® 5891	Glob Top	25,000 - 50,000 Rheometer $10s^{-1}$	1-part Epoxy	thermal	●	High shock resistance, good chemical resistance
Structalit® 5894 M	Encapsulation of PCB in level sensors	20,000 - 30,000 Rheometer $20s^{-1}$	1-part Epoxy	thermal	●	Black, high resistance to chemicals
Structalit ® 8801	Glob Top, Potting/ Encapsulation	30,000 - 45,000 LVT, Sp.4/6 rpm	1-part Epoxy	thermal	●	High oil resistance, high adhesion to FPCB and PCB

*UV = 320 - 390 nm; VIS = 405 nm; RT = Room temperature ● = Semicon-grade: DIN-EN ISO 10304-1 (D20) ● = Electronic-grade: (IEC 61249-2-21)

Potting Compounds

Selection of an appropriate potting material must take into consideration many factors. They can include component geometry, component substrates, potting depth, and the coefficient of thermal expansion (CTE) of each substrate. In addition, curing requirements such as vacuum, temperature, and light transmission will influence product selection. Having many years of applications experience, our team of engineers can help to select the best potting solutions from our broad line of product options.

Typical Adhesives for Potting

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® 1605	Partial potting/coating	200 - 400 LVT, Sp. 2/30 rpm	1-part Epoxy	UV/thermal	Ionic purity, high Tg
Elecolit® 6601	Thermally conductive potting	12,000 - 20,000 LVT, Sp. 4/6 rpm	1-part Epoxy	thermal	High Tg, excellent flow properties
Elecolit® 6608	High temperature potting	10,000 - 15,000 Rheometer $10s^{-1}$ 40°C	1-part Epoxy	thermal	Low CTE, high Tg, UL94 V-0
Structalit® 5801	Potting of PCB	12,000 - 22,000 Rheometer $10s^{-1}$	2-part Epoxy	RT/thermal	High chemical resistance, good dielectric properties

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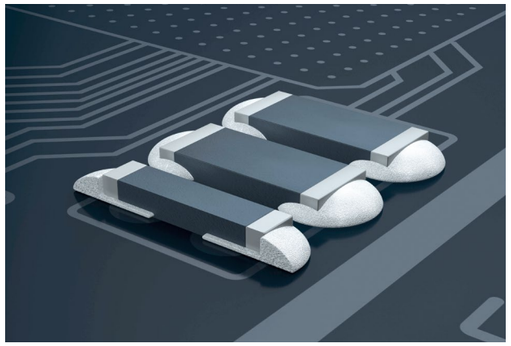
Electrical Connections or Shielding

There is hardly any other area where miniaturization and power density are as advanced and relevant as in automotive electronics. Material requirements are demanding! Precise adhesive deposits must be made in complex component geometries. Fast curing is essential, and a form-fit and long-lasting material connection must be achieved to replace traditional solder applications. This market also demands lower thermal curing temperatures, low electrical contact resistance, and consistent performance.



Typical Electrically Conductive Adhesives

Adhesive	Application	Viscosity [mPas]	Base	Volume resistivity (Ω • cm)	Curing*	Characteristics
Elecolit® 3025	Heat-sensitive components	80,000 - 90,000 Rheometer $10s^{-1}$	2-part Epoxy	10^{-3}	RT/thermal	Cures at room temperature
Elecolit® 3653	Potting for PCB	4,000 - 8,000 Rheometer $10s^{-1}$	1-part Epoxy	10^{-3}	thermal	Vibration resistant
Elecolit® 3655	SMD Packaging, LED Die Attach	5,000 - 15,000 Rheometer $10s^{-1}$	1-part Epoxy	10^{-4}	thermal	High Tg, high ionic purity
Elecolit® 3656	SMD Packaging, LED Die Attach	50,000 - 70,000 Rheometer $10s^{-1}$	1-part Epoxy	10^{-3}	thermal	Stable, high dimensional stability, suitable for jetting
Elecolit® 3661	Flexible circuit carriers, Die Attach	20,000 - 40,000 Rheometer $10s^{-1}$	1-part Epoxy	10^{-3}	thermal	Stable, high dimensional stability

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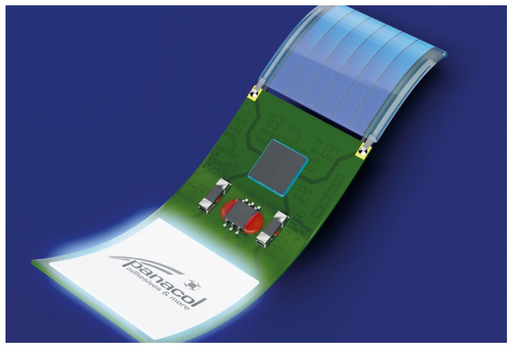

Flexible and Printed Electronics

To produce design elements on curved surfaces, flexible substrates (Flex PCB) are increasingly being used in automotive electronics. For such applications, Panacol offers particularly flexible adhesives with low curing temperatures, good electrical conductivity and high chemical, mechanical and thermal resistance (e.g. to reflow processes). Some of the adhesives offer very fast curing times (snap cure) or curing by thermode or hot press.

Typical Flexible Adhesives

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® E-4451 MV F	Coating on FPCB	2,000 - 3,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS/ thermal	Elastic, dry surface
Elecolit® 3647-1	Conductor contacting on FPCB	7,000 - 12,000 Rheometer $10s^{-1}$	1-part Epoxy	thermal	Electrically conductive
Elecolit® 3648	Conductor contacting on FPCB	10,000 - 15,000 Rheometer $10s^{-1}$	1-part Epoxy	thermal	Electrically conductive, curing from 80 °C

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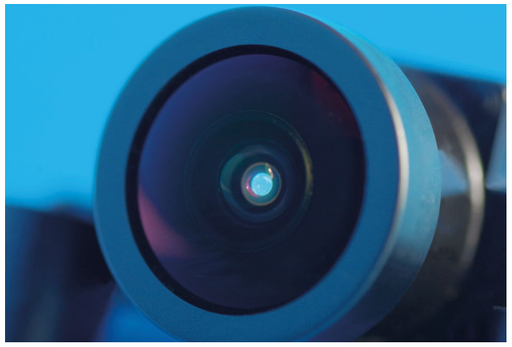
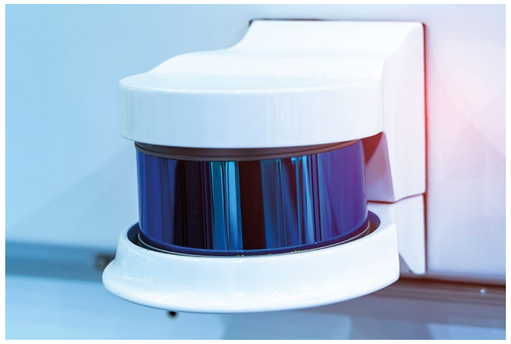
Camera Systems / ADAS

Modern vehicles have a variety of optical sensors: cameras to assist with parking and reversing, as well as driver assistance systems and cameras to help with sign recognition, lane management, turning, and impact avoidance. These cameras are so small that mechanical fasteners cannot be used for attachment. Special adhesives, specifically matched to each substrate's properties, are utilized to bond camera housings and affix camera lenses and filters. Panacol's unique adhesives for active alignment provide high reliability and dimensional stability. They are low-shrink adhesives with no detrimental outgassing.





Lidar Systems

Other optical sensors used for driver assistance systems are lidar sensors. The high-performance demands placed on these systems can be enhanced with Panacol adhesives. Stress-free, high strength bonds are required to ensure consistent sensor performance. The adhesive bonds must be highly resistant to temperature fluctuations, changes in weather, as well as salt and chemical contact. Panacol offers an extensive line of adhesives, both acrylate and epoxy based, to meet these extreme challenges.

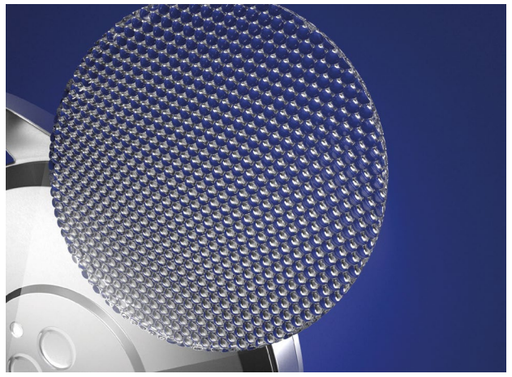
Typical Adhesives for Camera and Lens Systems

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® 1860	Active Alignment, Glass Adhesive	35,000 - 50,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS	Low coefficient of thermal expansion (CTE), low shrinkage
Vitralit® E-1671 T	Lidar & Radar	40,000 - 55,000 Rheometer $10s^{-1}$	1-part Epoxy	UV/thermal	Stable, very low water absorption
Vitralit® E-4731	Lidar & Radar, Flexible System	900 - 1,500 LVT Sp. 3/30 rpm	Acrylate	UV/VIS	Stress equalizing, excellent adhesion to polymer materials
Vitralit® E-VBB 1	Housing sealing, especially radar	300 - 1,600 Rheometer $10s^{-1}$	Acrylate	UV/VIS	High mechanical flexibility, stress equalizing
Vitralit® UC 1535	Bonding of glass lenses and cameras	28,000 - 38,000 Rheometer	1-part Epoxy	UV	Transparent, low ion content (semicon grade), hard and scratch-resistant
Vitralit® UC 1536	Bonding of glass lenses and cameras	55,000 - 70,000 Rheometer $10s^{-1}$	1-part Epoxy	UV	Transparent, highly viscous variant of Vitralit® 1535
Vitralit® UC 1658	Diffractive optical elements	75 - 200 LVT Sp. 2/30 rpm	1-part Epoxy	UV	Mechanical flexibility, excellent adhesion to polymer materials
Vitralit® UD 5134	Bonding of lenses to the housing	15,000 - 25,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS/ thermal	Low coefficient of thermal expansion (CTE), low shrinkage, suitable for plastics that are difficult to bond
Vitralit® UD 8057	Optical potting, bonding of optical components	2,000 - 4,000 Rheometer $5s^{-1}$	Acrylate	UV/VIS/ humidity	Moisture post-curing, highly transparent, low yellowing

*UV = 320 - 390 nm; VIS = 405 nm, RT = Room temperature

Micro Lens Arrays (MLA) for Light Carpets

Light carpets are a special feature that project the car brand or other designs onto the ground below the doors. This is achieved with special MLA adhesives that can diffuse the light over a large area. Uniquely formulated refractive indices are used to produce individual lens systems. Panacol MLA adhesives are characterized by their long-term stability which provides resistance to yellowing during aging. Adhesive flow properties have also been optimized to produce customer-specific lens designs using the imprint process.



Typical Adhesives for MLA & Light Carpets

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® UC 1632	MLAs and Light Carpets	80 - 100 LVT Sp. 2/30 rpm	1-part Epoxy	UV	Excellent glass adhesion, dimensionally stable, reflow-resistant, resistant to yellowing
Vitralit® UC 1633	MLAs and Light Carpets	170 - 230 Rheometer $10s^{-1}$	1-part Epoxy	UV	Excellent glass adhesion, dimensionally stable, reflow resistant, high yellowing stability
Vitralit® UC 1658	Diffractive diffusors, MLA Imprint	75 - 200 LVT Sp. 2/30 rpm	1-part Epoxy	UV	Mechanical flexibility, excellent adhesion to polymers, low antimony content

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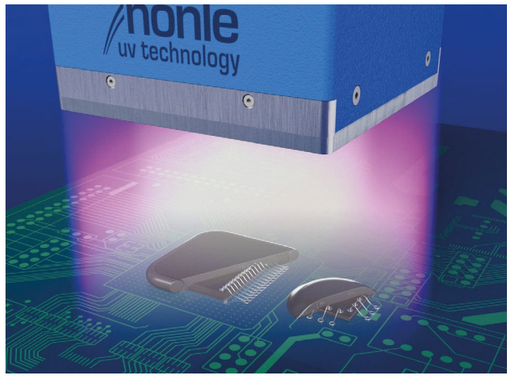

Black & Light

Black adhesives are particularly in demand for optical and optoelectronic systems where a high optical density is required. In these applications, adhesives must minimize reflections (light shielding), or secure specific transmission values for sensors. Conventional black adhesives absorb a high percentage of the light intensity and therefore cannot be cured in thicker layers using UV light. With the new „Black & Light“ technology from Panacol, black adhesives can now be cured in deeper layers using UV light.

Black & Light Adhesives

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® BL UC 1101	Lens bonding Light shielding	3,500 - 7,000 Rheometer $10s^{-1}$	1-part Epoxy	UV	Deep curing up to 1.3 mm
Vitralit® BL UC 1102	Lens bonding Light shielding	3,500 - 7,000 Rheometer $10s^{-1}$	1-part Epoxy	UV	OD value 4 with 0.45 mm Glop Top
Vitralit® BL UC 1103	Lens bonding Light shielding	3,500 - 7,000 Rheometer $10s^{-1}$	1-part Epoxy	UV	High OD values up to 6

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Interior Design

Customers who buy a car pay particular attention to the appearance and quality of the interior. The design of the dashboard must be convincing and attractive. But it is not just the visual appearance that plays a role here. Mechanical functionality, resistance to “spills”, and cabin quietness are also important points of consideration. Adhesive bonding provides more flexibility to design engineers, allowing them to be more imaginative with attachments, positioning, and soundproofing.

Typical Adhesives for Interior Design

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® 1655	Optical potting	150 - 300 LVT Sp. 2/30 rpm	1-part Epoxy	UV/thermal	Flexible, moisture-resistant
Vitralit® UC 6684	Potting of cavities in interior lighting	1,500 - 2,500 LVT Sp. 3/30 rpm	1-part Epoxy	UV/VIS	Transparent, scratch-resistant
Vitralit® UD 8051	Edge sealing of control elements	11,000 - 14,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS/ moisture	Dual curing, black color

*UV = 320 - 390 nm; VIS = 405 nm, RT = Room temperature

Cured-In-Place-Gaskets (CIPG)

CIPGs protect housed electronic components from contaminants and moisture. CIPG applications include electronic control units (ECU), cameras, sensors, on-board chargers (OBC) and battery disconnect units (BDU). Panacol CIPG materials are dispensed as high viscosity (gel) liquids. They can be applied to simple or complex component geometries, and then cured in seconds with UV/visible light. This can be an in-line process, as the cured CIPG is immediately ready for the next phase of the assembly process. With the adhesion of an adhesive, the CIPG will bond to one surface, preventing it from shifting or falling off during travel to the next process.

Typical Adhesives for Liquid Seals and CIPGs

Adhesive	Application	Viscosity [mPas]	Base	Curing*	Characteristics
Vitralit® CIPG 60102	Housing seal	15,000 - 40,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS	Flexible, low compression set
Vitralit® 5140 VT	Sealing	5,000 - 10,000 Rheometer $10s^{-1}$	Acrylate	UV/VIS	Flexible, high resistance to climate changes and moisture

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Process Solutions with Hönle UV Technologies

Dr. Hönle AG is an international supplier of UV technology and offers curing units with UV LEDs and conventional medium-pressure lamps. Hönle and Panacol attach great importance to joint research and development. The combination of decades of experience leads to optimally coordinated high-tech system products for bonding applications.

LED Spotlights
High-intensity punctiform UV irradiation

LED Curing Chambers
Reliable protection against UV radiation

LED Line Emitters
High-power arrays with individual length

LED Conveyor Belts
Can be combined with LED Powerline or LED Spot for high output

LED Floodlights
Homogeneous light distribution with high intensity

UV-Measurement
Measurement of intensity and dose for reliable process monitoring

UV Sources	Dimension in mm	Available Wavelength in nm	Intensity in mW/cm²	Cooling
LED Spotlights	Light emission up to Ø 20	365/385/405	up to 20.000	air-cooled
LED Line Emitters	Light emission width 10/20/40, length variable	365/385/395/405/460	up to 25.000	air and water-cooled
LED Floodlights	Light emission 20x20 / 40x40 / 100x100 / 200x50	365/385/395/405/460	up to 30.000	air and water-cooled
LED Curing Chambers	Inner dimension 180x180 / 350x350	365/385/395/405/460	up to 5.000	air-cooled
LED Conveyor Belts	Belt width 110 - 520	365/385/395/405/460	up to 25.000	air and water-cooled

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