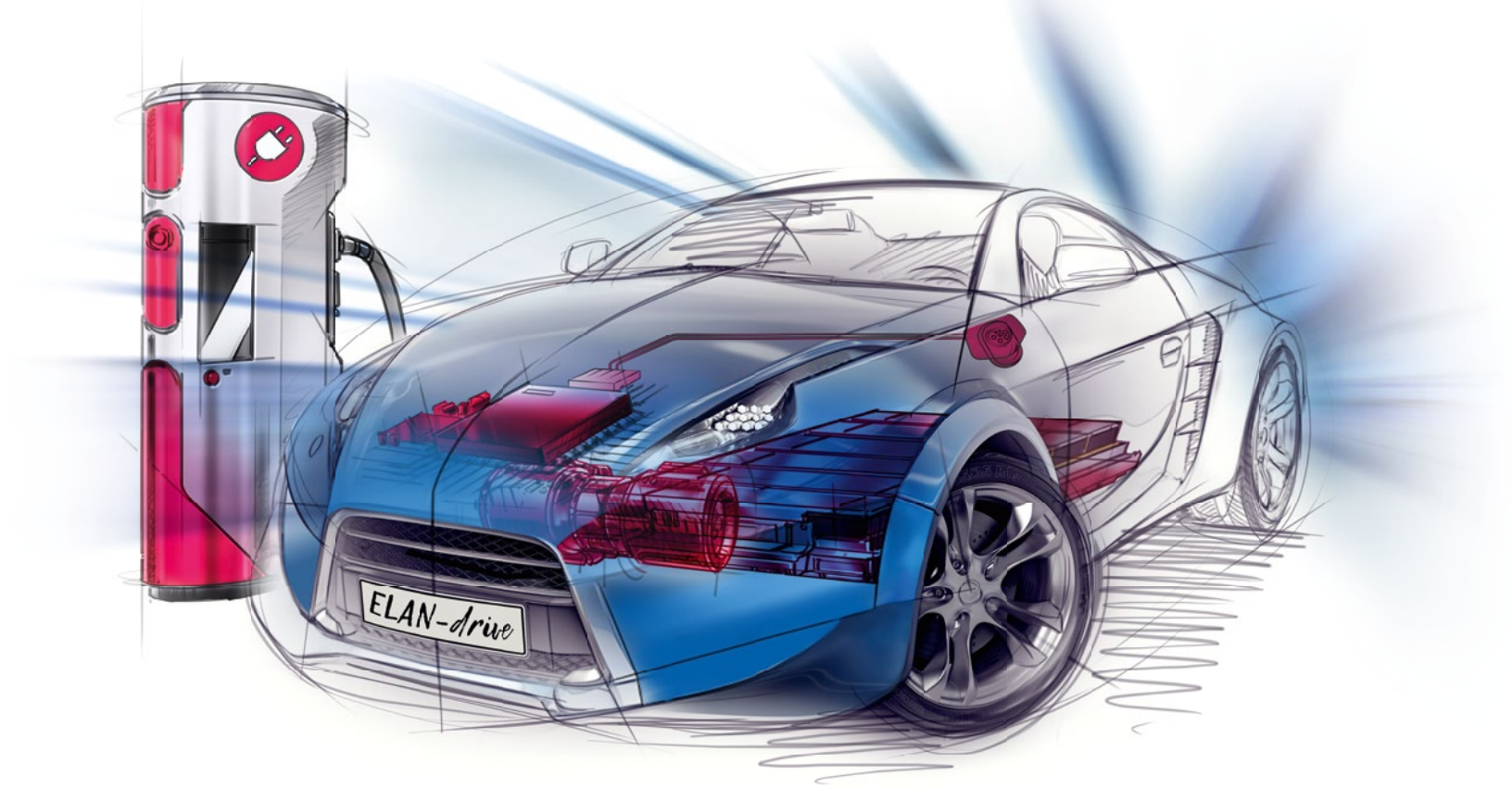


Charging Infrastructure

ELAN-drive eMobility Solutions

A member of ALTANA

ELANTAS

ELANTAS is a firm believer that eMobility in connection with renewable energy is the key for future sustainable mobility and reduction of global emissions.

To support the growth of eMobility globally, we support this market with innovative products which help to operate electric vehicles safely and enable innovative, cost-efficient solutions through our products. As a market leader for electrical insulating and protection materials ELANTAS has over 100 years of experience in the industry.

Global Presence for a Global Industry

As an experienced supplier to the automotive industry, ELANTAS understands the requirements and expectations throughout the entire automotive value chain and is working according to given standards (IATF 16949). Local supply options from our manufacturing sites in the regions results in short lead time.

Charging Infrastructure

The charging infrastructure is key to the success of emobility. Customers expect short and effective charging times that power up the vehicle. With the charging times getting shorter, the energy transported over the time gets higher. For this reason, management of heat flow and electrical insulation of the components become more demanding.

Shorter e-car charging times set higher requirements for thermal management and insulation.

ELANTAS offers conformal coatings, casting & potting materials, and thermal interface materials for the purpose of electrical insulation and heat dissipation of the components of chargers.

The charging infrastructure consists of fast DC charging stations and AC chargers. DC charging stations allow for a fast load of the battery in well under an hour whereas AC chargers require longer time and are often used at home.

ELAN-drive charging infrastructure applications

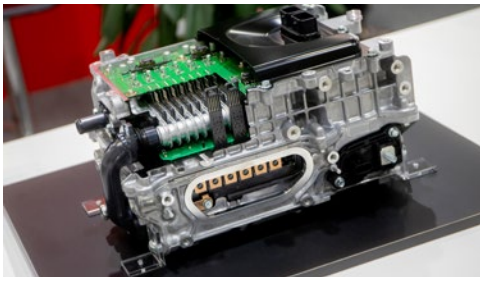
Power Inverter

DC charging stations offer the fastest way to charge a vehicle. They support customer expectations of a short charging cycle that enables them to drive longer distances with short stops for charging. For this, the AC power of the grid needs to be inverted to the DC current required for the short charging process. During the charging cycle extensive heat is generated, and heat management of the components becomes crucial for enabling safe and reliable performance.

Product	Chemistry	Form	Curing Mechanism	Viscosity Mixed [mPas]	Pot Life / Gel Time [min]	Thermal Conductivity [W/mK]	T Range [°C]	Density [g/cm3]	Shore	UL94
Bectron™ SG 75V1-75	Si	2K	RT / HEAT	925	45	0.2	-40 – 180	0.97	PEN75	HB
Bectron™ SK 75V1-35	Si	2K	HEAT	990	180	0.3	-40 – 200	1.23	A75	V-0
Bectron™ SK 75V2-65	Si	2K	RT / HEAT	3500	60	0.45	-40 – 200	1.78	A65	V-0
CONAP® EN 5852	PU	2K	RT / HEAT	8500	20 - 30	0.6	-50 – 130		A65	V-0
Conapoxy® FR 1080	EP	2K	HEAT	2500	>120	0.2	-40 – 180	1.1	D90	
Conapoxy® FR 1820	EP	2K	RT / HEAT	6900	15 – 18	0.5	-40 – 130	1.5	D80	V-0

DC/DC Converter

The fixed DC voltage that is provided by the AC/DC converter is transformed by the DC/DC converter in the charging station to the right voltage level needed for charging a specific vehicle. To ensure fast charging, the energy density is high, which produces additional heat. Heat management becomes paramount for the safe and reliable performance.



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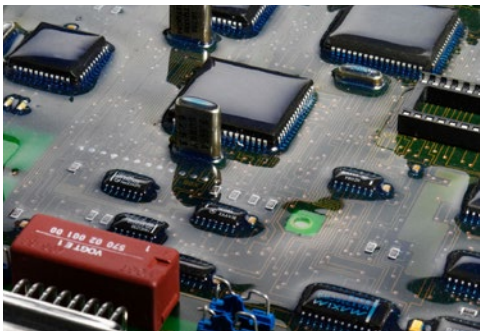
Control Units

The charging infrastructure can't function without several control units. They make sure that the equipment is working smoothly and reliably. The core of those units are printed circuit boards which need to be insulated and protected against environmental effect (e.g. humidity).

Conformal Coatings are applied to the circuit boards to protect them and ensure reliable performance. Under the brand names Bectron™, CONAP®, and Conathane®, ELANTAS offers materials that have been widely used in the automotive industry for decades.

Product	Chemistry	Curing Mechanism	Tack Fee [min]	Viscosity [mPas]	Solid Content [%]	Temp Range [°C]	Dielectric Strength [kV/mm]	UL94
Bectron™ PL 4122 E series	Urethane / Alkyd	RT / HEAT	15	50 – 240	37 – 45	-40 – 125	112	V-0
Bectron™ PL 4122-40 P	Urethane / Alkyd	RT / HEAT	30	80	40	-40 – 125	112	V-0
Bectron™ PL 4122-45 T	Urethane / Alkyd	RT / HEAT	15	240	45	-40 – 135	112	V-0
Bectron™ PL 4122-47 R	Urethane / Alkyd	RT / HEAT	15	600	47	-40 – 125	112	V-0
Bectron™ PT 4600	Urethane / Acrylate	UV / MOISTURE		1000	101	-40 – 125	20	V-0
Bectron™ PT 4601	Urethane / Acrylate	UV / MOISTURE		1700	101	-40 – 125	20	
Bectron™ PT 4700 N	Urethane / Acrylate	UV / MOISTURE		200	101	-40 – 125	116	V-0
Bectron™ SC 76V1-21	Silicone	RT / HEAT	25	1050		-40 – 200	52	
Bectron™ SDC 76V1-18	Silicone	RT / HEAT	25	250	85	-40 – 200	92	V-0
CONAP® CE 1170	Acrylate	RT / HEAT	15	400	31	-65 – 125	118	V-0
CONAP® CE 1171	Acrylate	RT / HEAT	20	900	30	-65 – 125		V-0
Conathane® CE 1155	Polyurethane	RT / HEAT	300 – 360	72	62	-65 – 125	41	V-0
Conathane® CE 1164	Polyurethane	RT / HEAT	20 – 30	100	50	-65 – 125	138	V-0

ELAN-drive charging infrastructure products

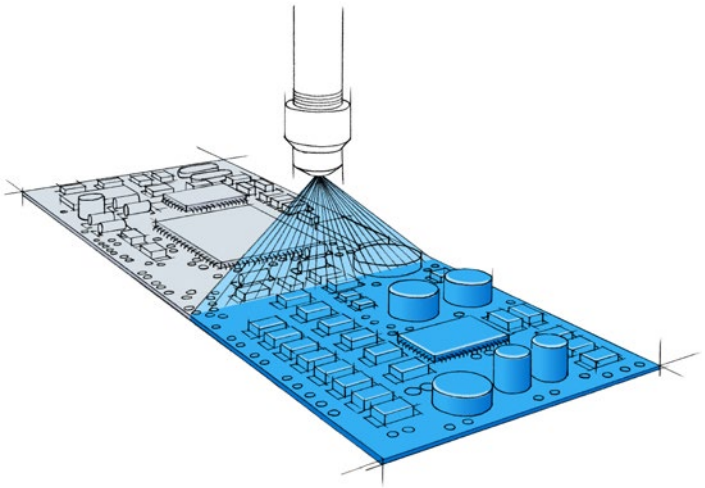


Conformal Coatings

Conformal Coatings are used to **protect printed circuit boards (PCB)** with film coating. They **ensure the safe and reliable performance of electronics wherever a controller is needed** in the charging infrastructure.

- They protect the board **against external factors like humidity, chemicals, and dust.**
- In addition they have excellent electrical properties and help to **insulate** the PCBs.
- The materials can be applied with standard mass production equipment.

Depending on application requirements, different chemistries and curing mechanisms are available from ELANTAS.



ELANTAS is part of the ALTANA group and is a leading manufacturer of insulating and protecting materials for the electrical and electronics industry. Our portfolio includes wire enamels, impregnating resins and varnishes, flexible electrical insulation materials, casting & potting resins for motors, generators and transformers, as well as conformal coatings for protecting PCBs, modules, or sensors. In addition, we offer a wide range of adhesives, as well as materials for printed electronics.

ELANTAS PDG, Inc.
5200 North Second Street
St. Louis, MO 63147 USA
Tel (314) 621-5700

www.elantas.com/pdg
info.elantas.pdg@altana.com

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