

INDUSTRY
SOLUTIONS.

Material
Solutions.

CHT
SMART CHEMISTRY
WITH CHARACTER.

E-MOBILITY

DEVELOP THE FUTURE OF
ELECTRIC AND HYBRID VEHICLES
WITH SILICONE SOLUTIONS

DISCOVER THE CHT GROUP'S WORLD OF SILICONES

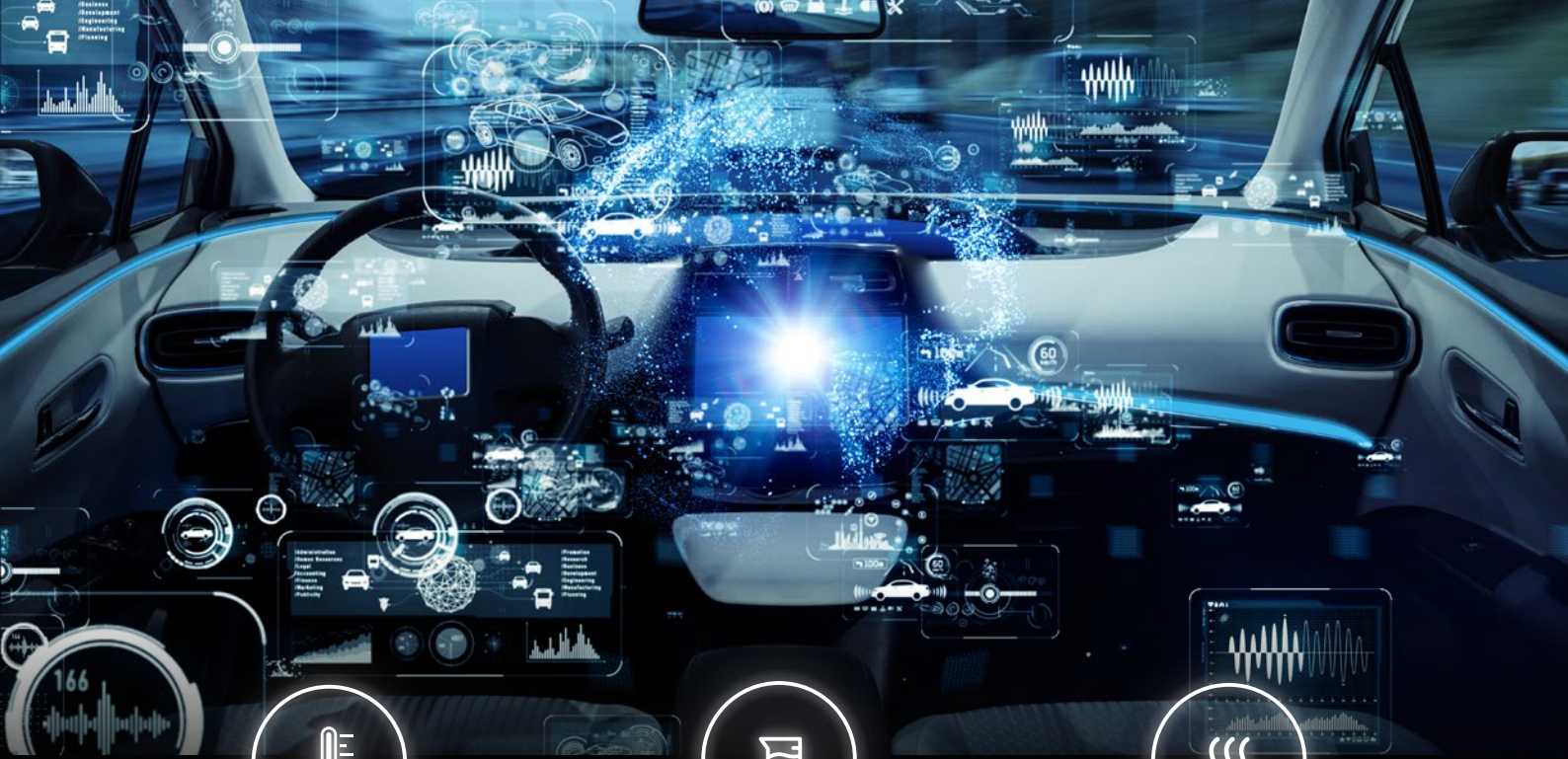
Since the acquisition in 2017, we have merged the silicone competence and know-how of CHT, ACC, QSi and ICM under the CHT brand, to serve you with specialty silicones. You can rely on our international teams of highly skilled silicone experts for experience, know-how, technical and personal service that will surpass your expectations. Our expertise extends into all areas of one- and two-part silicone elastomers with a strong focus on application-based solutions.

More than ever, we ensure consistent development of forward-thinking technologies and products. Through smart chemistry we take care of sustainability. This thinking guides our developments in the area of future mobility concepts. Regarding electrification, autonomous driving and connectivity, our experts are working on innovative materials.

We are committed to developing the best solution for your unique applications – challenge us!



MANY POSSIBILITIES



High temperature stability



Chemical resistance



Thermal conductivity



Lightweight



High transparency



Electrical conductivity



6 KEY FACTS ON SILICONES

Silicone elastomers stand for excellent temperature stability, environmental friendliness, very good optical characteristics as well as perfect electrical insulation and isolation properties. Due to their different features and properties, silicone elastomers can be processed and used in numerous mobility applications.

The silicone matrix can be loaded with microscopic particles which depending on their chemical nature ensure the efficient thermal transfer, enhance chemical resistance or improve mechanical properties. The unique combination of the silicone matrix and the fillers depends upon the required thermal conductivity, mechanical constraints, operating environment and production methods.

1 EFFICIENT THERMAL MANAGEMENT

Main e-vehicle components produce heat when in use. To avoid the premature failure and to maintain their performance, the heat excess must be dissipated away from the core parts. The need for efficient heat transfer has become a key design requirement as components continue to reduce in size and increase in power. Our flowable products are designed to reduce air gaps even in the smallest electronics, otherwise they act as insulators and prevent heat transfer.

2 EFFECTIVE BONDING AND SEALING

Our silicone adhesives are soft and flexible and are an ideal fit for sealing and bonding of different interfaces. They provide enhanced adhesion and are also available as a thermally conductive modification.

3 NO COMPROMISE IN OPTICAL CLARITY FOR LED ENCAPSULANTS

High performance LEDs have a complicated optical system design. The smallest traces of impurities or UV-induced yellowing can affect the optical performance dramatically. CHT silicones developed for LED applications are UV-resistant, optically clear with low outgassing to avoid any impurities on the lens.

4 PROTECTION FROM MOISTURE AND CHEMICALS

Due to the enhanced ability to flow around, under and over the components, covering all the cavities and edges, our encapsulants and potting compounds ensure the best protection from moisture and aggressive or corrosive materials.

PROTECTION FROM THERMAL STRESS, VIBRATION AND MECHANICAL SHOCK

Our products maintain excellent adhesion to all component substrates, their mechanical properties and outstanding thermal conductivity are unaffected by changes in operational temperatures. They will protect the components from stress, vibration and mechanical shock under the harshest conditions!

ELECTRICALLY CONDUCTIVE MATERIALS

With our unique filler technology, we can transform insulating silicones into electrically conductive, lightweight and highly ductile materials. These elastomers can be used wherever electrical current needs to be dissipated, e.g. in small sensors or electronic components.

WHAT WE REALLY OFFER TO OUR CUSTOMERS IS SILICONE EXPERTISE.

Levi Cottington,
CEO CHT USA



What happens when chemical excellence meets application expertise?

Dr. Ralf Brückmann and Levi Cottington discuss how CHT silicone solutions help the industry solve significant electrification challenges.

[READ INTERVIEW](#)

REAL MULTI-TALENTS

CURRENT APPLICATIONS

Powertrain/
Charger



Lighting



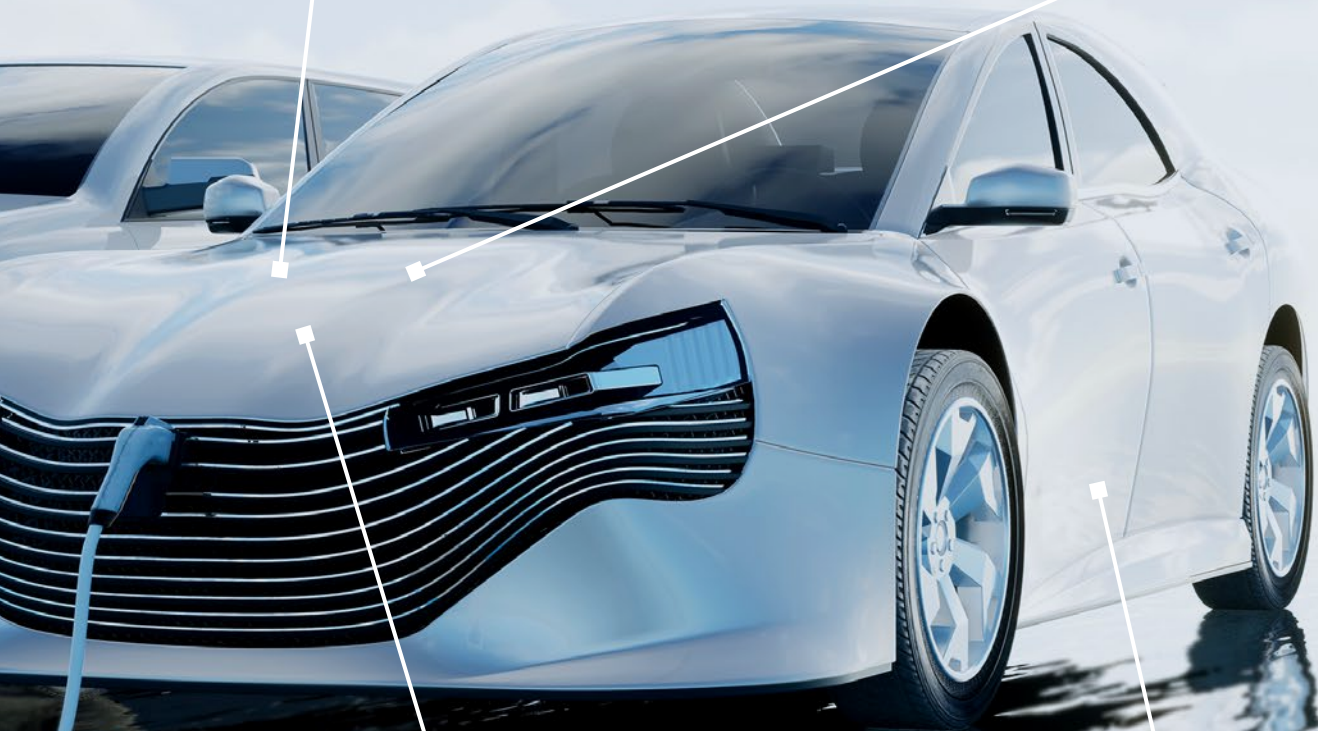
SILICONES GIVE NEW GENERATION VEHICLES A BOOST

Thermal
System

Electronics

EV Battery

Powertrain



EV BATTERY

EV batteries present unique venting challenges, including potentially dangerous thermal runaway conditions. Considering these challenges, integration of design, manufacturing, installation and testing are crucial to optimal EV battery venting performance. Numerous components in an EV require venting.

CHT offers specialised silicones and foam that can help in the manufacturing process including our SilSo™ Cool 21005 gap filler to help dissipate heat away from the battery cells and a unique foam for insulating the battery cells helping to prevent thermal propagation and vibration.

[MORE ABOUT EV BATTERY](#)

	EV Battery	Battery Management System
Potting		
Thermal Conductive Encapsulant		
SE3000	••	••
QSIL553	••	•
QSIL553LV	•••	•
QSIL550	••	•
Adhesive (Thermal Conductive)		
Gap Filler		
SilSo Cool 21005	•••	
1K-Addition Cure		
AS1420	•••	
AS1421	•	•
RTV Adhesives		
SilSo Bond 14000	•	•
AS1701	•	•
AS1707	••	•
AS1802	•	•
AS1803	•	•

EV



	Battery Management System
Assembly	
RTV Adhesives	
AS1502 Gasket	●●
AS1508 Gasket	●●
AS1621 Gasket	●●
AS1740	●●
AS1800	●●
AS1821	●●
AS2500 Gasket	●●●
AS5700	●●
Adhesives Heat Cure	
AS1402	●●
Protection	
Conformal Coating	
ACC15	●●●
Encapsulant (Non-Thermal)	
TufGel 330	●●●
Silcoset 101	●●●
Silcoset 105	●●●

● possible in this application ●● often used for this application ●●● optimal product for this application

BATTERY

POWERTRAIN

Automotive electronics require protection from vibration, humidity and chemicals; unwanted heat needs to be dissipated without damaging the micro electronic circuitry. Careful selection of specialist fillers high purity polymers and specialist chemistry ensure all these requirements are realised.

Throughout the automotive industry silicone materials continue to find more and more applications due to their unique properties. CHT products are now being used by many of the industry's leading manufacturers. Our technical teams work closely with design engineers to develop technical solutions that offer improvements in performance and productivity. Listed below are just some of the key applications that utilise CHT Silicones materials:

Of particular interest is the new AS1800 series of Acetone cured silicone RTV's. This new patented technology is neutral cure which will not cause corrosion together with fast cure and excellent adhesion. Within the range are several thermally conductive options which can be used to dissipate heat as well as for sealing and bonding.

Many production engineers are able to reduce production time by using our AS1400 series of heat cured silicone adhesives together with our Q-Sil and Q-Gel range of encapsulants. The curing of both the encapsulants and adhesive can take place in one operation both saving time and energy.

[MORE ABOUT POWERTRAIN](#)

	Inverter / Converter	Electric Motor	On Board Charger (also wireless)	EV-Charging Stations (also wireless)
Potting				
Thermal Conductive Encapsulant				
SE3000	●●●	●●●	●●●	●●●
QSIL553	●●●	●	●●●	●●●
QSIL553LV	●●●	●●	●●●	●●●
QSIL550	●●●	●	●●●	●●●
Adhesive (Thermal Conductive)				
Gap Filler				
SilSo Cool 21005	●●			●●
1K-Addition Cure				
AS1420	●●●	●●		●●●
AS1421	●●●	●●		●●
RTV Adhesives				
SilSo Bond 14000	●●●	●●	●●●	●●
AS1701	●●●	●●	●●●	●●
AS1707	●●●	●●	●●●	●●
AS1802	●●●	●●	●●●	●●
AS1803	●●●	●●	●●●	●●

POW

	Inverter / Converter	Electric Motor	On Board Charger (also wireless)	EV-Charging Stations (also wireless)
Assembly				
RTV Adhesives				
AS1502 Gasket	●●	●●	●●	●●
AS1508 Gasket	●●	●●	●●	●●
AS1621 Gasket	●●	●●	●●	●●
AS1740	●●	●●	●●	●●
AS1800	●●	●●	●●	●●
AS1821	●●●	●●	●●●	●●●
AS2500 Gasket	●●●	●●●	●●●	●●●
AS5700	●●	●●	●●	●●
Adhesives Heat Cure				
AS1402	●●	●●		
SilSo Connect 21000	●●			

● possible in this application ●● often used for this application ●●● optimal product for this application



VERTIPAIN

THERMAL SYSTEM

Most electronic components produce heat when in use. The unwanted heat has to be dissipated away from the components to maintain performance and avoid premature failure of the components or device.

The need for efficient transfer of heat has become a key design requirement as components continue to reduce in size and increase in power. This is particularly apparent with microchip processors, LED's and power packs. Silicone polymers are loaded with microscopic, thermally conductive particles. The combination of the two, produce adhesives and

other compounds that give superior performance in flexibility, elongation and heat resistance when compared with other organic and epoxy based products. Selection of a suitable thermal transfer compound will depend upon the required thermal conductivity, mechanical constraints, operating environment and production methods. Within the SILCOTHERM® range there is a wide selection to choose from.

[MORE ABOUT THERMAL SYSTEM](#)

[MORE ABOUT AUTOMOTIVE](#)

	PTC Heater	Heaters
Potting		
Thermal Conductive Encapsulant		
SE3000	•	
Adhesive (Thermal Conductive)		
1K-Addition Cure		
AS1420	••	
AS1421	••	
RTV Adhesives		
SilSo Bond 14000	••	
AS1701	••	
AS1707	••	
AS1802	••	
AS1803	••	
RTV Adhesives		
SilSo Bond 21003	•••	•••
SilSo HPA 7212	•••	•••

THERMA

	Electric Compressor	Heaters
Assembly		
RTV Adhesives		
AS1502 Gasket	●●	
AS1508 Gasket	●●	
AS1621 Gasket	●●	
AS1740	●●	
AS1800	●●	
AS1821	●●	
AS2500 Gasket	●●●	
AS5700	●●	
Adhesives Heat Cure		
AS1402		●●

● possible in this application ●● often used for this application ●●● optimal product for this application



SYSTEM

ELECTRONICS

CHT provides a wide range of high performance neutral cure silicones for a variety of electronics applications. These can offer, depending on application, excellent sealing and bonding properties, chemical, temperature and flame resistance as well as thermal conductivity or insulation as required.

Our range of neutral cure products include encapsulants, adhesives, coatings and gap fillers suitable for both manual dispense and high speed automated processes.

[MORE ABOUT ELECTRONICS](#)

	Advance Driver Assistance System	Engine Control Unit	Passenger Protection Systems	Drive Support Systems	On Board Entertainment	Sensors	Brake System Unit
Potting							
Thermal Conductive Encapsulant							
SE3000	••	••	•	•	•		••
QSIL553	••	••	•	•	•		••
QSIL553LV	••	•••	•	•	•		••
QSIL550	••	••	•	•	•		••
Encapsulant Transparent							
QSIL 214						•	
QSIL216						•	
QLE 1102						•	
QSIL 223						•	
Adhesive (Thermal Conductive)							
1K-Addition Cure							
AS1420	••	•••	••	••	••		••
AS1421	••	••	••	••	••		••
RTV Adhesives							
SilSo Bond 14000	••	••	••	••	••	••	••
AS1701	••	••	••	••	••	••	••
AS1707	••	••	••	••	••	••	••
AS1802	••	••	••	••	••	••	•••
AS1803	••	••	••	••	••	••	••

ELECTRONICS



	Advance Driver Assistance System	Engine Control Unit	Passenger Protection Systems	Drive Support Systems	On Board Entertainment	Cable/Connectors	Sensors	Brake System Unit	Coating For Identification Number Of Engine
Assembly									
RTV Adhesives									
AS1502 Gasket	●●	●●	●●	●●	●●		●●	●●	
AS1508 Gasket	●●	●●	●●	●●	●●		●●	●●	
AS1621 Gasket	●●	●●	●●	●●	●●		●●●	●●	
AS1740	●●	●●	●●	●●	●●		●●	●●	●●●
AS1800	●●	●●	●●	●●	●●		●●	●●	
AS1821	●●	●●	●●	●●	●●		●●	●●	
AS2500 Gasket	●●●	●●●	●●●	●●●	●●		●●●	●●●	
AS5700	●●	●●	●●	●●	●●		●●	●●	
Adhesives Heat Cure									
AS1402	●●	●●	●●	●●	●●		●●	●●	
SilSo Connect 21000						●●●	●●●		
Protection									
Conformal Coating									
ACC15	●●●	●●●	●●●	●●●	●●●				
Encapsulant (Non-Thermal)									
TufGel 330	●●●	●●●	●●●	●●●	●●●		●		
Silcoset 101	●●●	●●●	●●●	●●●	●●●				
Silcoset 105	●●●	●●●	●●●	●●●	●●●				
Gel									
QGel 311	●●	●●	●●	●●	●●		●		
EGel3000	●●	●●	●●	●●	●●		●		

● possible in this application ●● often used for this application ●●● optimal product for this application

LIGHTING

CHT's optical-grade silicones for the lighting industry provide excellent heat-stability and perform with excellent transparency. The extraordinary aging resistance maintains stable transmittance over a long period of time. Optical-grade silicones work as protective barrier against moisture and other environmental contaminants when casted over LEDs.

With the latest innovation of SilSo™ Clear 21002, CHT has developed a highly transparent liquid silicone rubber (LSR) designed for the injection moulding of optical parts, suitable for challenging lightguides in car headlamps.

MORE ABOUT LIGHTING

	LED technology
Potting	
Thermal Conductive Encapsulant	
SE3000	●●
Encapsulant Transparent	
QSIL 214	●●●
QSIL216	●●●
QLE 1102	●●●
QSIL 223	●●●
QGEL 900-series	●●
SilSo Clear 21002	●●●
Adhesive (Thermal Conductive)	
Gap Filler	
SilSo Cool 21005	●●●
1K-Addition Cure	
AS1420	●
AS1421	●
RTV Adhesives	
SilSo Bond 14000	●
AS1701	●
AS1707	●
AS1802	●
AS1803	●

EV Battery

Assembly

Adhesives Heat Cure

SilSo Connect 21000

●●●

Protection

Gel

TufGel 330

●●

EGel3000

●●

● possible in this application ●● often used for this application ●●● optimal product for this application



LIGHTING

IT IS VERY IMPORTANT AT CHT, THAT WE HAVE A GLOBAL STRUCTURE. AS A CUSTOMER YOU HAVE ONE CONTACT PARTNER WHO ALWAYS PROVIDES YOU WITH ASSISTANCE AND SOLUTIONS.

Andreas Mumoth,

Global Head of Commercial
Silicone Elastomers Material Solutions

LEARN MORE
ABOUT OUR SiLS_o
APPLICATIONS

[Visit our website](#)

We live and think silicone.

As a strong international team, we are looking forward to being there for you and for all your future specialty silicone demands. We stand for innovation and customisation; thus, we are committed to finding the solution that is best for you and your individual requirements. Silicone chemistry and creative molecule design along with a strong focus on future technologies have always been our passion.

Silicone is our common language.

We are constantly on the road and active for you. No distance is too far for us and no challenge too high. It is our conviction that personal customer contact is the best way to find solutions for your unique requirements. Our technical experts and sales representatives will advise and support you competently and thoroughly, because we see your success as part of our responsibility. Due to our worldwide corporate network, we can offer you helpful information, technical support and the know-how for application wherever you are.

WE COVER EVERYTHING TOGETHER:
WE HAVE A TECHNICAL SERVICE THAT IS REALLY SPECIALISED IN APPLICATION. AND WE HAVE A RESEARCH & DEVELOPMENT DEPARTMENT THAT REALLY LOVES MAKING MOLECULES AND FINDING SPECIAL SOLUTIONS FOR EACH CUSTOMER.

Dr. Eva Jürgens,

Head Of Development Silicones
Industry Solutions

**OUR PASSION
FOR CUSTOMISED
SOLUTIONS**

Newest addition to the CHT Silicone Product Range: SilSo BOND 14000 – Are you ready for testing?

SilSo BOND 14000

A one component alkoxy-curing silicone with exceptional flame resistance. It cures to a tough, resilient elastomer and exhibits primerless adhesion to many substrates when cured at room temperature in the presence of atmospheric moisture.

The neutral curing chemistry allows this product to be safely used on sensitive substrates such as copper, copper alloys and polycarbonate with no detrimental effects or corrosion of the substrate. SilSo Bond 14000 is ideally suited for use in many applications including a permanent gasket to seal electrical units, a protective glob top of individual electrical components and a supporting coating or wire reinforced ducting for aviation air circulation systems.

Key features:

- ▶ Thixotropic, black paste
- ▶ Easily dispensed from a 310 ml cartridge
- ▶ Will self-extinguish within 10 seconds and will achieve UL94V-0 listing



WATCH THE FILM

ABOUT ADVANCED CHT SILICONE ELASTOMER SOLUTIONS

If you are interested in testing the material in your area of application or in adapting it to your specific requirements in a close partnership with us, please do not hesitate to contact us.

CHT's service team is looking forward to your inquiries

SEND MAIL

- ▶ Very good overlap shear adhesive strength to aluminium
- ▶ Electrical insulator with a high resistance of 1.2×10^{15} Ohm*cm
- ▶ Will not inhibit the curing platinum catalysed elastomers





09/2021

CHT

SMART CHEMISTRY
WITH CHARACTER.

www.cht-silicones.com