

**INDUSTRY  
SOLUTIONS**

**Material  
Solutions**

**CHT**

**SMART CHEMISTRY  
WITH CHARACTER.**

A hand is pointing towards a futuristic digital interface. The interface features a glowing blue background with white lines and icons. A car icon is highlighted within a circular glow, and a microchip icon is visible below it. The interface also displays some numerical data points like +20, +15, +10, 0, -5, and -10. The bottom right corner of the image is a solid red area with a white grid pattern.

# **SILICONES FOR ELECTRIC VEHICLES**

**THERMAL INTERFACE MATERIALS**

# MANUFACTURING SILICONE COMPOUNDS FOR OVER 40 YEARS

CHT have acquired an enviable reputation for producing high quality specialist chemicals which have been proven to perform to the highest standards in the most demanding applications. With the acquisition in 2017 of the ICM Silicones group, including ACC Silicones Ltd, Quantum Silicones and ICM Products, they have further enhanced their capabilities, industry knowledge and global reach within the silicone market. Key industries serviced include the aerospace, electronics and automotive industries.

CHT have extensive R&D facilities located throughout the world and much of our research work is focused on electrical and electronic applications developing coatings, thermal transfer compounds and neutral cure sealants. Our customer focused development programme and flexible production facilities enable us to keep pace with the needs of today's modern production methods and design requirements.

Qualified, experienced sales and technical staff are readily available to make site visits to advise on product selection and production methods. Our expertise extends into all areas of 1 and 2 part RTV silicone chemistry with a strong bias towards application based solutions.

The enlarged CHT silicones expertise enables our customers to benefit from technical and manufacturing support within Europe, China and the USA.

## BESPOKE SERVICE

Our adaptable facilities based upon batch production allow us to offer formulations developed to meet very specific application requirements. Subject to strict commercial evaluation we can chemically engineer our products and change any of the following properties:

- ▶ Rheology – paste to free-flowing low viscosity
- ▶ Cure speed and tack free times
- ▶ Thermal conductivity
- ▶ Hardness
- ▶ Colour
- ▶ Operating temperature range
- ▶ Cure mechanism
- ▶ Packaging and delivery systems

**We are CHT, Smart Chemistry with Character.  
Together with ICM, ACC and QSi we are the most customer  
centric specialty silicones expert. We are committed to  
finding your individual solution.**

**CHALLENGE US NOW!**

**Get in touch with us!  
[silicone-experts.cht.com](http://silicone-experts.cht.com)**



# SILCOTHERM®

The CHT range of **SILCOTHERM®** thermally conductive materials has been specially formulated to aid the efficient transfer of heat away from sensitive electronic components to maintain their performance and increase their lifespan, whilst at the same time providing protection from environmental contamination and vibration.

The **SILCOTHERM®** range includes:

### ADHESIVE SEALANTS:

- ▶ Provide a seal against moisture & other contaminants while dissipating heat away from components
- ▶ Available in both 1 & 2-part systems
- ▶ Room temperature or heat cure

### GAP FILLERS:

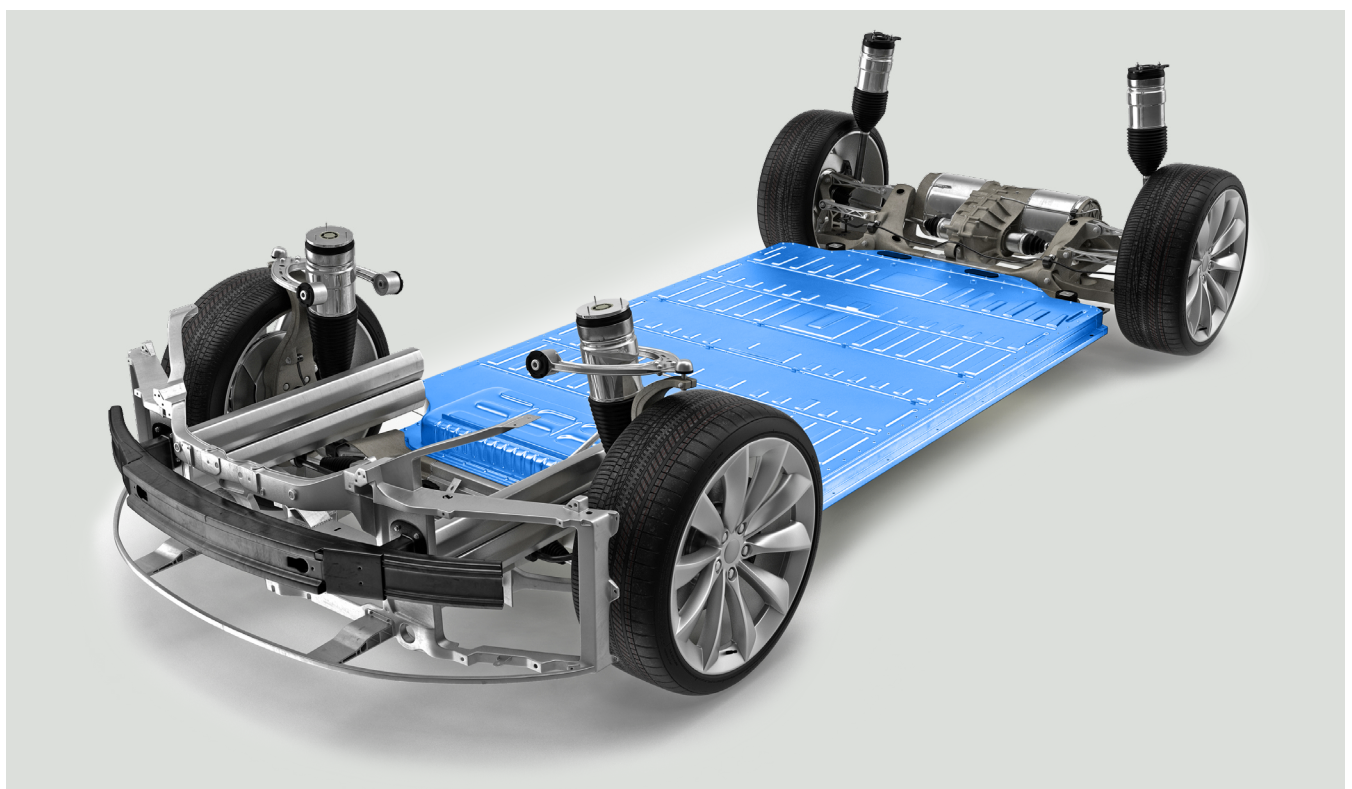
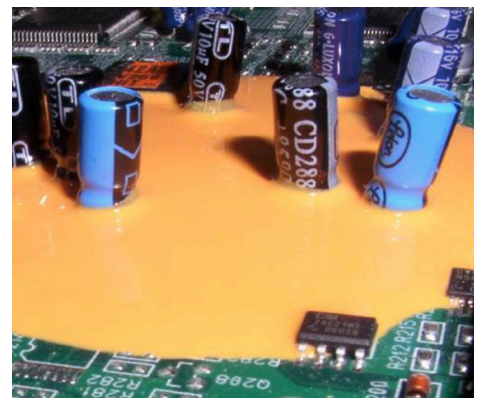
- ▶ Designed to be used where there is wide gap between components & heat sinks
- ▶ Remain flexible over a wide temperature range for a good interface without creating stress fractures
- ▶ Provided in a convenient twin cartridge system for ease of application

### ENCAPSULANTS & POTTING COMPOUNDS:

- ▶ Flowable silicones which facilitate the removal of air gaps around components
- ▶ Provide an effective path for the transmission of unwanted heat
- ▶ Offer protection from harsh environments, vibration & thermal shock

### HEAT SINK GREASES/COMPOUNDS:

- ▶ Thermal transfer compounds which are non-setting, have no adhesion & retain their physical properties
- ▶ Ideal for when there is a requirement for a very thin layer of material
- ▶ Fill uneven surfaces, eliminate air gaps & therefore improve heat dissipation



# SILICONES FOR ELECTRIC VEHICLES

## CHALLENGES

Advances in Electric Vehicle design continue to reduce component size and increase power output, resulting in an ever-increasing demand for greater protection and better heat dissipation to maintain performance and life span.

### FUNCTIONALITY REQUIREMENTS:

- ▶ More efficient heat dissipation
- ▶ Increase in thermal conductivity
- ▶ Electrical insulation

### PROTECTION FROM:

- ▶ Moisture and corrosive substances
- ▶ Thermal stress
- ▶ Vibration and mechanical shock
- ▶ Electrical short circuits

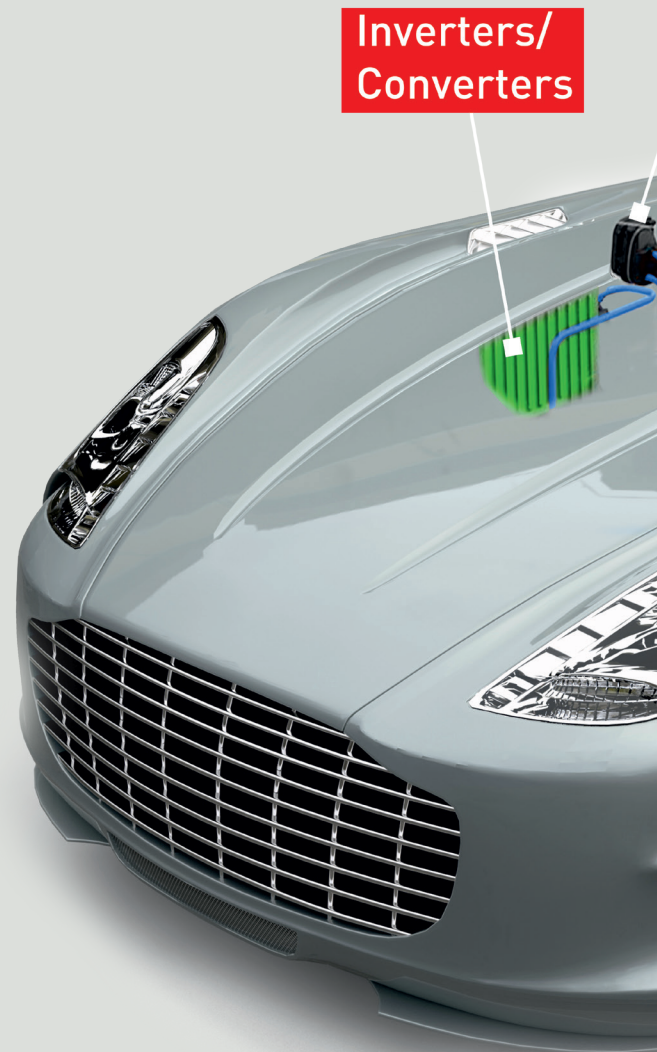
## SOLUTIONS

Silicone chemistry is widely used within current automotive applications due to its inherent physical properties including:

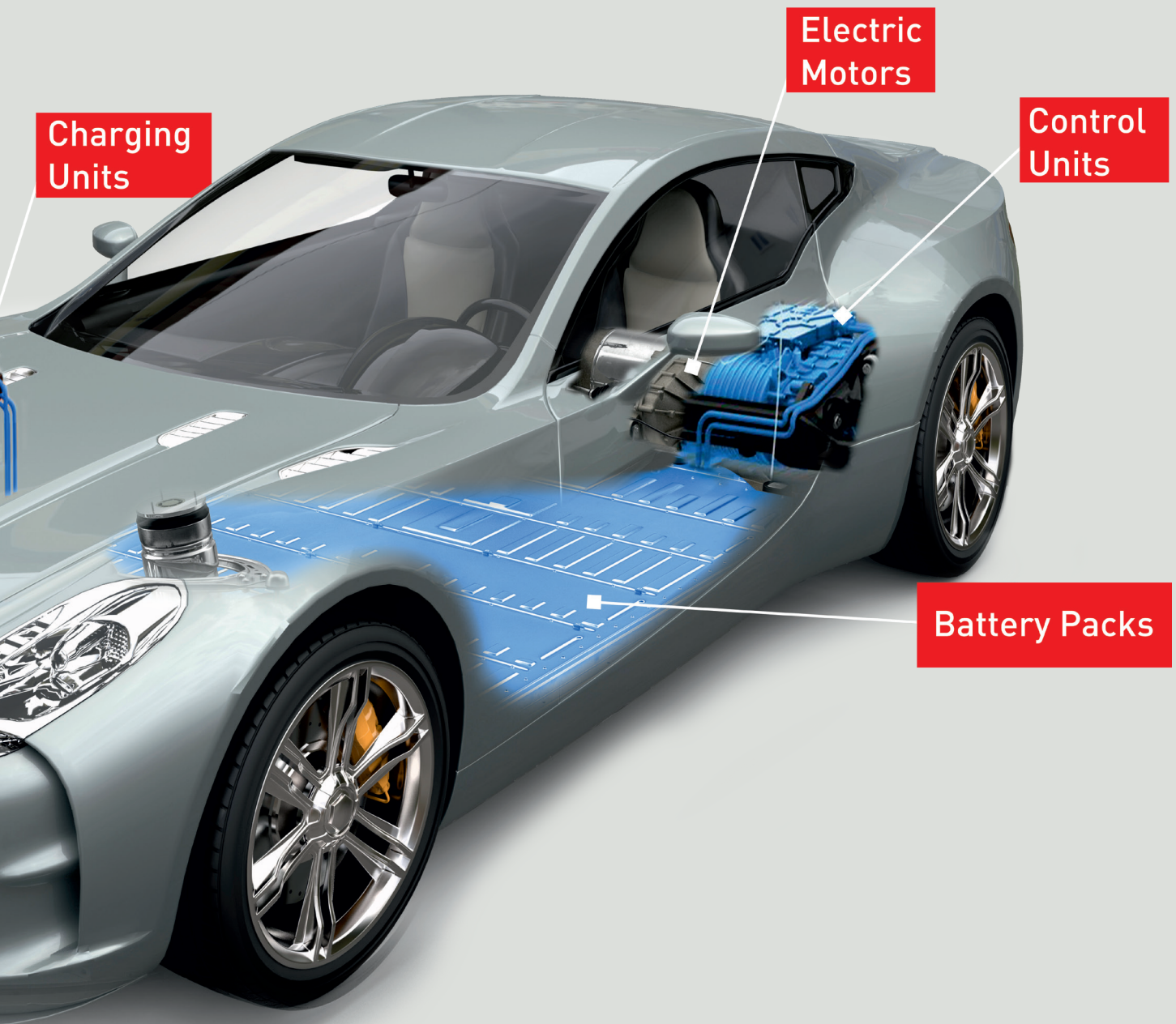
- ▶ Wide operating temperatures ranging from -60 to +300 C
- ▶ Electrically insulating - high dielectric strength
- ▶ Low coefficient of thermal expansion
- ▶ Moisture and chemical resistance

Our new filler technologies together with formulating techniques are increasing thermal conductivity across a range of materials including:

- ▶ Gap fillers
- ▶ Adhesive sealants
- ▶ Potting compounds
- ▶ Heat sink greases and pastes
- ▶ Gels



## APPLICATIONS





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