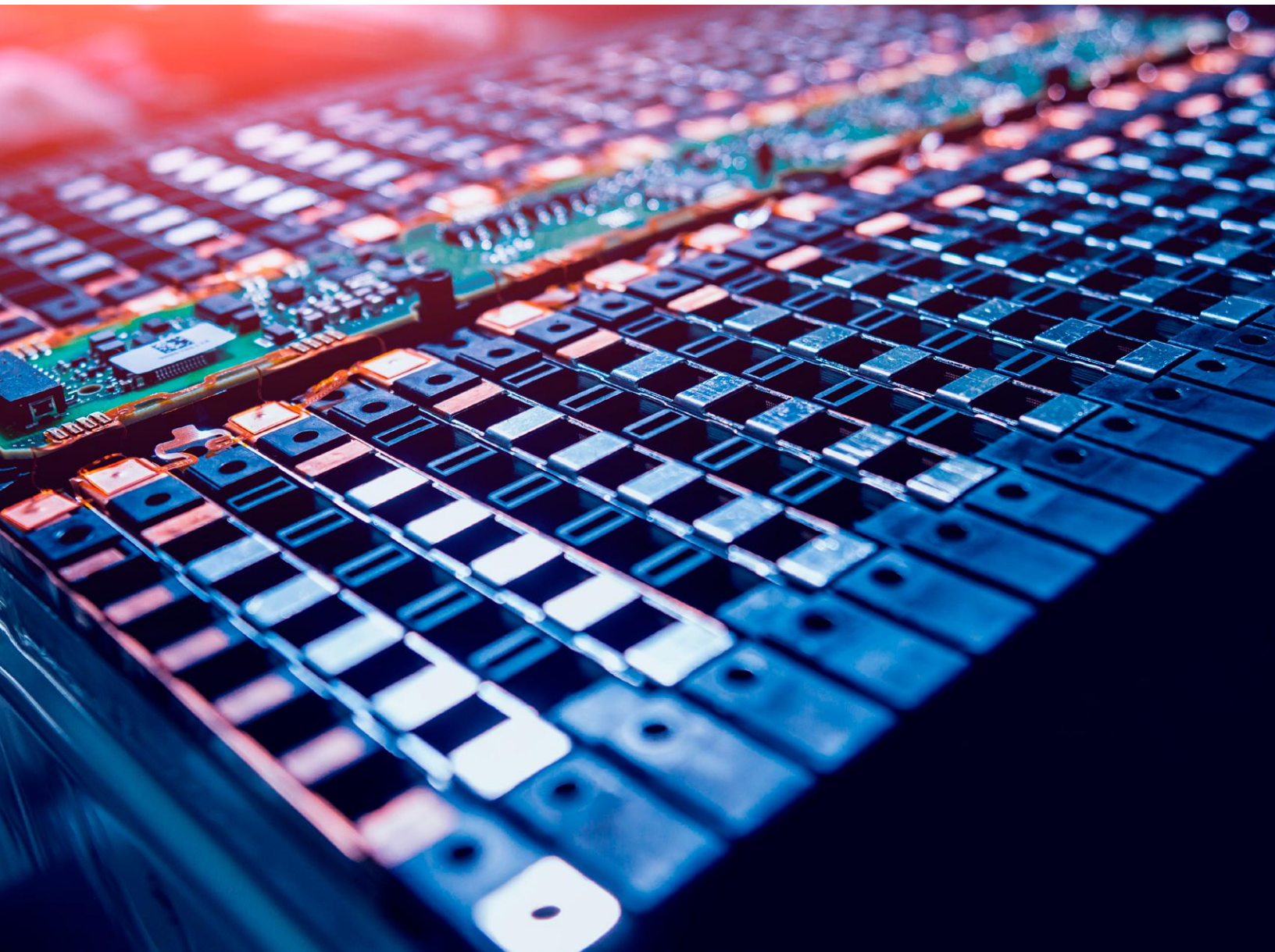


**PLEXUS**

**INSULCAST**

**Devcon**

## Adhesive & Potting Solutions for Electric Vehicles



**TW**





## Introduction

The automotive industry is going through significant transformation. Consumers today are increasingly socially and environmentally conscious, creating a growing demand for energy-efficient vehicles. As a result, investments are being made globally in the design and development of electric vehicles. Designers are innovating with new and non-traditional materials and chemistries to achieve required performance targets.

Vehicle lightweighting and thermal management are key areas of research and development. That's where the Insulcast and Plexus range of products can play an important role overcoming difficult engineering challenges.

Insulcast potting and encapsulation compounds are specifically developed to protect components in applications such as heat sink bonding, surface mount, and die attach, while meeting the challenges of heat dissipation, improving performance and longevity of the device.

The Plexus range of adhesives bond most thermoplastics, metals, and composite materials providing greater design freedom and manufacturing flexibility. They require little or no surface preparation and have excellent fatigue resistance.

Devcon brand epoxies and UV acrylics have unique process improvements in consumer electronics that scale nicely to fit automotive applications.

### ITW PERFORMANCE POLYMERS

Global Manufacturing Sites

Custom Formulated Solutions

Dedicated Sales & Technical Team

In-House Material Testing

Wide Range of Chemistries

## Benefits



### DURABILITY

Plexus structural adhesives have excellent strength, elongation and fatigue resistance. By distributing stress and reducing point loads, assemblies see improvements in long term durability.



### LIGHTWEIGHTING

Plexus structural adhesives cure quickly at room temperature and have primerless adhesion to multiple substrates. This allows for mixed material construction and lighter weight EVs.



### TIME SAVINGS

Plexus and Insulcast products are designed for fast robotic application. The cure kinetics are optimized for fast room temperature cure, which eliminates ovens and saves on floor space. Primer-less adhesion reduces the number of steps to assemble.



### FLAME PROTECTION

Insulcast and Plexus offer products tailored to be UL94 V-0 or contribute to assemblies that are UL94 V-0.



### THERMAL MANAGEMENT

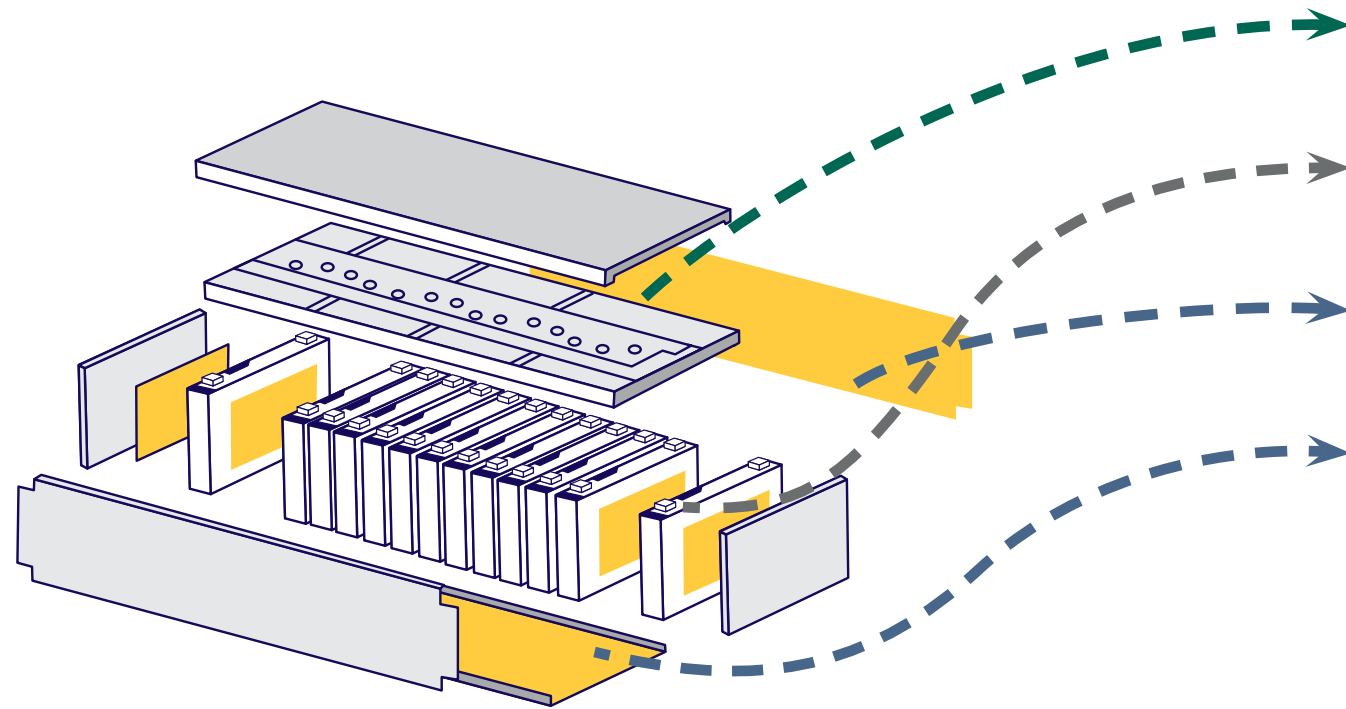
Plexus offers thermally conductive structural adhesives that not only distribute stress, but help manage thermal output. Insulcast has a range of thermally conductive, electrically insulating potting compounds used to reduce the chance of thermal runaway.



### ENVIRONMENTAL RESISTANCE

Plexus and Insulcast products are designed to withstand rigorous environmental exposure. By utilizing these adhesive and potting compounds the component life in the battery module and pack can be extended.

# Module Applications



## Potting Circuit Boards

Cell to Cell

Cell to Side Plate

Cell to Bottom Plate

**Environmental Protection**  
 Insulcast Epoxy  
 Insulcast Silicone

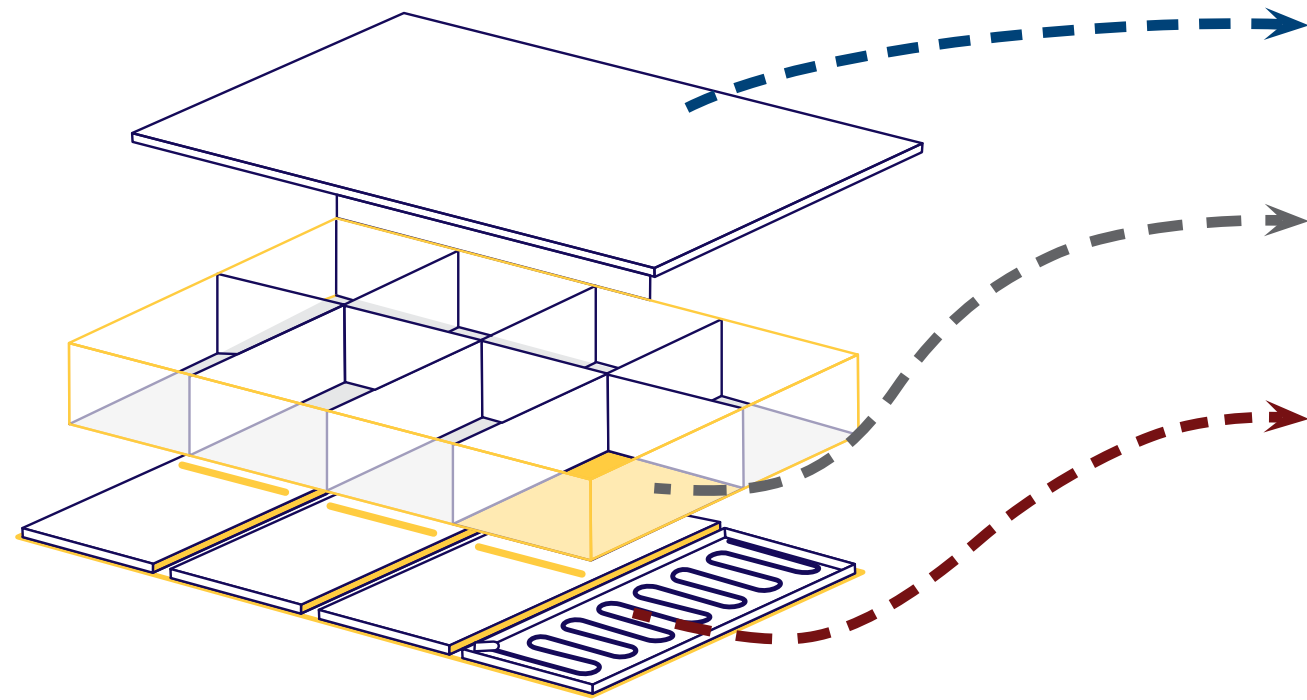
**Vibration Management**  
 Plexus 2K PU  
 Plexus 2K Acrylics

**Thermal Management**  
 Plexus 2K PU  
 Insulcast Epoxy  
 Insulcast Silicone

Application	Cell to Cell			
	Cylinder or Prismatic			Pouch
Selection Criteria	Fast, Rigid	Highly Flexible	Toughened	PSA
Product Name	Plexus PU2105	Plexus PU2325	Plexus MA8110	Devcon PSA 4500
Product Info	2K PU Direct to Metal High Modulus Fast RT Cure	2K PU Direct to Metal Low Modulus Long Open Time	2K MMA Direct to Metal High Toughness Fast RT Cure Off Ratio Tolerant	UV Cure PSA Reduces Waste No Viscosity Build Cures in Seconds
Key Substrates	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Aluminum Nickel Coating E-Coat Powdercoat Nylon	Treated PET Aluminum Nickel Coating E-Coat Powdercoat
Regional Availability	Global	Asia Samples: EMEA, NA	NA, EMEA Samples: Asia	NA, Asia Samples: EMEA

Cell to Housing			Potting	
Fast, Rigid	Thermal	Nylon Bonding	Epoxy	Silicone
Plexus PU2105	Plexus PU2435	Plexus MA8110	Insulcast 140FR	RTVS 27FC
2K PU Direct to Metal High Modulus Fast RT Cure	2K PU Direct to Metal 1.79 g/ml 1-1.2 W/m·K	2K MMA Direct to Metal High Toughness Fast RT Cure Off Ratio Tolerant	2K Epoxy 50,000 cP 2.3 W/m·K UL 94 V-1	2K Silicone 2,900 cP 0.31 W/m·K 5 min gel time
Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Aluminum Nickel Coating E-Coat Powdercoat Nylon	PBC Nylon PC Aluminum	PBC Nylon PC Aluminum
Global	Asia Samples: EMEA, NA	NA, EMEA Samples: Asia	Global	Global

# Pack Applications



Pack Sealing

Pack Bonding

Thermal Management

**Environmental Protection**  
 Plexus Hybrid  
 Plexus 2K Acrylics

**Lightweighting**  
 Plexus 2K PU  
 Plexus 2K Acrylics

**Thermal Management**  
 Plexus 2K PU  
 Insulcast Silicone  
 Insulcast Epoxy

Application	Pack Bonding		
Selection Criteria	High Toughness	High Elongation	CTE Mismatch
Product Name	Plexus MA8110	Plexus PU2325	Plexus MA3940LH
Product Info	2K MMA Direct to Metal Medium Modulus Fast RT Cure 40-80% Elongation	2K PU Direct to Metal Low Modulus Long Open Time 150% Elongation	2K MMA High Elongation Fastest RT Cure Low Modulus
Key Substrates	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Powdercoat Aluminum ABS PC
Regional Availability	NA, EMEA Samples: Asia	Asia Samples: EMEA, NA	Global

Thermal Management		Pack Sealing	
Repairable	Structural	Fast RT Cure	Isocyanate Free
Insulcast 3-95-2	Plexus PU2435	Plexus MA320	Plexus H4110
2K Silicone 35,000 cP 1.44 W/m*K UL 94 V-0 Low Viscosity	2K PU Direct to Metal 1.79g/ml 1.0 W/m*K	2K MMA 10 min Open Time Medium Modulus Fast RT Cure	2K Hybrid 10 min Open Time Fast RT Cure Low Modulus 150% Elongation
Aluminum Nickel Coating E-Coat Powdercoat	Treated PET Aluminum Nickel Coating E-Coat Powdercoat	Powdercoat E-Coat SMC	Powdercoat E-Coat SMC Aluminum Stainless
Global	NA, EMEA Samples: Asia	Global	Global



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