Tape Solutions for EV Charging Stations

SAINT-GOBAIN

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Saint-Gobain® offers a wide range of solutions for enhancing EV charging infrastructure such as **Norseal**® Gasketing Foams, **ThermaCool**® Thermal Interface Materials, **CHR**® Pressure Sensitive Adhesive Tapes and **Norbond**® Bonding Tapes. The **Norseal** Series is ideal for providing protection from extreme environmental exposures at component interfaces and equipment enclosures. The **ThermaCool** product line offers a range of solutions that dissipate excess heat generated by high power electrical components during charging cycles. **CHR** Tapes have proven performance in a wide range of insulation and wire harness applications. Finally, the **Norbond** Series is an excellent option for permanent adhesive bonding such as for emblems, exterior attachments and structural panels.

Enclosure Sealing

Products: Silicone Foam Rubber, Microcellular Polyurethane Foam
Function: Seal out environmental factors like air, dust and water
Features: Wide range of thicknesses & compression force, excellent compression set resistance

Silicone Foam Rubber: **Norseal** F-15 and F-20 are soft, lightweight silicone foams that provide excellent flame resistance with low toxicity and smoke generation, meeting the highest flame rating of UL94 V-0. **Norseal** F-15 and F-20 provide a range of compression force for diverse applications. **Norseal** 515GF and 520GF provide all the same benefits of silicone foam in an easy-to-apply, pressure sensitive tape form.

Microcellular Polyurethane Foam: **Norseal** FS1000 is an intumescent polyurethane foam with a unique combination of sealing properties. It conforms to uneven surfaces and can be easily compressed with minimal force to create air and watertight seals. When heated above 200°C, FS1000 creates a fire resistant, smoke blocking char. **Norseal** PS-V0 is a compressible polyurethane-based foam for power electronics sealing applications, such as inverters and cable penetrations. In addition to its excellent water-sealing properties respecting IP-X7, this product passes the requirements of UL94 V-0 and features a very low compression set. PS-V0 is the ideal choice for sealing applications up to 70°C.

Enclosure Sealing Material Selection Guide

Material	Product Code	Thickness Range (mm)	Flame Performance	Compression Set++	Density (kg/m³)	CFD (kPa)	Key Features	Available Options
Silicone Foam Rubber	F-15	1–3.2	UL94 V-0	< 10%	240	40*	Low density and low compression set	Acrylic PSA version (515GF)
	F-20	0.8, 1.6, 3.2, 4.8, 6.4, 9.6, 12.7			320	70*	Medium density and low compression set. UL 50E and UL 508 rated	Acrylic PSA version (520GF)
Microcellular Polyurethane Foam	FS1000	4.5, 6, 9			240	5–15**	Intumescent, air-tight, watertight	Permanent PET liner
	PS-V0	6, 9, 12			250	30**	Low density and water tightness	Acrylic PSA version
		3.5, 6, 8			350	70**	Medium density and water tightness	

* 50% compression per ASTM D1056. ** 30% compression per ASTM D1667. ++ Refer to individual data sheets for specific test conditions and typical values.

Thermal Interface Management

Products: Silicone Gap Pads, Thermally Conductive Silicone Sponge Rubber, Thermally Conductive Transfer Adhesive
Function: Thermal management
Features: Range of thermal conductivities with excellent electrical insulation

Silicone Gap Pads: **ThermaCool** TC Series is comprised of soft ceramic-filled silicone elastomer-based gap pads with excellent electrical isolation properties and flame performance to UL94 V-0. The TC Series provides options to customize several characteristics for ease of assembly and rework, without compromising thermal conductivity and electrical isolation properties.

Thermally Conductive Silicone Sponge Rubber: **ThermaCool** R10404 is a thermally conductive closed-cell silicone sponge rubber. This material offers thermal conductivity, electrical isolation and compression set resistance (vibration absorption). Its unique features make it an ideal gap filler for vibration sensitive heat transfer applications.

Thermally Conductive Transfer Adhesive: **ThermaCool** TR3 is a unique thermally conductive, pressure sensitive, acrylic transfer adhesive. The adhesive is supplied with two release liners. This material provides an easy method for adding an adhesive layer to silicone gap filler materials and thermally conductive fabrics. The adhesive can also be used in place of mechanical fasteners to bond heat sinks to components.

Thermal Interface Material Selection Guide

Material	Product Code	Thickness Range (mm)	Flame Performance	Thermal Conductivity (W/m-K)	Density (kg/m³)	CFD (kPa)	Key Features	Available Options
Silicone	TC2006	0.5–7	UL94 V-0	1.6	1940	206	Low application pressure	Customizable sheet size and liner options
	TC2008	0.5–7		2	2130	234	Excellent TC, low density & low oil bleeding	
	TC3007	0.5–7		3	2840	227	High-performance TC with low oil bleeding	
	R10404	0.8–6.4	UL94 V-0+	0.9	1105	125	Multi-functional: thermally conductive, electrically insulating, conformable	Silicone or acrylic PSA
Acrylic	TR3	0.8	—	0.4	—	—	Dual liner for ease of application	—

+ With ThermaCool TR3 adhesive.

Electrical Insulation and Shielding

Products: PTFE, Polyimide, PET, Glass Cloth, and Copper Foil tapes with silicone/acrylic pressure sensitive adhesive
Function: High temperature electrical insulation and electronic shielding
Features: Range of high-performance materials with UL recognition

High-performance electrical insulation and shielding products are available to fit specific application and budget needs. Fluoropolymer adhesive tapes are produced from PTFE and FEP film backings and are tailored to provide varying levels of tensile strength, conformability and dielectric strength. Polyimide film tapes provide superior mechanical and electrical insulation performance, while glass cloth and PET insulating tapes are a more economical option at lower service temperatures. Our insulating and shielding tapes are available with high temperature silicone, acrylic and thermosetting rubber adhesive options.

Electrical Insulation and Shielding Material Selection Guide

Material	Product Code	Total Thickness (mm)	Adhesive	Thermal Class (°C)	Key Features	Common Applications
PTFE	2255	0.089, 0.114	Silicone	Class H (180)	High dielectric and tensile strength, continuous duty temperature 260°C (500°F)	High temperature insulation and cable bundling
Polyimide	2345	0.064, 0.089	Silicone	Class H (180)	High dielectric and tensile strength, continuous duty temperature 260°C (500°F)	Applications requiring holding, insulating, or wrapping, gold finger protection during wave soldering
Glass Cloth	GL.94	0.165	Acrylic	Class F (155)	Abrasion, puncture and tear resistant for all applications where mechanical and thermal resistance are required	Transformer coil wrapping, cable harnesses
PET	P.34	0.064	Acrylic	Class B (130)	High tack with good adhesion on many types of materials, excellent conformability, breakdown voltage and tensile strength	Transformer insulation (typical in smaller dry type transformers or toroidal coils)
Copper Foil	C665	0.089	Electrically conductive acrylic	UL Guide OANZ2, File E51201 and UL 510 flame retardant	The copper foil and adhesive are both electrically conductive and the release liner aids in die cutting	Shielding and static dissipation applications: IC chips, electrical cabinets, cables, motors

Component Attachment and Lamination

Products: Acrylic Transfer Adhesive, Film Supported Transfer Adhesive, Polyurethane Bonding Tape
Function: Fastener-free attachment of emblems, exterior elements and structural components
Features: Quick-stick application, adhesion to silicones and low surface energy substrates

Acrylic Transfer Adhesive: **Biolink**® 80HS FR is a transparent, flame retardant rated acrylic transfer adhesive, with excellent performance on low surface energy materials.

Film Supported Transfer Adhesive: **CHR** 8650 and 8822 are specially designed for bonding low surface energy materials. 8650 is a film supported acrylic/silicone adhesive. 8822 is a film supported, two-side coated, silicone adhesive. These products together provide solutions to difficult material bonding applications where one or both surfaces have low surface energy such as silicone.

Polyurethane Bonding Tapes: **Norbond** V2800 Series Bonding Tapes combine a black polyurethane foam substrate with a high-performance, pressure sensitive acrylic adhesive on both sides. The foam substrate allows energy and stress in the joint to be dissipated over the entire bond.

Component Attachment and Lamination Material Selection Guide

Material	Tape Construction	Product Code	Thickness Range (mm)	Color	Key Features	Common Applications
Acrylic Transfer Adhesive	Acrylic transfer	80HS FR	0.08	Clear	Halogen free/flame retardant unsupported transfer	Component bonding, foam lamination
Film Supported Transfer Adhesive	PET film with silicone and acrylic adhesive on opposite sides, with dual release liners	8650	0.1	Clear	High chemical and ageing resistance. Primerless lamination to silicone materials	Bonding of a wide range of materials, including silicone gaskets and profiles
	PET film with silicone adhesive on both sides, with a single release liner	8822	0.1	Green		
Polyurethane Bonding Tape	PUR foam with acrylic adhesive on both sides	V2800	0.8–3	Black	UL746C	Component bonding

Your Partner in Custom Tape Solutions

A custom tape solution can pay for itself many times over thanks to the process and product improvements it can provide. Tape development engineers will work with partners to design an economical but highly effective tape product.

Even with endless permutations of industrial tapes available there is only one company that can deliver a custom-made tape with optimal adhesive, the perfect backing materials, seamless process integration and superb performance.

To learn more about how **Saint-Gobain** can help solve tape and materials engineering challenges, call us or visit us online.

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