

# AstroChemical

Solutions Through Chemistry

## Generator & Motor Materials

PRODUCT LINE OVERVIEW



| Typical Use                             | Cure Type   | Operating Class | Area of Use | Typical Generator/Motor Application   | Product Number             |
|---|-------------|-----------------|-------------|---|----------------------------|
| <b>POTTING &amp; ENCAPSULATION</b>      |             |                 |             |   |                            |
| <b>High Voltage Connections</b>         | Room Temp   | <b>Class B</b>  | Stator      | <b>Pourable</b> epoxy for potting stator bar connections, typically bottom caps in hydro generators. Formulated for high mechanical strength to withstand thermal cycling.                  | <b>3060</b>                |
|   | Room Temp   | <b>Class B</b>  | Stator      | <b>Very thick, non-sagging</b> epoxy used for potting stator bar connections, typically top caps in hydro generators. Formulated for high mechanical strength to withstand thermal cycling. | <b>3190</b>                |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Pourable</b> epoxy for potting stator bar connections of steam, gas, and hydro generators. Formulated for high mechanical strength to withstand thermal cycling.                         | <b>3170</b><br><b>6979</b> |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Very thick, non-sagging</b> epoxy used for potting stator bar connections, typically top caps in hydro generators. Formulated for high mechanical strength to withstand thermal cycling. | <b>6980</b>                |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Thixotropic, non-sagging</b> epoxy for potting stator bar connections of steam and gas turbine generators. Formulated for high mechanical strength to withstand thermal cycling.         | <b>3169</b><br><b>3375</b> |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Thermally conductive, non-sagging</b> , for potting stator bar connections of steam and gas turbine generators. Formulated for high mechanical strength to withstand thermal cycling.    | <b>3475</b><br><b>3480</b> |
| <b>HV Bushings &amp; Insulators</b>     | Room Temp   | <b>Class B</b>  | HVB         | <b>Pourable, glass-reinforced</b> , used in bonding porcelain to metal flange around stand-off insulators. Exhibits excellent mechanical strength and thermal cycling characteristics.      | <b>6100</b>                |
|   | Room Temp   | <b>Class F</b>  | HVB         | <b>Pourable, glass-reinforced</b> , used in bonding porcelain to metal flange around stand-off insulators. Exhibits excellent mechanical strength and thermal cycling characteristics.      | <b>6150</b>                |
| <b>Glands &amp; Enclosures</b>          | Room Temp   | <b>Class B</b>  | Multiple    | <b>Flame-retardant</b> (UL 94V-0 flammability rated) gland sealant for potting wiring conduits, glands, and explosion-proof electrical components.  | <b>6804</b>                |
| <b>Felt &amp; Blocking Installation</b> | Heat / Bake | <b>Class F</b>  | Stator      | <b>Medium viscosity</b> epoxy for installing and securing impregnated felt and blocking between stator bars and end-winding support structures.   | <b>6929</b>                |

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|---|-------------|-----------------|-------------|---|-----------------------------|
| <b>FLOODING &amp; BONDING</b>                 |             |                 |             |   |                             |
| <b>Flooding, Taping, &amp; Blocking</b>       | Room Temp   | <b>Class B</b>  | Stator      | <b>Low viscosity</b> epoxy for felt saturation, blocking, taping, and flooding of end-windings.   | <b>3247</b>                 |
|   | Room Temp   | <b>Class B</b>  | Stator      | <b>Medium viscosity</b> epoxy for felt saturation, blocking, taping, and flooding of end-windings.  | <b>3104</b>                 |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Low viscosity</b> epoxy for felt saturation, blocking, taping, and flooding of end-windings.   | <b>6415</b><br><b>6269L</b> |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Medium viscosity</b> epoxy for felt saturation, blocking, taping, and flooding of end-windings.  | <b>6269</b>                 |
| <b>High Temperature Insulating</b>            | Heat / Bake | <b>Class H</b>  | Stator      | Single part, solvent based epoxy <b>insulating varnish</b> with <b>high temperature resistance</b> .  | <b>3406</b>                 |
| <b>SATURATING &amp; 'WET TYING'</b>           |             |                 |             |   |                             |
| <b>Wicking &amp; Consolidation</b>            | Room Temp   | <b>Class B</b>  | Stator      | <b>"Red Eye" weeping epoxy</b> for coating and saturating stator end-windings, filling small voids to bond and consolidate insulation. Ideal for bonding stator core laminations.         | <b>6250</b><br><b>3093</b>  |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>"Red Eye" weeping epoxy</b> for coating and saturating stator end-windings, filling small voids to bond and consolidate insulation. Ideal for bonding stator core laminations.         | <b>6414</b>                 |
|   | Room Temp   | <b>Class F</b>  | Multiple    | Low viscosity <b>semi-resilient epoxy for saturating</b> structural composites and/or insulation where a tough, high-strength resin is needed to saturate porous or laminated substrates. | <b>6413</b>                 |
| <b>Saturating Stranding, Tapes &amp; Felt</b> | Room Temp   | <b>Class F</b>  | Stator      | <b>Low viscosity 'Wet Tie' epoxy</b> , used to saturate stranded glass roving, tapes, and felt for tying and blocking.  | <b>6415</b>                 |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Medium viscosity 'Wet Tie' epoxy</b> , used to saturate stranded glass roving, tapes, and felt for tying and blocking.   | <b>6269</b>                 |
|   | Room Temp   | <b>Class F</b>  | Stator      | <b>Low viscosity 'Wet Tie' polyester</b> used to saturate stranded glass roving, tapes, and felt for tying and blocking.  | <b>3109</b><br><b>6021</b>  |
|   | Heat / Bake | <b>Class F</b>  | Stator      | <b>Heat cure 'B-stage' epoxy</b> used to saturate Dacron felt, braded glass tapes, and stranded glass rovings (105°C cure material).  | <b>3166</b>                 |
|   | Heat / Bake | <b>Class F</b>  | Stator      | <b>Polyester dip coating</b> for motor, generator, transformer, and magnet coils. <b>Laminating varnish</b> for glass cloth and tapes.  | <b>3405</b>                 |

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|---|-------------|-----------------|----------------|--|---|
| <b>Gap Filling &amp; Potting</b>                        | Room Temp   | <b>Class B</b>  | Stator         | <b>Low viscosity</b> epoxy ideal for filling, potting, and consolidating gaps, narrow spaces and voids. Excellent chemical resistance.   | <b>6946</b>                                     |
| <b>Wet Winding</b>                                      | Heat / Bake | <b>Class F</b>  | Multiple       | <b>'Wet-winding' epoxy</b> for use on rotating or stationary field coils (pole pieces). Excellent for use in the impregnation, bonding, and sealing of electrical and mechanical components.           | <b>2530</b>                                     |
| <b>ADHESIVES</b>  |             |                 |                |  |   |
| <b>Pastes for securing wedges, bolts &amp; hardware</b> | Room Temp   | <b>Class B</b>  | Stator         | General purpose <b>'Peanut Butter'</b> epoxy paste typically used as a 'hardware epoxy' for locking end-wedges, bolts, and filling larger gaps and voids in Class B and Class F generators and motors. | <b>6000</b>                                     |
|   | Room Temp   | <b>Class B</b>  | Stator         | <b>Thicker version of 6000</b> with a greater sag/slump resistance. Ideal for use on vertical or inverted surfaces where the adhesive must remain in place as applied.                                 | <b>6200</b>                                     |
|   | Room Temp   | <b>Class F</b>  | Stator         | <b>Class F version of 6000.</b> Epoxy paste typically used for locking end-wedges, bolts, and filling larger gaps and voids. Excellent general purpose adhesive.                                       | <b>6422</b>                                     |
| <b>Bonding Rubber Seals &amp; Baffles</b>               | Room Temp   | <b>Class F</b>  | Stator / Frame | Flexible, thixotropic, <b>epoxy adhesive for bonding porous substrates</b> and most elastomers, including butyl and neoprene rubber to metal parts.  | <b>6001</b>                                     |
| <b>General Purpose, Multi-Substrate</b>                 | Room Temp   | <b>Class B</b>  | Multiple       | <b>Flowable epoxy adhesive</b> exhibiting outstanding flexibility, resilience, peel strength, and excellent multi-substrate adhesion.  | <b>MB-14X</b>                                   |
|   | Room Temp   | <b>Class B</b>  | Multiple       | Thick, filled adhesive exhibiting outstanding <b>flexibility, resilience, peel strength,</b> and excellent <b>multi-substrate adhesion.</b>  | <b>MB-127</b>                                   |
|   | Room Temp   | <b>Class B</b>  | Multiple       | <b>Very thick, cartridge-based, paste adhesive</b> exhibiting outstanding flexibility, resilience, and peel strength. Typically used for bonding metals, plastics, composites and wood.                | <b>6421</b>                                     |
|   | Room Temp   | <b>Class F</b>  | Multiple       | <b>Excellent general purpose, multi-substrate adhesive,</b> used throughout generator and motor winding assemblies. MB-300XC is available in cartridge delivery with mixing applicator nozzle.         | <b>MB-100X</b><br><b>MB-300X</b>                |
| <b>Fast Curing, Multi-Purpose</b>                       | Room Temp   | <b>Class B</b>  | Multiple       | <b>Thixotropic, quick-curing multi-substrate epoxy adhesive</b> for use over a wide temperature range.   | <b>3328</b><br><b>3909</b>                      |
|   | Room Temp   | <b>Class F</b>  | Multiple       | <b>Medium viscosity, quick-curing multi-substrate adhesive</b> for quick bonding, insulating, patching, and filling repairs.   | <b>MB-165</b><br><b>MB-175</b><br><b>MB-185</b> |

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|---|-------------|-----------------|----------------|--|----------------------------|
| <b>Insulation Taping</b>                    | Room Temp   | <b>Class F</b>  | Stator         | <b>Adhesive</b> for dry mica & glass tapes   | <b>6932</b>                |
|   | Heat / Bake | <b>Class F</b>  | Stator         | <b>Flexible</b> "baking" resin used for insulation taping. Requires heat for curing (>175°C).  | <b>3115</b>                |
| <b>Bonding Insulation To Copper</b>         | Heat / Bake | <b>Class F</b>  | Rotor          | <b>Single-component epoxy</b> which forms a 'B-stage' coating when allowed to dry. <b>Dry to the touch when B-staged</b> to allow movement of coated parts, prior to bake and bonding.                   | <b>3096</b><br><b>6229</b> |
|   | Heat / Bake | <b>Class F</b>  | Rotor          | <b>Single-component epoxy</b> which forms a 'B-stage' coating when allowed to dry. <b>Tacky when B-staged</b> to stick/secure coated parts in place to prevent movement, prior to bake and bonding.      | <b>6271</b>                |
|   | Room Temp   | <b>Class F</b>  | Stator / Rotor | Two-component, faster cure epoxy adhesives for bonding various forms of electrical insulation to copper. Multiple viscosities and cure times available.  | <b>Multiple</b>            |
| <b>FILLING &amp; CONFORMING</b>             |             |                 |                |  |                            |
| <b>Smoothing Edges &amp; Transitions</b>    | Heat / Bake | <b>Class F</b>  | Stator         | <b>"Bar Seal" polyester</b> compound used to even out irregular shapes prior to taping stator bars. The material exhibits a viscosity similar to glycerin, which aids in the taping process.             | <b>6201</b><br><b>6207</b> |
|   | Room Temp   | <b>Class F</b>  | Stator         | <b>Polyester putty</b> used to smooth and insulate high voltage connections prior to taping. This material is a highly-filled polyester that cures to a rubbery solid .                                  | <b>6203</b>                |
|   | Room Temp   | <b>Class F</b>  | Stator         | <b>Epoxy putty</b> used to smooth and insulate high voltage connections prior to taping/encapsulating. This is also used as a filling and smoothing compound in the manufacture of stranded stator bars. | <b>6204</b>                |
| <b>Smoothing Rough Surfaces</b>             | Room Temp   | <b>Class F</b>  | Stator         | <b>Smoothing compound</b> for sealing and smoothing stator bar surfaces.   | <b>6152</b>                |
| <b>Filling Voids Between Copper Strands</b> | Room Temp   | <b>Class F</b>  | Stator         | <b>Semi-flowable 'Strand Epoxy' for filling and potting</b> voids between copper stranding.  | <b>6103</b><br><b>6210</b> |
|   | Room Temp   | <b>Class F</b>  | Stator         | <b>Thick 'Strand Epoxy' for filling and potting</b> voids between copper stranding.  | <b>6231</b>                |
| <b>PROTECTIVE COATINGS</b>                  |             |                 |                |  |                            |
| <b>Zinc Rich Primer</b>                     | Room Temp   | <b>Class F</b>  | Frame          | <b>Two-component zinc rich epoxy primer</b> for excellent corrosion resistance, designed for ISO 12944 C5 corrosion environments as well as IEEE™ C57.12.32 electrical enclosures.                       | <b>4010</b>                |

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|---|-----------|-----------------|----------------|--|----------------------|
| <b>Dielectric &amp; Protective Coatings</b> | Room Temp | <b>Class F</b>  | Stator / Rotor | <b>Single-component phenolic-modified alkyd coating</b> designed to provide physical and chemical resistance when applied to industrial surfaces (beige & arctic blue). Water reducible.   | <b>6956<br/>6962</b> |
|   | Room Temp | <b>Class B</b>  | Stator / Rotor | Clear, single component <b>insulating varnish</b> designed for applications where oil, moisture and acid-resistance are desired. Often used as a final layer giving a hard, glossy protective coating.   | <b>9620</b>          |
|   | Room Temp | <b>Class F</b>  | Stator / Rotor | Single-component, low VOC, rust inhibiting, <b>phenolic-modified alkyd coating</b> designed to provide corrosion protection of metal surfaces. (several colors available).   | <b>Multiple</b>      |
|   | Room Temp | <b>Class F</b>  | Multiple       | <b>General purpose red insulating varnish</b> used as a dielectric insulating varnish on winding.  | <b>1201</b>          |
| <b>Interior Protective Coatings</b>         | Room Temp | <b>Class F</b>  | Frame          | Single-component, low VOC, rust inhibiting, <b>phenolic-modified alkyd coating</b> designed to provide corrosion protection of metal surfaces. (several colors available).   | <b>Multiple</b>      |
| <b>Exterior Protective Coatings</b>         | Room Temp | <b>Class F</b>  | Frame          | <b>Two-component zinc rich epoxy primer</b> for excellent corrosion resistance, designed for ISO 12944 C5 corrosion environments as well as IEEE™ C57.12.32 electrical enclosures. Designed to be used with Astro 4015.  | <b>4010</b>          |
|   | Room Temp | <b>Class F</b>  | Frame          | Two component, <b>epoxy primer, direct-to-metal (DTM) single-coat</b> system designed for applications requiring excellent corrosion, moisture and water barrier properties. High solids coating that will cure at very low temperatures and in the presence of moisture.      | <b>E101</b>          |
|   | Room Temp | <b>Class F</b>  | Frame          | Two component, <b>epoxy primer/midcoat</b> designed for applications requiring excellent corrosion, moisture and water barrier properties. Multiple and custom colors available.   | <b>E301</b>          |
|   | Room Temp | <b>Class F</b>  | Frame          | Two component, <b>epoxy primer/midcoat</b> designed for applications requiring excellent corrosion, moisture and water barrier properties. Used with Astro 4010 zinc-rich primer for ISO 12944 C5 corrosion environments and IEEE™C57.12.32 submersible electrical enclosures. | <b>4015</b>          |
|   | Room Temp | <b>Class F</b>  | Frame          | Two-component <b>urethane coating</b> designed to give maximum exterior durability and colorfastness, dielectric insulation, and chemical resistance. Multiple and custom colors available.  | <b>U401</b>          |

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|--|-----------|-----------------|---------------|---|----------------------|
| <b>SEMI-CONDUCTIVE &amp; CORONA PROTECTION</b>   |           |                 |               |   |                      |
| <b>Corona Protection: Stator Windings</b>        | Room Temp | <b>Class F</b>  | Stator        | Red, single-component, <b>corona-resistant, dissipative, silicone alkyd coating</b> designed to protect insulation surfaces from corona damage. Typically applied as a finish or primer coat to air-cooled stator end-windings. | <b>6971</b>          |
|  | Room Temp | <b>Class F</b>  | Stator        | Single-component, <b>silicon carbide silicone-alkyd gradient paints</b> typically applied to insulation surfaces on the <b>end-winding section</b> of stator bars.  | <b>6820<br/>6821</b> |
|  | Room Temp | <b>Class F</b>  | Stator        | Three-component, <b>silicon carbide epoxy gradient paints</b> typically applied to insulation surfaces on the <b>end-winding section</b> of stator bars.  | <b>Multiple</b>      |
| <b>Corona Protection: Stator Bar Slot / Core</b> | Room Temp | <b>Class F</b>  | Stator        | Single-component, semi-conductive graphite based <b>corona protective silicone alkyd paint</b> applied to stator bar insulation surfaces on <b>core slot section</b> of the stator bar.   | <b>Multiple</b>      |
|  | Room Temp | <b>Class F</b>  | Stator        | Two-component, semi-conductive <b>corona protective epoxy paint</b> applied to stator bar insulation surfaces on <b>core slot section</b> of the stator bar.  | <b>Multiple</b>      |
| <b>Conductive Adhesive</b>                       | Room Temp | <b>Class F</b>  | Stator        | Two-component, semi-conductive graphite based <b>corona protective adhesive</b> applied to stator bar insulation surfaces on core slot section of the stator bar.   | <b>6011<br/>6026</b> |
| <b>Conductive RTV Silicone</b>                   | Room Temp | <b>Class F</b>  | Stator / Core | Single-component, <b>semi-conductive silicone adhesives</b> for establishing electrostatic grounding between stator components and the stator core.   | <b>3147<br/>6322</b> |
| <b>HIGH VOLTAGE BUSHINGS</b>                     |           |                 |               |   |                      |
| <b>Leak Repairs</b>                              | –         | <b>Class H</b>  | HVB           | <b>Silicone fluid</b> used to for high voltage bushing (HVB) repair. Used commonly with Astro 6935 'Magic Dust kit' to repair and seal hydrogen leaks.  | <b>3167</b>          |
|  | –         | <b>Class H</b>  | HVB           | <b>"Magic Dust KIT"</b> used to create a barrier around high voltage bushings for sealing hydrogen leaks in conjunction with Astro 3167.  | <b>6935</b>          |
| <b>Crack Repair &amp; Sealant</b>                | Room Temp | <b>Class B</b>  | HVB           | <b>Liquid penetrant and sealant</b> for cracks between flange and ceramic on HVB. Used with 6931 to fill and seal cracks.   | <b>6930</b>          |
|  | Room Temp | <b>Class B</b>  | HVB           | <b>Thixotropic sealant</b> to fill cracks and top-up cracks penetrated with Astro 6931 between flange and ceramic on HVB. Used with 6930 to fill and seal cracks.   | <b>6931</b>          |
| <b>Terminal Bushing Box Insulation</b>           | Room Temp | <b>Class B</b>  | HVB           | <b>Removable polyester putty</b> for smoothing connections and hard edges prior to insulation taping of high voltage connections and within terminal bushing boxes in water-cooled generators.                                  | <b>6203</b>          |

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|--|-----------|-----------------|---------------|---|-----------------|
| Potting & Bonding                      | Room Temp | <b>Class B</b>  | HVB           | <b>Pourable, glass-reinforced</b> , used in bonding porcelain to metal flange around stand-off insulators. Exhibits excellent mechanical strength and thermal cycling characteristics.      | <b>6100</b>     |
|  | Room Temp | <b>Class F</b>  | HVB           | <b>Pourable, glass-reinforced</b> , used in bonding porcelain to metal flange around stand-off insulators. Exhibits excellent mechanical strength and thermal cycling characteristics.      | <b>6150</b>     |
| Gap Filling                            | Heat/Bake | <b>Class F</b>  | HVB           | <b>High-viscosity, single-component, elevated temperature cure sealant</b> designed to seal the gap on high voltage bushings between the flange and the porcelain insulator.                | <b>3407</b>     |
| <b>MISCELLANEOUS &amp; CONSUMABLES</b> |           |                 |               |   |                 |
| Felt & Roving                          | –         | <b>Class F</b>  | Stator        | Dacron felt for blocking and stranded glass roving for tying and consolidation. Used with multiple Astro saturants and tying resin systems, felt and roving are available in various sizes. | <b>Multiple</b> |
| Insulating Tapes                       | –         | <b>Class F</b>  | Stator, Rotor | Dry mica paper tapes, resin-rich mica 'bake tapes' and woven glass tapes of various dimensions. Used with multiple taping and flooding resins to build up layers of electrical insulation.  | <b>Multiple</b> |
| Neoprene Hydrogen Seals                | –         | <b>Class F</b>  | Stator, Rotor | Electrical grade, molded to OEM specifications back to the 1950s. Chevrons, collector connection, top hat, gland, bore seals, washers (tapered, flat), bushing sets, & o-rings.             | <b>Multiple</b> |
| Gasket Adhesives                       | Room Temp | <b>Class F</b>  | Stator, Rotor | Two-component epoxy adhesives formulated to bond elastomers (neoprene, Viton) to metals.  | <b>Multiple</b> |
| RTV Silicones                          | Room Temp | <b>Class F</b>  | Stator, Rotor | Room temperature vulcanizing silicones for bonding, molding, sealing, and gasketing. Available in a variety of Shore A and Shore D hardnesses.  | <b>Multiple</b> |
| Anerobic Adhesives                     | Room Temp | –               | Stator, Rotor | Single-component, fast curing adhesives, threadlockers, and retaining compounds.  | <b>Multiple</b> |
| Solvents                               | –         | –               | Stator, Rotor | Solvents for thinning coatings and adhesives, as well as cleaning substrates and tooling.   | <b>Multiple</b> |

**Let us help find the right solution for you.**

