

## Products

### SermaGard Dip-Spin Coatings

The SermaGard® product line was developed initially for dip-spin application to fasteners. This development was undertaken to bring the core technology of aluminum ceramic basecoats to industrial and automotive markets.

From the initial dip-spin basecoat material, SermaGard dip-spin coatings have expanded to include both organic polymer and inorganic ceramic topcoats to accommodate a wide range of performance needs. The dip-spin process allows for a relatively economic bulk application to fasteners and other small hardware.

Product	Color	Continuous Temperature Capability	Base/Topcoat	Description
902†	Gray-Green	1100°F	Basecoat	Inorganic Al Ceramic
903†	Olive Drab	1100°F	Topcoat	Inorganic Ceramic
913	Gray	400°F	Topcoat	Modified Silicone
917*	Black	400°F	Topcoat	Modified Silicone
980*	Bright Silver Metallic	600°F	Topcoat	Modified Silicone
1061	Black	400°F	Topcoat	Resin Bonded Fluoropolymer
1282CF*	Pewter Silver Metallic	400°F	Topcoat	Modified Epoxy
1694*	Black	400°F	Topcoat	Modified Epoxy, Lube Free
1695*	Gray	400°F	Topcoat	Modified Epoxy, Lube Free
1711	Dark Gray	400°F	Topcoat	Modified Silicone
1756	Metallic Beige	400°F	Topcoat Sealer	Resin Bonded Fluoropolymer

\*Chrome free †No VOCs

### SermaGard Spray Coatings

SermaGard spray coatings were introduced almost concurrently with SermaGard dip-spin coatings. This initiative was intended to complement the successful performance of SermaGard coatings on fasteners and extend the capabilities to components assembled with the coated fasteners. A full line of spray coatings was developed to address the ever-changing performance requirements within the automotive market. Eventually, the performance capabilities of the spray coatings were also recognized in other markets.

Product	Color	Continuous Temperature Capability	Base/Topcoat	Description
955*	Pewter Silver Metallic	400°F	Topcoat	Resin Bonded Fluoropolymer
1105†	Gray-Green	1100°F	Basecoat	Inorganic Al Ceramic
1175	Black	400°F	Topcoat	Resin Bonded Fluoropolymer
1280	Pewter Silver Metallic	400°F	Topcoat	Modified Epoxy
1407*†	Medium Gray Metallic	1000°F	Basecoat	Inorganic Zn Rich
1413*†	Pewter Silver Metallic	1100°F	Topcoat	Inorganic Silicate
1417D*†	Medium Gray	1000°F	Basecoat	Inorganic Zn Rich
1456	Metalic Blue	400°F	Topcoat	Modified Epoxy
1810	Green	400°F	Topcoat	Modified Epoxy
1811	Red	400°F	Topcoat	Modified Epoxy
1756	Metallic Beige	400°F	Topcoat Sealer	Resin Bonded Fluoropolymer

\*Chrome free †No VOCs



## SermaGard Coating Systems



## SermaGard® Engineered Protective Coatings



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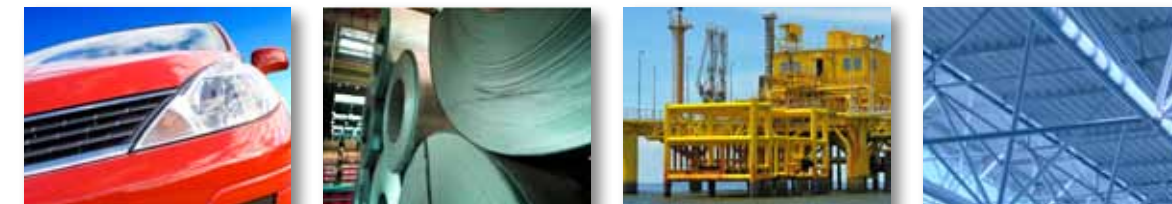
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**The SermaGard® product line of protective coatings comprises various basecoats and topcoats that are synergistically combined in multiple coating layers to provide superior protection and performance.**



### SermaGard Basecoats

SermaGard basecoats are composite coatings consisting of various binders combined with metallic, ceramic, or thermoplastic materials. The primary SermaGard sacrificial basecoat is a unique, water-based ceramic binder containing dispersed aluminum particles that is heat cured at relatively low temperatures to produce a ceramic bonding matrix. These functional basecoats are galvanically active, stable at elevated temperatures and electrically conductive, and provide superior adhesion as well as resistance to mechanical damage.

In addition to the family of SermaGard aluminum basecoats, a family of inorganic zinc basecoats has been designed for corrosion protection of various metal substrates. The inorganic zinc basecoats offer the flexibility for air-dry or low-temperature cure processes.

### SermaGard Topcoats

SermaGard topcoats also are composite coatings that consist of various combinations of binders with metallic, ceramic, or thermoplastic materials. Extended atmospheric corrosion protection is provided through the use of polymeric topcoats, which are either water-based or low-VOC solvent coatings. Inorganic ceramic topcoats excel in applications where elevated temperatures are encountered.

Depending upon the additive materials and/or the topcoat selected, SermaGard composite coating systems can impart various combinations of corrosion resistance, high-temperature oxidation resistance, and thermal shock resistance; wear, abrasion, and chemical resistance; lubricity; and release and sealing characteristics.

### SermaLube® Lubricants

The SermaLube product line of auxiliary lubricants consists of specially formulated blends of binders, emulsified waxes, and stabilizers supplied as water-borne or solvent dispersions. These auxiliary lubricants are intended for use as post-lubrication sealers with all SermaGard coating systems, stainless steels, platings, phosphate pretreatments, or other metal substrates when additional lubricity or torque control on threaded fasteners is required.

Whatever the performance requirement may be, SermaGard coating systems can offer a solution.

### Performance



#### SermaGard Aluminum Basecoats:

- 600-plus hours salt spray
- 1100°F continuous temperature capability
- 1200°F peak temperature capability
- Excellent adhesion characteristics
- Excellent abrasion resistance
- Good base for rubber bonding applications
- Provide corrosion protection to P/M parts
- Withstand thermal shock
- Conductive and weldable
- Machinable
- Resist automotive fluids
- Meet several automotive and O&G specifications

### Markets Served

SermaGard coatings are used in the **automotive** market, encompassing the global arena of car, truck, bus, and motorcycle manufacturing at both the OEM and tier supplier levels. SermaGard coating systems are widely specified for a diverse range of performance criteria. These performance criteria include high-temperature corrosion resistance for engine and exhaust components and rubber bonding capability for suspension and motor mount components. Hose clamp performance is improved by the glue bonding capability of SermaGard coatings. In addition, SermaGard coating systems provide corrosion resistance and controlled torque to a wide variety of standard fastener applications, including the ability to maintain conductivity in grounding screw joint applications.

The **industrial** market is diverse and covers many manufacturing disciplines. SermaGard coating systems have provided improved corrosion performance and increased chemical and heat resistance in the manufacture or maintenance of HVAC equipment, farm implements, pulp and paper mills and equipment, foundry goods heat treating processes, and lighting system assembly.

For the **offshore marine** market the SermaGard aluminum ceramic slurry coating system provides an outstanding level of corrosion protection and resistance to UV degradation in addition to its favorable performance in torque tension and wear life. This SermaGard coating system is meeting the challenge of demanding environmental conditions found in offshore platform, subsea, and shipboard applications. The SermaGard aluminum ceramic slurry coating system is specified by several OEMs and offshore equipment suppliers for use on nuts, bolts, studs, other fastening hardware, tensioner joints, compression springs, pipe flanges, and pump cases.

SermaGard coating systems serve the **construction** market in niche areas. A SermaGard coating system is available for application to nails used in pneumatic nail guns for roofing installation. In addition to excellent corrosion resistance, one of the major features of this coating system is the non-glare finish of the nail head after installation impact from the nail gun. Bolt goods used in steel building fabrication also benefit from the excellent corrosion resistance of SermaGard coatings.

#### SermaGard Organic Topcoats:

- 1000-plus hours salt spray
- Excellent tape adhesion
- Excellent flexibility
- Exceed most gravelometer requirements
- 400°F temperature capability
- Meet several automotive and O&G specifications



#### SermaGard Inorganic Zinc Basecoats:

- 400-plus hours salt spray
- 1000°F temperature capability
- Corrosion protection over P/M parts
- Chrome free
- No VOCs
- Air-dry or low-temperature cure