

GEOMET[®]

HIGH PERFORMANCE COATINGS FOR METAL FINISHING

WATER-BASED • CHROMIUM-FREE • THIN FILM

Application Examples

- Beams
- Brackets
- Clamps
- Clips
- Fasteners
- Fuel Filler Tubes
- Rings
- Rotors
- Springs
- Stampings



GEOMET® is a proprietary water-based family of products containing metal oxides, metallic zinc and aluminum flakes. The zinc and aluminum platelets align in multiple layers forming a metallic silver appearance. Applied as a liquid, the coating is totally inorganic after curing.

RANGE OF PRODUCTS

GEOMET® COATINGS

The standard of water-based inorganic metal finishing systems, GEOMET® is a chromium-free, cost effective, alternative to solvent-based organic coatings, electro and mechanical plating.

GEOMET® coating systems, which include silicate sealers, black and colored topcoats, are applied to a variety of components to provide corrosion protection to ferrous metals including powdered metal parts.

The GEOMET® coating systems have gained worldwide acceptance as reliable corrosion protection against road salt, humidity, solvents and other corrosive elements.

www.geomet.net

GEOMET® 321 :: A zinc and aluminum rich coating in an inorganic binder.

GEOMET® 500 :: An integrally lubricated, zinc and aluminum rich coating in an inorganic binder.

GEOMET® 720 :: Coating developed to meet the requirements of Asian automotive companies.

GEOMET® 360 :: A zinc and aluminum rich coating in an inorganic binder with higher aluminum content for rotor applications.

PLUS® Sealers :: Inorganic silicate sealer topcoats for friction modification provide consistent torque tension values. Sealers include P / L / VL / ML / XL and are offered in clear for a silver colored appearance, as well as blue, yellow, red and green for identification purposes.

GEOLBLACK® :: Black topcoats applied over GEOMET® basecoats include: PLUS ML® BLACK, GEOKOTE® I37, GEOKOTE® I47, and PLUS JL® BLACK.

SPECIFICATIONS

Coating System	Color	Friction Coefficient Mean (DIN 946)	Thickness in Microns (MINIMUM) PER SPECIFICATIONS	Salt Spray Hours (MINIMUM)
GEOMET® 321 P	Silver	0.16	8	720
GEOMET® 321 ML	Silver	0.13	8	720
GEOMET® 321 L	Silver	0.11	8	720
GEOMET® 321 VL	Silver	0.11	8	720
GEOMET® 321 XL	Silver	0.08	8	480
GEOMET® 500 A	Silver	0.15	6	600
GEOMET® 500 B	Silver	0.15	8	1000
GEOLBLACK® ML	Black	0.13	10	1000
GEOLBLACK® I37	Black	0.13	10	480
GEOLBLACK® I47	Black	0.11	10	720

For additional specifications, please visit: www.geomet.com

MARKETS SERVED

- Appliance
- Automotive
- Construction
- Electrical
- Heavy Equipment
- Marine
- Military
- Trucking
- Wind Turbine



NORTH AMERICA

Metal Coatings International Inc.

EUROPE/AFRICA

Dacral

ASIA/PACIFIC RIM

Nippon Dacro Shamrock

SOUTH AMERICA

Metal Coatings Brasil

GEOMET

○ Environmental Benefits

Entirely Chromium-Free :: Meets the following regulations: Environmental Protection Agency (EPA), Chrysler CS-9003, General Motors GMW 3059, Ford WSS-M99P9999-A1 (Hex 9), the EU Directives on End of Life Vehicles (ELV), and Electrical Equipment (RoHS).

No toxic metals :: Free of nickel, cadmium, lead, barium, and mercury.

Water-Based :: Water clean up, worker friendly, no offensive odor.

○ Functional Benefits

Superior Corrosion Protection :: GEOMET® provides excellent cyclic corrosion performance when tested according to automotive manufacturers test methods incorporating heat, salt spray, and humidity (SAE J2334, GMW 14872, Ford FACCT, Asian CCT).

Mechanical Damage Resistance :: The USCAR 32 mechanical damage test, designed to simulate coating damage relating to secondary operations such as sorting, demonstrates the superior protection of our coatings.

Adhesion :: GEOMET® does not come off on workers hands.

Thin Dry Film :: GEOMET® is 7 microns minimum without topcoat, 9 microns minimum with topcoat. There is no need to undersize threads to compensate for coating thickness.

Hydrogen Embrittlement Free Process :: Coating application process does not require acid pickling.

Bimetallic Corrosion Resistant :: GEOMET® performs well in contact with aluminum and zinc.

Solvent Resistant :: Inorganic nature of GEOMET® results in organic solvent resistance to automotive fluids including brake fluid, the most aggressive solvent.

Heat Resistant :: Maintains corrosion resistance even following a heat shock of 350°F for 96 hours.

Conductive :: Metallic flake concentration allows for electrical current to be passed to the substrate. It is recommended that conductivity levels be tested to determine suitability for the application.

Paintable :: Electro-deposited paints may be applied over GEOMET®.

APPLICATION PROCESSES

The process of applying the GEOMET® coating requires the substrate to be clean bare steel, free of oil, heat-treat scale, and other contaminants.

○ Cleaning Methods

Alkaline Cleaning :: In order to remove manufacturing oils, an alkaline wash by immersion or spray is used.

Mechanical Cleaning :: Blasting follows alkaline cleaning to remove heat-treat scale and/or flash rust. Typical media includes shot or grit.

Alkaline Descalers :: Neutral to slightly alkaline descalers are also suitable pretreatment for internally threaded fitters that cannot be blasted. Descaling may be done alone or with an iron phosphate.

○ Application Methods

Dip Spin :: Small parts are coated using the dip spin application method. Bulk parts are loaded into a basket, immersed into the GEOMET® coating, raised up and spun to remove excess coating from the parts. Following coating, the parts are conveyed into a convection oven for curing.

Spray :: Large parts, one half pound or larger, can be coated using the spray application method. Parts are individually loaded onto a rack and continue past air or electrostatic spray nozzles that are set to strict parameters to provide optimum coating thickness on individual surfaces of the part. Following coating application, the parts are cured in a convection oven or by induction-heating coils.

Dip-Drain Spin :: Large parts, such as tubes, can be coated using the dip-drain spin application method. Parts are individually racked, dipped into the GEOMET® coating, raised up and spun to remove the excess coating from the parts. Following coating, the parts proceed into a convection oven for curing.

○ Curing

Parts are subjected to 150-250° F (66-121° C) for 10 minutes to set the coating. Pre-cure is an essential element in the curing process to achieve proper adhesion and appearance. Parts are transferred from pre-cure into the main cure to provide the final cure for the GEOMET® coating. Peak metal temperature of 575°-600° F (300-315° C), or slightly higher for GEOMET® 720, must be maintained for a minimum of 15 minutes.

Since 1974, **Metal Coatings Group Inc.** has been the leading worldwide developer and manufacturer of water-based coating technology, including GEOMET®, PLUS® sealers and GEOBLACK® topcoats for high performance corrosion protection.

Our patented inorganic coating technology revolutionized the fastening industry. These developments are the results of several years research in our laboratories and with close cooperation between our North American, European, Asian and South American partners. Today with research and development, chemical manufacturing, technical service, sales and coating application facilities located worldwide, we continue to develop new specialty coatings to serve the ever-changing needs of metal related industries.

www.metal-coatings.com

NORTH AMERICA ::

○ Metal Coatings International Inc.

275 Industrial Parkway
Chardon, Ohio 44024-1083 USA

Phone: 440-285-2231
Fax: 440-279-1483

Internet: www.geomet.net
Email: sales@metal-coatings.com



EUROPE / AFRICA ::

○ Dacral

120, Rue Galilée
F-60315 Creil Cedex France

Phone: 33-3-44-64-63-62
Fax: 33-3-44-64-63-40

Internet: www.dacral.com
Email: info@dacral.com



SOUTH AMERICA ::

○ Metal Coatings Brasil

Rua Minas Gerais no 85 - Vila Oriental
Diadema - Sao Paulo - Brasil
CEP: 09941-760

Phone: (55-11) 4071-5651
Fax: (55-11) 4071-4118

Internet: www.metalcoatings.com.br
Email: dacromet@terra.com.br



ASIA / PACIFIC RIM ::

○ Nippon Dacro Shamrock

296, Shimokurata, Totsuka-ku
Yokohama City 244-0815
Kangawa Pref. JAPAN

Phone: 81-45-864-3551
Fax: 81-45-871-3150

Internet: www.n-d-s.co.jp
Email: sales@n-d-s.co.jp

Korea

Phone: 82-2-571-4051
Email: shamrock@shamrock.co.kr

China

Phone: 86-21-66521212
Email: sales@nds-sh.com.cn

