



NOF METAL COATINGS GROUP

Geomet® Coatings

GEOMET® is a product of NOF Metal Coatings Group (formerly DACRAL) of which ANOCHROME is the UK Licensee.

Anochrome have been supplying NOF products for over 30 years.

GEOMET® is a Zinc Flake anticorrosive coating that has been developed to replace DACROMET®

GEOMET® is supplied as:-

- GEOMET® 500
- GEOMET® 321
- GEOMET® 720



GEOMET® General Properties.

- Thin dry film
- Water based chemistry
- Non electrolytically applied.
- Chromium free
- Passivated zinc and aluminium flakes in an inorganic binder, Patented chemistry.
- Metallic silver grey appearance.

Characteristics and performance

- Does not induce hydrogen embrittlement (suitable for high tensile fasteners)
- Performance maintained at elevated temperatures (300° C)
- Electrically conductive, suitable for most applications.
- Bimetallic compatibility with aluminium
- Good mechanical damage (test D24 1312, USCAR 32) and chemical (test VDA 621-412) resistance.
- Can be used with or without topcoats
- Less parts sticking together when coating in bulk.

Coatings available from WEP Ltd

Wood Lane, Fordhouses, Wolverhampton WV10 8HN
 tel: 01902 397300 fax: 01902 785372
 enquiries@anochrome-group.co.uk
 www.anochrome.co.uk

GEOMET® 500 was developed specifically with integral lubricant for coating fasteners, to assist in giving consistent tightening performance.

GEOMET® 500 specific properties

- Controlled Coefficient of Friction 0.15 ± 0.03 (test to EN ISO 16047 type HH)
- Integral lubricant gives excellent assembly and multi-tightening behaviour.
- Absence of stick-slip problems when tightened against e-cote and other organic coatings.

GEOMET® 321 used for non fasteners, and with lubricated top-coat to give range of lubricity, also supplied with Black top-coat.

Topcoats supplied by Anochrome are

| | Coefficient of Friction μ |
|----------|-------------------------------|
| PLUS® XL | 0.06 to 0.09 |
| PLUS® VL | 0.09 to 0.14 |
| PLUS® ML | 0.10 to 0.16 |
| PLUS® 10 | ≥ 0.20 |

All PLUS®'s are low thickness but increase corrosion resistance, PLUS® 10 is used to insulate GEOMET® to protect further from galvanic corrosion (e.g. Hose clips on carbon rich rubber).

GEOBBLACK® is the combined coating of GEOMET® with the water based topcoat of PLUS ML Black which gives:

- Even semi-bright chemical resistant black colour
- High salt-spray resistance. (1000hrs. +)
- Controlled Coefficient of Friction 0.15 ± 0.03 .
- Thin coating, approx. 5- 8 μ m of black, minimal stuck parts when processed in bulk

GEOMET® 720 is supplied mainly for Japanese assembly plants.

Other GEOMET® materials available are:-

GEOMET® 360 developed for spray coating Disc Brakes.

Used by Anochrome on the Automatic Spay line for Discs.

Advantages:-

- By selective spraying, the braking surface can be coated with a thin layer, that does not damage the quality of braking and gives temporary protection to point of sale.
- Temperature resistance is up to 400°C.
- Gives protection inside the vents.
- The corrosion protection of GEOMET® on the hub mounting surface makes disc demounting easier.
- For after market, GEOMET® coating enables the brake disc to be assembled onto vehicles without degreasing.



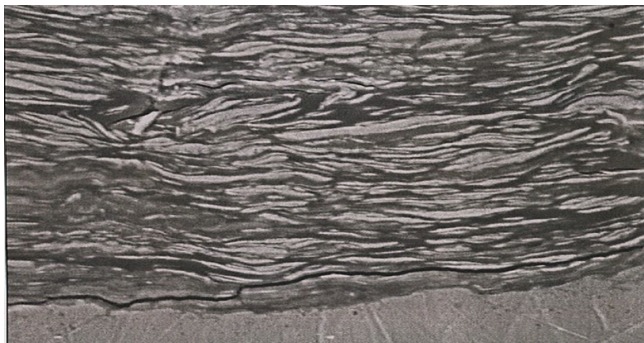
NOF METAL COATINGS GROUP

GEOMET® Protection Principals.

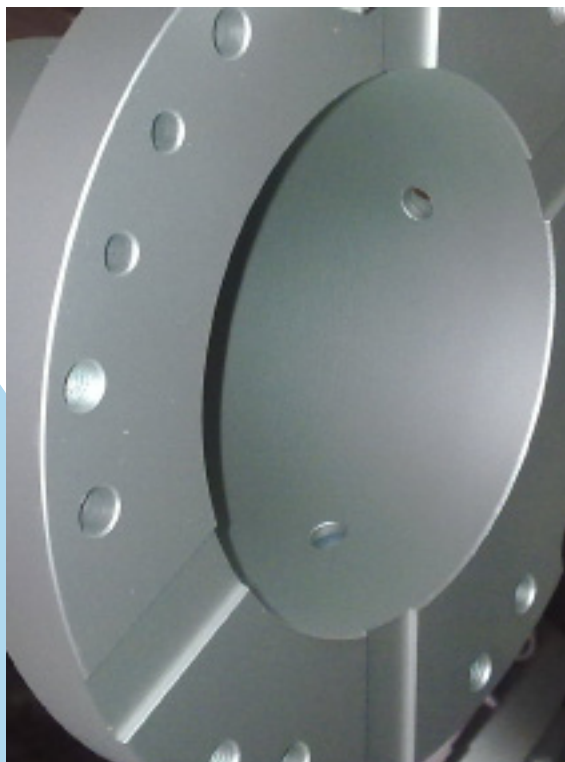
GEOMET® is formulated with an aqueous base and is composed of zinc and aluminium flakes in an inorganic binder. It is chromium free. GEOMET® gives protection to metallic surfaces with:

- Barrier protection – Overlapping zinc and aluminium flakes provide an excellent barrier between the steel substrate and the corrosive atmosphere. (see microphotograph above)
- Galvanic action – Zinc corrodes to protect the steel
- Passivation – Metal compounds slow down the corrosion reaction of zinc and steel to provide a greater protection (slower reaction) than with pure zinc.

The combined effect of these processes enables GEOMET® to give excellent corrosion protection with low thickness, typically between 5 and 10 µm.



10 µm film thickness of lamellar structure by Electron Microscope



GEOMET® Coating Process

• Treatment of small parts

Small parts (most Fasteners) can be treated in bulk in baskets, a minimum of two coating operations of GEOMET® is necessary to obtain an even coverage.

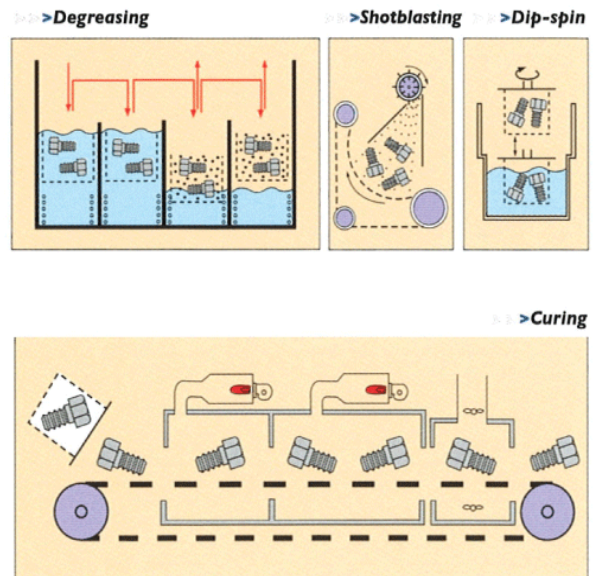
The typical treatment process is illustrated below:

• Treatment of large parts

GEOMET® can be racked (jigged) and dip-drained, dip-drain-spin or sprayed.

Evaporative losses from GEOMET® are made up by the addition of water. Curing takes place at 300°C.

GEOMET® has been tested and approved by the automotive industry, the results of different cyclic corrosion tests, GM 9540 P Toyota CCT-A. Ford APGE, Renault ECCI (Al) or VDA 621-415, confirm the performance of GEOMET



Coatings available from WEP Ltd

Wood Lane, Fordhouses, Wolverhampton WV10 8HN
tel: 01902 397300 fax: 01902 785372
enquiries@anochrome-group.co.uk
www.anochrome.co.uk



NOF METAL COATINGS GROUP

GEOMET® Salt Spray test performance

| Coating | Geomet Salt Spray (hrs) | | | |
|--------------|-------------------------|--------|-----------------|----------------------------|
| | Top-coat | Colour | Total thickness | Salt Spray (to ISO 9227) |
| Geomet ®500 | None | Silver | ≥6 μm | ≥600hrs. without red rust |
| Geomet ® 500 | None | Silver | ≥8 μm | ≥1000hrs. without red rust |
| Geomet ® 321 | None | Silver | ≥6 μm | ≥600hrs. without red rust |
| Geomet ® 321 | Plus® | Silver | ≥7 μm | ≥720hrs. without red rust |
| Geoblack® | Plus® ML Black | Black | ≥10 μm | ≥1000hrs. without red rust |
| Geomet ® 720 | None | Silver | ≥6 μm | ≥1000hrs. without red rust |

GEOMET® is supplied by NOF Metal Coatings Europe SA. which is a division of the worldwide NOF Metal Coatings Group.

For more than 30 years, innovation and the environment have been of paramount importance in their development of zinc flake thin layer anticorrosive coatings. As inventors of this technology they have been continually improving it, and ensuring it is suitable for the application processes used worldwide.

NOF products play a key role in the automotive industry. Their know-how is recognised worldwide for its efficiency and adaptability, it is the benchmark in many sectors of activity.

There are 400 licensees with over 450 application lines.

All licensees are regularly audited by NOF personnel to ensure optimum quality.

Further information can be obtained from www.nofmetalcoatings.com

Anochrome Group are the UK licensees, all information supplied on these pages is courtesy of NOF

GEOMET® complies with; REACH 2000/53/CE and 2002/95/CE directives.



GEOMET® satisfies the following Specifications: International Standards

EN ISO 10683 Fasteners : Non-electrolytically applied Zinc Flake coatings.

EN 13858 Non-electrolytic zinc flake coatings on iron and steel.

BS 7371 Pt. 11 Specification for zinc flake non-electrically applied cured coatings

ASTM F1136 / F1136M – Zinc/Aluminium Corrosion Protective Coatings for Fasteners

OEM Standards

FORD WSS M12P49

JLR.50.5050. & 50.5047.

HONDA HES D2008

FIAT Capitolato 9.57513

IVECO 18-1101

BMW GS 90010 & QV 34 081

GM-Opel GMW3359

Daimler-Benz DBL9940. DBL 8440

CHRYSLER PS-5873, PS-9666

Porsche PTL7529 PN 11011.

BREMBO Tab. 11.19

Renault 01-71-002/-R

Continental Teves ATE N 106 36.31

Renault Trucks 01-71-4002

PSA STE 9690469599

Peugeot-Citroen B15 3320

TRW TS2-25-060

Volkswagen TL245

VW Group TL 193

VOLVO Cars VCS 5737.29

Truck STD 5737.2

Mitsubishi MS82-3710

Moeller KT 65.15.259

ZF Lemforder LMH 50-6

Mazda MES CG 311F

SCANIA STD 4165

ALSTOM DTRF 150213

BOMBARDIER BT/CE-WN30-02

Borgwarner BWS 61003

Caterpillar 1E1675G

John Deere JDM F13

Knorr Bremse N12005

BOSCH N67F 827 & 0 204 Y 01582

Coatings available from WEP Ltd

Wood Lane, Fordhouses, Wolverhampton WV10 8HN

tel: 01902 397300 fax: 01902 785372

enquiries@anochrome-group.co.uk

www.anochrome.co.uk