

DuPont™ Teflon®

Industrial Coatings

Teflon® S Coatings 958-203 and 958-207

Description

The Teflon® S 958-2XX line of products are dry lubricants designed for use under conditions of moderate abrasion and where nonstick properties contribute to product performance. These products can also be used as primers. Refer to **Table 1** for physical property data.

FDA Status

The 958-2XX line does not comply with FDA Regulation 21.CFR governing components of coatings for direct food contact, even if topcoated with an FDA-conforming product.

Application

Refer to the “Applying Teflon® Coatings” Fact Sheet.

Surface Preparation

1. **Pre-bake** the metal 15 min at 343°C (650°F).
2. Apply over a clean, **roughened** surface. Application of conversion coatings is suggested where grit-blasting is not practical.

3. Any residual oil on the surface will affect the color of the cured film and will adversely affect adhesion. Refer to the “Applying Teflon® Coatings” Fact Sheet.

Spray

1. **Agitate** until contents are homogeneous. A propeller-type mixer at low to moderate speeds can be used.
2. **Strain** through 100–150-mesh wire screen.
3. No reduction is required. If further reduction is desired use TN-8595, a 50:50 mixture of NMP:MIBK.
4. Use conventional industrial spray equipment. If sprayed from a pressure pot, agitate during use. For electrostatic spray, isolate total system, including pressure pot and transfer lines.

Film thickness 12–20 µm (0.5–0.8 mil) DFT (dry film thickness) per coat.

These products are re-coatable. Maximum DFT in multiple coats is 75 µm (3.0 mil).

Table 1
Typical Properties—Teflon® S 958-2XX Line

| Code | 958-203 | 958-207 |
|---|------------|------------|
| Color | Black | Green |
| Weight Solids, % | 22.7 | 24.0 |
| Volume Solids, % | 17.7 | 17.1 |
| Density, kg/L (lb/gal) | 1.02 (8.5) | 1.04 (8.7) |
| Coverage, m ² /L (ft ² /gal)* | 7.1 (284) | 6.8 (274) |
| Viscosity, cP | 400–1,100 | 400–1000 |
| Maximum Use Temperature, °C (°F) | | |
| Continuous | 220 (425) | 220 (425) |
| Intermittent | 230 (450) | 230 (450) |

Note: These figures are averages and may vary.

* Theoretical coverage at 25 µm (1 mil) assuming 100% efficiency.

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Baking

Note: All temperatures refer to metal temperature.

One Coat System

1. Flash dry in air 1–5 min prior to bake. Flash times over 15 min may cause pinholing and crazing of the film.

Note: If humidity is 85% or above, do not air flash. Place in oven immediately to minimize absorption of moisture, which may cause pinholes and water blisters.

2. Bake 15 min at 204°C (400°F), followed by 15 min at 316°C (600°F) or 15 min at 343°C (650°F) for greater abrasion resistance.

Multiple Coats

For dry film builds greater than 30 µm (1.2 mil), bake the initial coat and any intermediate coats 15 min at 150°C (300°F).

Final bake 15 min at 345°C (650°F).

As Primer

Force dry *Teflon*® S 958-2XX-line products for 10 min at 95–185°C (200–400°F) before applying topcoat.

Teflon® 532-line powder topcoats may be applied directly over wet primer. However, in humid conditions, the primer may blush or pinhole due to the absorption of moisture from the air.

Repair

Sand with #400 or #600 sandpaper or grit-blast with 300–400-grit size to give a rough surface before recoating a fully cured enamel.

Storage and Stability

Teflon® S 958-203 and 958-207 products have a shelf life of at least 18 months when stored at room temperature, 18–24°C (65–75°F).

Shelf life can be extended by refrigerating at 4°C (40°F).

Safety

Follow normal industrial safety practices for handling and applying *Teflon*® products. Industrial experience has clearly shown *Teflon*® materials can be processed and used at elevated temperatures without hazard providing adequate ventilation is used. Ventilation should be available at baking temperatures 275°C (525°F) and above. Before using *Teflon*® S, read the Material Safety Data Sheet (MSDS) and the detailed information in the “Guide to the Safe Handling of Fluoropolymer Resins,” latest edition, published by the Fluoropolymers Division of The Society of the Plastics Industry.

When grit-blasting *Teflon*® finishes off aluminum or magnesium surfaces, the possibility of explosion exists if the fines are allowed to heat up. Good housekeeping practices, keeping the residue wet, and keeping the ventilation and dust collection systems in good working order reduces this risk.

**Table 2
Typical Test Data**

| Test | Method | Value Teflon® S 958-203 (Black) | Value Teflon® S 958-207 (Green) |
|-------------------------------------|---|--|--|
| Dry Film Thickness (DFT) | Electromagnetic method ASTM D1400-87 | 34 +2 µm (1.3 mil) | 26 +2 µm (1 mil) |
| Film Appearance | Eye and power magnification microscope | OK | OK |
| Adhesion | | | |
| Post Water Cross- Hatch Adhesion | Adhesive tape after boiling ASTM D335 | OK(A) | OK(A) |
| Impact | ASTM D4145 | C(26)/C(45) | OK(A) |
| Abrasion | | | |
| Taber Abrasion | Weight loss after wear of two abrasive wheels ASTM D4060-95 Load: 1,000 Number of cycles: 500 Set of abrasive wheels: CS17 | 0.009 g (3.17 oz) | 0.012 g (4.23 oz) |
| Pencil Hardness | ASTM D3363 | 2B | 2B |
| Corrosion | | | |
| Salt Spray | ASTM B117-73 Test solution: 5% salt in water Temperature: 35°C (95°F) | 168 hr <x <336 hr | 168 hr <x <336 hr |
| Gloss | ASTM 523 | | |
| | 20° | 0.8 | 0.7 |
| | 60° | 7.7 | 9.9 |
| | 85° | 23.2 | 36.1 |

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.

