



Teflon®

Nonstick & Industrial Coatings

Teflon® Ceramic Reinforced Coating 857-101, 857-202, 857-301

Description

Teflon® 857-101, 857-202, and 857-301 are water-based products derived from cookware coatings that form a three-coat, ceramic-based system designed for durability and abrasion resistance with excellent release. The midcoat/topcoat bake must be above 427°C (800°F) for optimum properties. Refer to **Table 1** for physical property data.

FDA Status

The Teflon® 857 line complies with FDA regulations in 21 CFR governing components of coatings for direct food contact when applied according to Fact Sheet instructions.

Table 1
Teflon® Ceramic Reinforced Coating
Typical Properties

	857-101 Primer	857-202 Midcoat	857-301 Topcoat
Color	Black	Black	Clear
% Solids, weight	26.6	43.6	42.7
volume	14.1	24.9	25.2
Coverage, sq m/L*	5.5	9.8	9.9
sq ft/gal*	227	399	404
Viscosity, cP	275–375	300–400	300–400
Maximum Use Temperature			
Continuous, °C (F)	260 (500)	260 (500)	260 (500)

Note: These numbers are averages and may vary.

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

Application

1. Roll at 30 rpm for 30 min before using. Check bottom of container and re-dispose any material that was not reincorporated during rolling.
2. Filter through 200–225 µm (60-mesh) stainless steel or nylon screens.
3. Substrate: Apply over clean, blasted aluminum, steel, or brass at a blast profile of 180 µin or stainless steel at a blast profile of 140 µin.

4. Spray: Apply with standard compressed air spray equipment. We recommend using air pressure of 2.1–3.5 kg/cm² (30–50 psi) and fluid pressure of 0.3–0.6 kg/cm² (5–8 psi) or high volume-low pressure (HVLP) equipment at 0.3–0.5 kg/cm² (5–7 psi). Neither airless nor air-assisted equipment is recommended due to the considerable shear they exert on the product leading to coagulation.

Final performance of this system is dependent on the film thickness relationship of the primer/midcoat/topcoat, and on bake conditions.

Primer

- Dry film thickness: 15–18 µm (0.6–0.7 mil).
- Primer should be forced dry at 121°C (250°F) for 5 min.

Midcoat

- Dry film thickness: 10–13 µm (0.4–0.5 mil).
- Apply as a *wet* spray using low air pressure (2.0–3.5 kg/cm² [30–50 psi]) to minimize rapid vaporation of water and solvents.
- Temperature of the piece should not be above 40°C (100°F) when applying the midcoat.

Topcoat

- Apply wet on the wet midcoat, also using *wet* spray technique.
- Dry film thickness: 8–10 µm (0.3–0.4 mil)
- Total dry film thickness: 33–40 µm (1.3–1.6 mil)

Bake

1. Slowly heat the part. The part must be heated a minimum of 4 min below 204°C (400°F) to prevent blistering.
2. Recommended bake: 426–435°C (800–815°F) metal temperature for 5–7 min. Do not exceed 438°C (820°F) metal temperature.

The bake significantly affects the final color, appearance, and performance of the system. If the bake cycle is too high and/or too long, the coating will be dull or hazy and will mar easily. The haze can be minimized by quenching in cold water immediately when the piece is removed from the oven.

The temporary haze that sometimes occurs on a coated piece may be removed by wiping with soft paper or cloth. This will not detract from performance.

Storage and Stability

Shelf life for the *Teflon*[®] 857 line is at least 18 months when stored at normal room temperature of 18–24°C (65–75°F). Material may be exposed briefly to temperatures outside this range without harm. If this happens, product properties should be checked before extensive use. Do not allow to freeze.

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 of 275°C (525°F) and above. Before using *Teflon*[®], 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 house-keeping practices, keeping the residue wet, and keeping the ventilation and dust collection systems in good working order reduces this risk.

For more information on *Teflon*[®] coatings:

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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.



Teflon[®]

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