

SURFACE TREATMENT
FLUOROCARBON COATING
DSF 1.3.4

Definition:

Fluorocarbon (PTFE, Xylan, and Teflon) is made up of Fluorine and Carbon atoms. The Fluorine atoms form a helical shield around the carbon atoms preventing any chemical attack, this is one of the strongest bonds known in organic chemistry & only under extreme conditions can PTFE be attacked. The forces between the polymer chains are extremely low, as an advantage giving PTFE its excellent low coefficient of friction; as a disadvantage it is soft and offers poor wear resistance.

However, when combined with a thermosetting polymer binder, this resin provides an industrial coating that is first & foremost a dry lubricant which can operate under heavy loads, high temperatures, and in a chemically corrosive environment.

Treatment Information:

The engineering drawing will identify both the area to be coated & colour. Substrates require a minimum of surface preparation, often just a solvent wipe or vapour degreasing, to remove surface contaminants. However optimum adhesion is usually obtained by roughening the substrate surface before applying the coating. A heavyweight zinc phosphate class 1B primer is recommended on Mild Steel.

Coatings are applied by conventional air spray techniques. Other methods of application, which have been successfully utilized, include Dip, HVLP (high volume low pressure) air spray and electrostatic.

The coating is then oven baked to give a dry film thickness in the region of 15 µm to 35 µm depending upon the number of coats. Coated parts may be cured immediately or accumulated for batch curing at 230°C (component temperature) for 10 minutes.

Appearance:

The finished article shall be free from visible plating defects such as blisters, pits or un-plated areas.

The coating will be smooth and adherent, clean and free from damage.

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Description:

This PTFE grade of non-stick coating differs from traditional fluoro-polymer coatings in one very important aspect —they are composite materials (typically resin bonded PTFE Thermoset). These “plastic alloys” can be formulated to provide unique and desirable properties by altering the ratio of PTFE lubricant and bonding polymer to achieve a harder, more abrasion resistant and low friction coating typically 15-25µm thick. This thermoset ‘fastener class’ dry lubricant coating is applied to the surface as a thin two part (primer & top coat) film and is available in the following colours:-

- Black
- Blue
- Green
- Orange
- Yellow

Properties:

- Adheres to most surfaces: aluminium, chrome & nickel bearing alloys & plastics.
- Dry lubrication, non- stick/ anti-galling low coefficient of friction.
- Wide operating temperature. (-195°C to + 260°C)
- Weather, corrosion & chemical resistant.
- Pliable coating tolerant to machining.
- High build: multiple coats then machine to spec.

ASM (DEK) Applications:

Suitable surface treatment commonly applied to fasteners, threaded components, studs etc. that cannot use conventional lubricants or are difficult to access/maintain.

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