



“PHILA FPU 25/15”

Fluoropolymer

FOULING RELEASE COATINGS for 10 years hull protection

Product Information

PHILA FPU 25/15 is a long lasting, non-toxic, Biocide Free, easy-cleaning coating for protecting boat and ship hulls & propellers from fouling by marine organisms. It is fully compliant with the International Maritime Organization (IMO), resolution to phase out tin-based toxins by January 1, 2003. This white paper provides background information about this new strategy (which is called a fouling release coating) and how it compares to traditional, toxic anti-fouling paints. Much of the information in this paper is derived from work published by the Naval Research Laboratory. Expected service life period up to **120 months**.

PHILA FPU 25/15 displays very good compatibility with various well known producers.

Recommended Purpose

Marine organisms that colonize a ship's hull produce both hard and soft fouling:

- Soft Fouling organisms include: Slime (bacteria, diatoms), Algae and grasses, and soft organisms (hydroids, sponges, tunicates).
- Hard Fouling organisms include: Annelids, bryozoans, barnacles, and mollusks.

Fouling increases weight and drag, which:

- Decrease a ship's speed, maneuverability, and range.
- Increase its propulsive fuel consumption by as much as 30%.

There are two types of coating that minimize the fouling damage: traditional, but toxic, anti-fouling paints, and new, non-toxic anti-fouling i.e., fouling-release coatings. The following table gives a quick summary of how the approaches compare:

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Product Data Sheet

	Anti-fouling traditional	Fouling Release FPU 25/15
Mechanism	Produces a toxic surface that weakens or kills the organism.	Produces a super-slick, hard, surface that weakens the organism's attachment to the surface.
Minimizes Growth	Yes	Minimizes buildup
Easy to Clean	No	Yes. Slick, hard surface cleans in less time and resists solvents.
Service Life	18 – 64 months	120 months
Polluting (legal problems)	Yes. Environmental restrictions are imminent.	No
Reduces Drag	No	Yes. Slick surface reduces drag.

Physical Properties

Sheen: Matte

Color: Light Red, Oxide Red

Volume Solids (%): 63 ± 2

Theoretical Coverage: 6.3m²/Lit at 100 microns dry

Recommended Film Thickness: 75-175 microns dry

Recommended Film Thickness: 120-280 microns wet

Flash Point: 28± 2 °C

VOC: 365.00 g/Lit (material as into the container)

Application Data

Mixing Ratio: Single pack product which should be stirred well before application by stirring machine.

Thinner: Not recommended. The material is ready for use, under special conditions use Thinner PH 400, max 5% by volume.

Painting Method: Airless spraying is our recommendation, Brush, Spray follows. Tip range 0.46mm-0.66mm and 0.66-0.79, blowing pressure shouldn't less than 141kg/cm² (2000psi). Additional thinner maybe required. Use proper equipment. Actual safety measures and precautions are very important from the selected method and environment work. Emergency Contact Numbers are available World Wide upon any request.

Cleaning: Power tool cleaning and Cleaners with Thinner PH 400.



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Drying and over coating Conditions

Temperature of basis material	5°C	23°C	30°C
Touch Dry	2 hours	1 hour	30 minutes
Repainting interval (Min)	6 hours	3 hours	2 hours
Refloating time from the application of the last coat (Min)	8 hours at 20°C		
Repainting interval (Max)	The exposure time at the atmosphere environment should be max 30 days. All information given is for guidance only. The actual time should be subject to the climate and environment conditions.		

Coating Specification

PHILA FPU 25/15 should always be applied to a recommended coating system. The surface should be dry and free from contamination of any existing layers of PHILADUR line, link coat/sealers or various A/Fs, to secure good adhesion and good A/F performance. Specific recommendations and statements should be agreed and approved by Philadelphia Coatings LLC Technical Department in writing to do so, as there is a Limit liability only for the supplied quantity and value of the A/F.

Surface Preparation

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Minimum recommended surface preparation:

Substrate	Minimum	Recommended
Carbon steel	St 2 (ISO 8501-1)	Sa 2 (ISO 8501-1)
Stainless steel	The surface shall be hand or machine abraded with non-metallic abrasives or bonded fibre machine or hand abrasive pads to impart a scratch pattern to the surface and to remove all polish from the surface.	Abrasive blast cleaning to achieve a surface profile using non-metallic abrasive media which is suitable to achieve a sharp and angular surface profile.
Galvanised steel	The surface shall be clean, dry and appear with a rough and dull profile.	Light brush blasting using nonmetallic abrasive leaving a clean, rough and even pattern.
Coated surfaces	Clean, dry and undamaged compatible coating (ISO 12944-4 6.1.4)	Clean, dry and undamaged compatible coating (ISO 12944-4 6.1.4)

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Concrete	Low pressure water washing to a rough, clean, dry and laitance free surface.	Minimum 4 weeks curing. Moisture content maximum 5 %. Prepare the surface by means of enclosed blast shot or diamond grinding and other appropriate means to abrade the surrounding concrete and to remove laitance.
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Optimum performance, including adhesion, corrosion protection, heat resistance and chemical resistance is achieved with recommended surface preparation. For other surface treatments, please consult with Philadelphia Coatings LLC.

Storage

Circa 24 months at 20°C, stored at dry, shaded and ventilated condition. The container/paint, must be kept sealed and away from heat and ignition.

In some markets commercial shelf life can be dictated shorter by local legislation. The above is minimum shelf life, thereafter the paint quality is subject to re-inspection.

Color Variation

When applicable, products primarily intended for use as primers or antifoulings may have slight color variations from batch to batch. Such products may fade and chalk when exposed to sunlight and weathering. Color and gloss retention on topcoats/finish coats may vary depending on type of color, exposure environment such as temperature, UV intensity etc., and application quality. For further information, please consult with Philadelphia Coatings LLC.

Pack Size

Basis 5 Gal. (18,9 Lit) drum, 20 Lit drum. If other packing specifications are needed, please consult with Philadelphia Coatings LLC.

Health and Safety

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read carefully and conform to precautions on MSDS and packing vessels. To avoid eye and skin contact, tools such as gloves, goggles and face mask etc. should be used during work with product (proper safety measures should be taken according to construction methods and circumstances). All work with the product must be carried out according to all relevant national health, safety and environment standards and codes. This product is for professional use only.

Limitation of liability

All information is given for guidance only and is subject to regional variation depending upon local climate and environmental condition. An excessive film thickness delays the final curing and creates sagging. Over coating interval will increase with the number of paint layers and the thickness of the paint film. For recommended paints at special circumstances, please consult with Philadelphia Coatings LLC. Apply in good weather. The relative humidity must not

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exceed 80% temperature of the surface to be coated must be at least 3°C above the dew point. All data from the tests is obtained under lab conditions, so Philadelphia Coatings LLC won't bear any liabilities from the condition whether the data could reflect the objective status of the actual application circumstance or not.

Disclaimer

The information in the product manual is based on our experiences from tests and practice. For the application without our knowledge, we could only make sure that our products themselves are warranted. We may modify the data in this product manual according to our continuous development and experience accumulation without advanced notice.