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## Product Data Sheet

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### ANTIFOULING ranges

## “ASTRA SEA SPEED TIN - FREE SPC”

### Hybrid Acrylate Antifouling

**Color: Brown Red PHF-3011**

**Quality: premium plus**

#### High Sophisticated, Biocidal Antifouling Range:

**Next generation of Astra Sea Speed tin-free SPC with reinforced Biocide package Enhanced by Silver, Copper or Zinc Ions**

#### Product Information

Astra Sea Speed Tin-Free SPC is a low friction, self-Polishing Hybrid Acrylate SPC high performance antifouling, with insoluble acrylate polymer, Copper Cu<sub>2</sub>-SiR<sub>3</sub> (Pyrrithion) Antifouling Coating. Next generation A/F technology is designed as a premium solution which provides improved hull performance. Wide Range of Speed and activity. Focus on long term hull performance and fuel savings. Best in class mechanical strength to avoid cracking and peeling. Tin free high-performance A/F is certified to comply with DNV-GL Approval for Anti-fouling Systems on ships. Astra Sea Speed Tin-free SPC is certified as TBT-Free A/F by Lloyd's Register as well. Antifouling Astra Sea Speed Tin-Free SPC is applied on Tankers-Chemical-Navy-Coastal-Cruiser-Deep Sea-Ocean Vessels, where longer static conditions arise. Expected service life up to 90 months, providing returns with enough dividends to the operators.

**Displays very good compatibility with various well known producers.**

#### Recommended Purpose

Product is designed to be used on vessels operating on worldwide routes with dry docking intervals up to 90 months. It can be used at new building or maintenance. Suitable protection on hull under severe fouling conditions. Suited for vessels operating in global service, including fresh water exposure during newbuilding outfitting. Recommended for slow streaming deep sea trade.

#### Physical Properties

**Color:** Brown Red PHF-3011 quality premium plus. Other colors upon request

**Sheen:** Matt

**Volume Solids (%):** 58 ± 2

**Theoretical Coverage:** 5.80 m<sup>2</sup>/Lit at 100 microns dry

**Recommended Film Thickness:** 75-175 microns dry

**Recommended Film Thickness:** 120-280 microns wet

# Philadelphia Coatings LLC

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**Density:** 1.75 kg/Lit

**Flash Point:** 28± 2 °C

**VOC:** 364.00 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/cm<sup>2</sup> (2000psi). Maybe required to add thinner. Use the 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.

Power tool cleaning and Cleaners with Thinner PH 400.

### 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)	12 hours	6 hours	5 hours
Refloating time from the application of the last coat (Min)	12 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

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

### 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.



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### 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.
Galvanized 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)
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.

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

Less than 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.

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### Pack Size

Standard packing of 5,3 Gal. (20 Lit) pail. 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, such tools as gloves, goggles and face mask etc. should be used for works (proper safety measures should be taken according to construction methods and circumstances). All works with the product must be carried out according to all relative 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 increment of the number of paint layer and the thickness of the paint film. For recommended paints at special circumstances, please consult with our Philadelphia Coatings LLC. Apply in good weather. The relative humidity must not 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 at the special lab circumstance, so Philadelphia Coatings LLC, won't bear any liabilities from the condition whether the data could reflect the objective status at the actual application circumstance or not.

### Disclaimer

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