



Product Data Sheet

“PHILAGARD HARD PHEH 06/04”

High Abrasion Resistant Tank & Cargo Coating

Product Information

PhilaGard Hard is a new dedicated deck and cargo hold coating with a high-performance ratio. This product is a low VOC pure, high solids epoxy barrier surface tolerant coating, with excellent anticorrosive properties and high impact and abrasion resistance.

Special additives are added to the coating resulting in a chemically bonded layer with both metallic and painted surfaces. The chemically bonded layer is insoluble and extremely corrosion resistant. This bonding process also provides superior adhesion and flexibility and decreases under film corrosion that occurs when conventional coatings are damaged. The elasticity of Special additives makes it very durable in temperature variations.

It can be specified for maintenance in atmospheric and immersed environments, ballast tanks, on dump areas with forced ventilation, deck and cargo holds. It can be recoated with various PhilaCoatings finishing systems. Tested for non-contamination of grain cargo. Complies with the section 175.300 of the quote of Federal Regulation (FDA) in respect in carriage of dry food stuffs in space with an internal surface area larger than 10,750 sqft. Certificate available at request. Time to carry first cargo: minimum 3 days at 30°C. Easy to clean between cargoes.

PHILAGARD Hard PHEH 06/04 displays very good compatibility with various well known producers.

Recommended Purpose

The coating protects the cargo holds from chemical damage and exhibits excellent abrasion resistance caused when loading hard, angular cargoes. With an 8 years major repair interval, it enables ship owners to extend time between dry docking periods between major cargo hold coating repairs and reduce maintenance costs. PhilaGard Hard has been specifically developed for bulk carrier operators who want to extend cargo hold coating repair intervals but without investing in higher performing coatings like Zinc-Silicate. It offers high impact resistance to prevent “shooting” damage for high speed loading and high glass transition temperature to ensure the coating remains hard when exposed to warm cargoes. As a result, PhilaGard Hard offers better protection than compatible cargo hold coatings. Applicable on ballast tanks, decks and cargo holds. High gloss durable finish, chemical and abrasion resistance, outstanding adhesion and quick drying.

Physical Properties

Colors: Red Brown, Gray, Aluminum shades

Sheen: Semi-Gloss

Volume Solids (%): 76

Theoretical Coverage: 6.08 m²/Lit at 125 microns dry / 165 microns wet

Recommended Film Thickness: Over 250 microns dry by 2 coats.

Flash Point: Mixed product >25°C

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Product Data Sheet

Specific gravity: 1.28 g/Lit

VOC: 220.00 g/Lit (material as into the container)

ASTM D412 for Elongation and Tensile Strength

ASTM D4060 for Abrasion Resistance

Application Data

Mixing Ratio: Basis 4 part per/volume, Curing Agent 1 part/volume.

Thinner: Not recommended. The material is ready for use, under special conditions use thinner for epoxy PH 300, max 5% by volume.

Painting Method: Airless spraying is our recommendation, Brush, Spray follows. Tip range 0.48mm-0.66mm (21 thou), blowing pressure shouldn't less than 141kg/cm² (2000psi). May be required to add thinner. Use the proper equipment. Actual safety measures and precautions are very important for the selected method and environment where work is done. Emergency Contact Numbers are available World Wide upon any request.

Cleaning: Power tool cleaning and Cleaners with Thinner for epoxy PH 300.

Readiness Time: 20 minutes in a proper temperature.

Pot Life: 10°C: 4 hours, 23°C: 2 hours, 30°C: 1 hour

Curing Time: Within 4 days at 23°C (fully cured).

Optimal Application Conditions: The temperature of the substrate should be at least 3°C above the dew point of the air. Temperature and relative humidity should be measured near the substrate. The maximum recommended surface temperature is approx. 40°C. Higher steel temperatures are acceptable provided dry-spray is avoided by proper spray application and extra thinning if required. In extreme cases it may be necessary to reduce film thickness to avoid sagging. When applying the paint in confined spaces, provide adequate ventilation during application and drying. The temperature of the mixed paint should be at least 15°C, otherwise extra solvent may be required to obtain a proper application viscosity.

Drying and Over coating Conditions

Temperature of basis material	5°C	10°C	23°C	30°C
Touch Dry	8 hours	6 hours	3 hours	2 hours
Hard Dry	12 hours	10 hours	8 hours	4 hours
Repainting interval (Min)	12 hours	10 hours	8 hours	4 hours
Repainting interval (Max)	Always under 30 days, depend from environment temperature, best period between 2 days - 7 days			

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Coating Specification

Long overcoat period if local climate temperatures are around freezing point. Make proper selection of the systems, coating application procedures, proper surface preparation, as per actual existing film esp. over coated epoxy layer. Try to test design factors, statements and specific recommendations in a controlled laboratory. Always value the conditions and be in touch with Philadelphia Coatings LLC Technical Department.

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)
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

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.

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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 4 Gal. (16 Lit) pail, agent 1 Gal (3,785 Lit) tin. If other packing specifications are needed, please consult with Philadelphia Coatings LLC.

Shipping weight

Basis 4 Gal. (16 Lit) 65.44 lb drum, agent 1 Gal (3,785 Lit) 4.2 lb drum.

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 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 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 at the actual application circumstance or not.

Disclaimer

The information in the product manual is based on our experiences from the 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 advance notice.