



AMERLUX



Protective Coatings

Permachar 1709 Epoxy Intumescent Coating

Product Data/ Application Instructions

- Superior fire & corrosion protection
- Achieves up to 4 hours fire resistance rating
- Unique flexibility
- Superior mechanical resistance
- Suitable for cryogenic exposure
- Formulated to meet UL 1709, ASTM E-84, BS 476, ISO 22899, NFPA 290 & others
- Cyclic temperature resistance from -40°C to +80°C
- Suitable for use in offshore and onshore environment with ISO 12944-2 corrosivity categories of C5-I and C5-M

Typical uses

Permachar 1709 is a solvent free epoxy intumescent fire protective coating. It provides passive fire protection to structures, deck, pipe work, process vessel and other equipment. When exposed to fire, its unique chemical composition transforms its surface into ceramic-like, insulating char that provides thermal protection for the substrate even under hydrocarbon and jet fire conditions. Permachar is an epoxy, its tough, durable coating provides a dense shield to the elements. Permachar has resistance to solvents, acids, alkalies, salts and abrasion making Permachar the ideal choice for harsh environments ranging from arctic to tropical climates. For service applications exceeding 80°C consult your OAL technical representative.

Product fire test results

Permachar 1709 coatings have been fire tested inhouse and in third party's laboratory. A sampling of fire test results is listed. Consult Oasis Ameron technical representative for more information.

Physical data

Finish	Matt
Colour	grey
Components.....	2
Mixing ratio	
By volume.....	2.33 part A to 1 part B
By weight.....	3.25 part A to 1 part B
Curing mechanism	Chemical reaction between components
Weight solids	100%
VOC*	
EC SED 1999/13/EC.....	0 g/kg (0 g/l)
UK PG6/23(92) Appendix 3 ..	0 g/l (0 lbs/gal)
Dry film thickness	Dependent on fire rating and loading factors
Wet film thickness per coat	3 - 8 mm
Typical coverage	
At 5 mm/0.2"	0.25 m ² /l 10.33 ft ² /gal
At 10 mm/0.4"	0.12 m ² /l 5.17 ft ² /gal
Flashpoints	
Cure	over 100°C (212°F)
Resin	over 100°C (212°F)
Thinner Type 47.....	44°C 111°F
Amercoat 12	24°C 75°F
Amercoat 920	24°C 75°F
Thinner.....	OA 55
Roller finish solvent**.....	OA 55
Cleaning solvent.....	OA 12

* VOC figures are quoted according to both the EC directive 1999/13/EC which are theoretically calculated figures and the UK PG6/23(92) Appendix 3 which are practically determined figures.

** OA 55 can be used to wet rollers required to treat sprayed surfaces. It may not be used to thin material for application improvement.

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Physical and mechanical

Properties	Test method	Result typical
Tensile Strength Elongation	ASTM D-638 Type 1 ASTM D-638 Type 1	49.7 kg/cm ² (707 psi) >10%
Compression Strength Modulus	ASTM D-695	159.2 kg/cm ² (2264 psi) 327.6 kg/cm ² (4660 psi)
Impact Strength	ASTM D-256 "A"	0.079 kg.m/cm 1.46 ft.lbs./in.
Bond Strength	ASTM D-1002 (modified 0.5 in/min) Tensile Lab Shear	73.9 kg/cm ² (1051 psi)
Hardness* (determined by OAL)	ASTM 2240 Shore D	25 after 24 hrs at 20°C
Density	Practical density after spraying	1100 kg/m ³ (68.7 lbs/ft ³)
Thermal Conductivity	ASTM C-177 K. Value	0.244 W/m. °C.hr (1.69 BTU In./°F.ft ² hr)

Environmental properties

Test conducted by Underwriters laboratories Inc. (UL) to ensure retention of fire protection (UL 263 and UL 1709 test criteria)

Permachar 1709 Coating passed the following tests

- Salt spray
- High humidity
- Solvent spray
- Acid spray
- Industrial atmosphere (CO₂-SO₂ air mixture)
- Combination dry, wet and freezing cycling
- Heat aging – 80°C for 175 days
- Norsok M501: accelerated aging and hydrocarbon fire test portion of M501

Application Data

Substrate.....Suitably primed steel coated with epoxy OA 5560, OA 5503, OA 5500 or OA 85 zinc rich epoxy primer

Surface preparationPrimed surface must be clean, dry, undamaged and free of all contaminants including salt deposits. Round of all rough welds and remove weld spatter

Application method*Plural component hot spray or mastic airless spray

Environmental conditions

Air temperature..... 10-50 °C

Surface temperature..... 10-60 °C

Surface temperature must be at least 3°C / 5°F above the dew point to prevent moisture condensation on the surface.

Pot life**

Curing times*** (°C/°F) 38/100 24/75 16/60 4/40

Cured to Shore A50..... 4 hr 10 hr 36 h

* Permachar 1709 is available in two package sizes, check with your OAL technical representative for specific recommendations

** Pot life is not a factor when using specialized plural component airless spray equipment

*** Curing times are dependent on temperature, ventilation and exposure to direct sunlight

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Surface Preparation

PRIMED STEEL - Coating performance is proportional to the degree of surface preparation. Refer to specifications of the specific primer being used. Prior to coating, primed surface must be clean, dry, undamaged and free of all contaminants including salt deposits. Round of all rough welds and remove weld spatter.

Application Equipment

For optimal efficiency Permachar 1709 is applied using plural component, hot-spray airless equipment. Separate components are typically heated to 50-60°C (120-140°F) and mixed through a mixing block 3-5 meters (10-15 feet) from the spray gun. Complete airless spray equipment dimensions and capacities, plus minimum air and power requirements are available in our detailed contractor manual.

Application Procedure

The application of the Permachar 1709 system requires detailed knowledge of application equipment, components, conditions, configuration and finishing process. Check with your OAL technical representative for information on our contractor training program.

Shipping Data

Packaging

Plural spray kit

Component A 2 cans with 26.75 kg (58.9 lbs)
Component B 16.5 kg (36.3 lbs) in 5 gallon can

Mastic spray kit

Component A 1 cans with 20.2 kg (44.5 lbs)
Component B 6.2 kg (13.7 lbs) in 2 gallon can

Shipping weight		kg	lb
Plural spray kit			
Component A	approx	30	65
Component B	approx	19	40

Mastic spray kit

Component A approx 22 48
Component B approx 8 18

Shelf life from shipment date when stored indoors in unopened, original containers at 5 to 40°C (41 to 104°F)

Component A..... 1.5 year
Component B..... 2 years

Permachar Fabric Mesh

Mesh Code	Description	Roll Size	Uses
238-2/66	Fiberglass, 1/8 x 1/8" holes, 4.5 oz/yd ²	4 x 150 ft (1.2 x 45.7 m) rolls, 600 ft ² (55.7 m ²) area per roll	Cellulosic and hydrocarbon fires, Structural steel (small sizes)
238-4/66	Fiberglass, 1/4 x 1/4" holes, 4.5 oz/yd ²	4 x 150 ft (1.2 x 45.7 m) rolls, 600 ft ² (55.7 m ²) area per roll	Hydrocarbon and 30 min. or less Jet fire. All large steel types.
238-5/66	Permachar fabric mesh 6.0 oz/yd ² (203.4 g/m ²)	40' x 166 ft. (1 x 50 m) roll 533 ft ² (50 m ²) area per roll	Hydrocarbon and Jet fire areas. All steel types.

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Safety

Since improper use and handling can be hazardous to health and cause of fire or explosion, safety precautions included with Product Data/Application Instruction and Material Safety Data Sheet must be observed during all storage, handling, use and drying periods.

Warranty

OAL warrants its products to be free from defects in material and workmanship. OAL's sole obligations and Buyer's exclusive remedy in connection with the products shall be limited, at OAL's option, to either replacement of products not conforming this warranty or credit to Buyer's account in the invoiced amount of the non-conforming products. Any claim under this warranty must be made by Buyer to OAL in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify OAL of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

OAL makes no other warranties concerning the product. No other warranties, whether express, implied or statutory, such as warranties of merchantability or fitness particular purpose, shall apply. In no event shall OAL be liable for consequential or incidental damages.

Any recommendations or suggestion relating to the use of the products made by OAL, whether in its technical literature, or response to specific enquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyer's having requisite skill and know-how in the industry, and therefore it is Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

Limitation of Liability

OAL's liability on any claim of any kind, including claims based upon OAL's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. In no event shall OAL be liable for consequential or incidental damages.

Due to OAL's policy of continuous product improvement, the information contained in this Product Data/Application Instructions sheet is subject to change without notice. It is the Buyer's responsibility to check that this issue is current prior to using the product. For the most up-to-date Product Data/Application Instructions always refer to the Oasis Ameron website at www.oasisameron.com.

To avoid any confusion that may arise through translation into other languages, the English version of the Product Data/Application Instructions will be the governing literature and must be referred to in case of deviations with product literature in other languages.

Condition of Sale

All our transactions are subject to our Terms and Conditions of Sale.

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