TANK AND PIPE LININGS
COMPREHENSIVE GUIDE FOR PROTECTIVE COATINGS

FROM SPEC TO PROTECT

protectiveemea.sherwin-williams.com
Whatever the challenge, Sherwin-Williams is committed to providing tailor made specifications to fulfil your project requirements. With our global supply chain and skilled technical service network, we ensure that your assets will remain protected.

Our global footprint allows us to supply our lining solutions anywhere in the world, helping protect your investment from corrosion. With operations in over 100 countries, we are ready for wherever your next project takes you.

We understand choosing a linings supplier is often a complex decision.

That’s why Sherwin-Williams supply linings suitable for a wide variety of applications, including:

- Internal lining for process vessels and piping
- Internal lining of above and below ground storage tanks
- External lining of buried tanks, vessels and equipment

We also provide a range of linings suitable for use onto concrete surfaces which protect against chemical, abrasion and impact attack. Specialised systems are available for applications where concrete movement is expected.
SHERWIN-WILLIAMS TANK AND PIPE LININGS
PRODUCT PORTFOLIO

Tank linings are designed to withstand chemical resistance, high temperature and high pressure (HTHP), and mechanical abrasion. Sherwin-Williams linings are typically used for the bulk storage of crude and refined petrochemicals – but also may be used in oil process vessels and other aggressive immersion services.

Dependent upon the product being stored, the requirements and features of the tank lining varies. Sherwin-Williams tank lining products protect the surface of the tank itself and ensures that contamination of the product being stored is avoided. These solutions combine exceptional anticorrosive performance with effective chemical resistance.

TRUSTED TRACK RECORD

Sherwin-Williams have expert teams located throughout Europe who provide the highest level of service in selecting, specifying and applying the linings systems.

Our tank lining coatings have been applied through 16,000,000 litres of paint covering the equivalent of more than 3,000 soccer pitches.

<table>
<thead>
<tr>
<th>Product</th>
<th>Volume ltr (since 2007)</th>
<th>Approximate area m²</th>
<th>Soccer pitches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nova-Plate® UHS</td>
<td>3,500,000</td>
<td>5,000,000</td>
<td>670</td>
</tr>
<tr>
<td>Dura-Plate® UHS</td>
<td>6,000,000</td>
<td>8,000,000</td>
<td>1,070</td>
</tr>
<tr>
<td>Phenicon® HS</td>
<td>6,000,000</td>
<td>12,000,000</td>
<td>1,600</td>
</tr>
<tr>
<td>Nova-Plate® 325</td>
<td>500,000</td>
<td>700,000</td>
<td>100</td>
</tr>
</tbody>
</table>
TANK AND PIPE LININGS
PRODUCT PORTFOLIO

Nova-Plate UHS
Versatile solvent-free epoxy novolac, focused on refineries and terminals

1 Lining: Nova-Plate UHS @ 500µm dft
0 Carbon steel:
  Blast clean to Sa2½
  BS EN ISO 8501-1:2007

Key features
- Solvent-free novolac epoxy tank lining
- Chemical resistance
- Single coat application
- Robust and versatile to cope with crude, refined oil products
- Suitable for use under thermal insulation

Coating system
- Typical specification: Grit blast Sa 2½
  1 x 500µm dft

Approvals
- Meets MIL-PRF-23236, Type VII, Class 5, 7, 13, 19, Grade C
- Norsok M501 System 7C (140ºC)
- Exxon Mobil
- Shell DEP
- Oil tanking

Typical use
- Refineries and terminals
- Crude
- Refined petrochemicals
- Ethanol
- Methanol

Dura-Plate UHS with Opti-Check Technology
High-performance, general-purpose solvent-free epoxy amine lining

Option 1 without Opti-Check Technology

1 Lining: Dura-Plate UHS @ 500µm dft
0 Carbon steel:
  Blast clean to Sa2½
  BS EN ISO 8501-1:2007

Option 2 with Opti-Check Technology

1 Lining: Dura-Plate UHS direct mix with Opti-Check @ 500µm dft
0 Carbon steel:
  Blast clean to Sa2½
  BS EN ISO 8501-1:2007

Option 3 with Opti-Check Technology

2 Lining: Dura-Plate UHS white @ 350–500µm dft
1 Lining: Dura-Plate UHS primer with Opti-Check @ 150µm dft
0 Carbon steel:
  Blast clean to Sa2½
  BS EN ISO 8501-1:2007

Key features
- Fast curing to service in +/- 4 days
- Single-coat application
- Opti-Check™ Optically Activated Pigments (OAP) technology
- Enhanced edge retention properties
- Chemical and abrasion resistance
- Low odour, low VOC

Coating system
- Typical specification: Grit blast Sa 2½
  1 x 500µm dft

Approvals
- Approvals: Meets MIL-PRF-23236, Type VII, Class 5, 7, 9 and 11, Grade C
- NSF approved to Standard 61 for potable water
- Complies with the performance requirements of EI Standard 1541 (2nd Edition) for aviation fuel storage and transport

Typical use
- Refineries, terminals and pipelines, offshore
- Fuel tanks, nuclear industry
- Dedicated crude storage tanks and dedicated water ballast tanks
- Water and waste-water treatment plants and storage tanks
TANK AND PIPE LININGS
PRODUCT PORTFOLIO

Phenicon HS with Opti-Check Technology
High-performance, high-solids epoxy novolac lining

<table>
<thead>
<tr>
<th>Lining 2nd coat:</th>
<th>Coating system</th>
<th>Approvals</th>
<th>Typical use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenicon HS white @ 125µm dft</td>
<td>Typical specification: Grit blast Sa 2½ 2 x 125µm dft</td>
<td>Contact Sherwin-Williams for specific approvals</td>
<td>• Crude</td>
</tr>
<tr>
<td>Lining 1st coat:</td>
<td>Phenicon HS with Opti-Check @ 125µm dft</td>
<td></td>
<td>• Refined</td>
</tr>
<tr>
<td>Carbon steel:</td>
<td>Blast clean to Sa2½ BS EN ISO 8501-1:2007</td>
<td></td>
<td>• EtOH</td>
</tr>
</tbody>
</table>

Magnalux 41V2
High-performance novolac glass-flake vinyl ester

<table>
<thead>
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<th>Lining 2nd coat:</th>
<th>Coating system</th>
<th>Approvals</th>
<th>Typical use</th>
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</thead>
<tbody>
<tr>
<td>Magnalux 41V2 @ 500µm dft</td>
<td>Typical specification: Grit blast Sa 2½ 2 x 500µm dft</td>
<td>Contact Sherwin-Williams for specific approvals</td>
<td>• Storage of acidic materials, secondary containment and process vessels</td>
</tr>
<tr>
<td>Lining 1st coat:</td>
<td>Magnalux 41V2 @ 500µm dft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon steel:</td>
<td>Blast clean to Sa2½ BS EN ISO 8501-1:2007</td>
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</tbody>
</table>
## Nova-Plate 325
High-temperature, high-pressure lining for crude oil storage and processing

**Lining:** Nova-Plate 325 @ 500µm dft

**Carbon steel:**
- Blast clean to Sa2½
- BS EN ISO 8501-1:2007

### Key features
- High-temperature, high-pressure tank lining (HTHP)
- Extends service life
- Single-coat application
- Saves on downtime
- Novolac technology
- Can be used as both a high pressure tank and pipe lining

<table>
<thead>
<tr>
<th>Key features</th>
<th>Coating system</th>
<th>Approvals</th>
<th>Typical use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High-temperature, high-pressure tank lining (HTHP)</td>
<td>Typical specification: Grit blast Sa 2½ 1 x 500µm dft</td>
<td>• Norsok M501 System 7C (180°C)</td>
<td>• Oil storage tanks up to 149°C</td>
</tr>
<tr>
<td>• Extends service life</td>
<td></td>
<td>• Shell DEP</td>
<td>• Secondary containment</td>
</tr>
<tr>
<td>• Single-coat application</td>
<td></td>
<td></td>
<td>• Cathodic protection systems</td>
</tr>
<tr>
<td>• Saves on downtime</td>
<td></td>
<td></td>
<td>• Ethanol storage tanks</td>
</tr>
<tr>
<td>• Novolac technology</td>
<td></td>
<td></td>
<td>• Tanks and vessels</td>
</tr>
<tr>
<td>• Can be used as both a high pressure tank and pipe lining</td>
<td></td>
<td></td>
<td>• Piping and valves</td>
</tr>
</tbody>
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**TANK AND PIPE LININGS**

**PRODUCT PORTFOLIO**

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Opti-Check Technology with Optically Activated Pigments (OAP)
Using a fluorescing pigmentation that illuminates the coating for instant verification under ultraviolet light, allowing our linings to be inspected during application to efficiently identify and resolve missed areas. This helps create a continuous film and a high-quality finish with minimal downtime.

Opti-Check is available in a variety of tank lining products, allowing applicators to check the coating instantly for:

- Pinholes and holidays
- Uniform coverage
- Correct film thickness

The fluorescing technology significantly extends the service life of tank linings by illuminating the coating during application by using a portable ASTM E2501 approved light source.

**Benefits**

- Makes defects easy to identify allowing for faster and more thorough inspection
- Saves time and improves productivity of coating inspection
- Extends service life of coating by ensuring correct film thickness is achieved
- Helps correct application

**Features**

- Uses eye-safe appropriate UV light
- Quickly highlights defects, holidays and pinholes
- Highlights low film thicknesses during application
- Can be used to “verify” stripe coating

**How it works**

Size and number of pinholes/holidays have been exaggerated for illustration purposes.
THE SHERWIN-WILLIAMS DIFFERENCE
Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems that excel at combating corrosion helps customers achieve smarter, time-tested asset protection. We serve a wide array of markets across our rapidly growing international distribution footprint, including oil and gas, water and wastewater, bridge and highway, steel fabrication, flooring, food and beverage, rail and power, marine and passive fire protection.