Coatings
Solutions for Transformers
Solutions for Transformers

WEG has a large experience in manufacturing of transformers and transmission equipments, and knows the importance of a quality coating. In order to serve this demanding market, WEG Coatings has developed high technology coatings and varnishes, ideal for application in all kinds of transformers.

The industrial system meets the strictest resistance and performance tests required by the industry.

Our products bear certifications of compliance with the requirements of ABNT Standards in addition to several homologations.

External Coating of Transformers and Radiators in Low-Aggressive Outdoor Environments

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARDUR DF 475</td>
<td>1</td>
<td>50&quot; to 55&quot;</td>
<td>35&quot; to 40&quot;</td>
</tr>
<tr>
<td>STARDUR TFD 475</td>
<td>1</td>
<td>25&quot; to 30&quot;</td>
<td>30&quot; to 35&quot;</td>
</tr>
</tbody>
</table>

**STARDUR DF 475**

**PRODUCT DESCRIPTION:** Double function aliphatic acrylic polyurethane that meets the cyclic tests of **ABNT Standard NBR 5440. It does not require primer, providing productivity gains.**

**USE RECOMMENDATIONS:** Used in distribution transformers, voltage regulator and medium power up to 10 MVA.

**STARDUR TFD 475**

**PRODUCT DESCRIPTION:** Primer two-component aliphatic acrylic polyurethane finish, high solids by volume and high yield. It has a fast drying at room temperature with excellent color retention and brightness, flexibility and hardness. Meets the standard NBR 5440.

**USE RECOMMENDATIONS:** Recommended for painting of transformers and radiators. Recommended for environments of low and medium aggressiveness.
External coating of transformer and radiator - according to environment C-3 of ISO 12944-2 Standard.

Environments type C-3 are those considered of medium aggressiveness, for example: urban and industrial atmosphere, moderate pollution with sulphur dioxide, areas on the coast with low salinity, production rooms with high humidity and some air pollution like food plants, laundries, breweries, dairy plants.

External coating of transformers and radiators - Outdoor (rural and urban) environments

Option 1 - Fast Drying

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARFLEX PR/HS 336</td>
<td>1</td>
<td>25’’ to 30’’</td>
<td>32’’ to 35’’</td>
</tr>
<tr>
<td>STARDUR TFD 475</td>
<td>1</td>
<td>25’’ to 30’’</td>
<td>30’’ to 35’’</td>
</tr>
</tbody>
</table>

STARFLEX PR/HS 336

PRODUCT DESCRIPTION: High solids polyamide epoxy primer with zinc phosphate anticorrosive pigments. Recommended for coating of transformers, radiators and other equipment in low and medium aggressive environments.

Option 2 - Greater Chemical and Anticorrosive Protection (1,000 hours in Salt Spray)

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARFLEX PR/HS 339</td>
<td>1</td>
<td>25’’ to 30’’</td>
<td>32’’ to 35’’</td>
</tr>
<tr>
<td>STARDUR DF 475</td>
<td>1</td>
<td>25’’ to 30’’</td>
<td>30’’ to 35’’</td>
</tr>
</tbody>
</table>

STARFLEX PR/HS 339

PRODUCT DESCRIPTION: High solids polyamide epoxy primer with zinc phosphate anticorrosive pigments. Excellent adhesion to carbon steel treated by abrasive blasting or blasted.

<< Coating schemes recommended in situations where it is difficult to obtain the layer of the STARDUR DF 475, especially over parts of complex geometry, such as covers, brackets and hooks. It is intended to prevent the appearance of premature corrosion spots. >>

<-- Image of transformer and radiator -->
External coating of transformer and radiators – according to environment C-5M of ISO 12944-2 Standard

Environments type C-5 are those considered highly aggressive, such as industrial areas with high humidity and aggressive atmospheres, and coast and offshore areas with high salinity. Examples are buildings or areas with almost permanent condensation and with high pollution.

Option 1

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARZINC EP 122</td>
<td>1</td>
<td>18” to 22”</td>
<td>25” to 30”</td>
</tr>
<tr>
<td>STARFLEX PR/HB 115</td>
<td>1</td>
<td>25” to 30”</td>
<td>28” to 30”</td>
</tr>
<tr>
<td>STARDUR HB/HS 470</td>
<td>1</td>
<td>25” to 30”</td>
<td>30” to 35”</td>
</tr>
<tr>
<td>STARDUR TFD 475</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STARZINC EP 122 N 1277**


**STARFLEX PR/HB 115**

PRODUCT DESCRIPTION: Micaceous iron oxide pigmented epoxy primer/intermediate. Product with high resistance recommended as intermediate coatings for transformers, radiators and other industrial equipment.

Option 2 - Productivity Gains; The Use of Intermediate is not Necessary

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARFLEX EZM 120</td>
<td>1</td>
<td>18” to 22”</td>
<td>25” to 30”</td>
</tr>
<tr>
<td>STARDUR HB/HS 470</td>
<td>1</td>
<td>25” to 30”</td>
<td>30” to 35”</td>
</tr>
</tbody>
</table>

**STARFLEX EZM 120**

PRODUCT DESCRIPTION: Zinc rich epoxy primer pigmented with micaceous iron oxide. It combines the protection of STARZINC EP 122 and STARFLEX PR/HB 115 in a single product to provide greater agility in the coating process, eliminating the need to apply three coats.

External Coating Tanks for Power Transformers - Aggressive Environments

For Coating with Guns

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARZINC EP 122 N 1277</td>
<td>1</td>
<td>-</td>
<td>35” to 40”</td>
</tr>
<tr>
<td>STARFLEX PR/HB 339</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STARDUR HB/HS 470</td>
<td>1</td>
<td>25” to 30”</td>
<td>30” to 35”</td>
</tr>
<tr>
<td>STARDUR TFD 475</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Coating by Flooding

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARZINC EP 122 N 1277</td>
<td>1</td>
<td>18” to 22”</td>
<td>-</td>
</tr>
<tr>
<td>STARFLEX PR/HB 339</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STARDUR HB/HS 470</td>
<td>1</td>
<td>25” to 30”</td>
<td>30” to 35”</td>
</tr>
</tbody>
</table>
External Coating with Standardized Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>LACKPOXI N 2630</td>
<td>1</td>
<td>20° to 30°</td>
<td>30° to 40°</td>
</tr>
<tr>
<td>LACKPOXI N 2628</td>
<td>1</td>
<td>15° to 20°</td>
<td>20° to 24°</td>
</tr>
<tr>
<td>LACKTHANE N 2677</td>
<td>1</td>
<td>20° to 30°</td>
<td>30° to 40°</td>
</tr>
</tbody>
</table>

**LACKPOXI N 2630**

PRODUCT DESCRIPTION: Two-component high solids high build polyamide epoxy primer with anticorrosive zinc phosphate pigmentation.

**LACKTHANE N 2677**

PRODUCT DESCRIPTION: Two-component, high solids high gloss aliphatic acrylic polyurethane topcoat. Product developed to compose an anticorrosive protection system with high Waterproofing power, chemical resistance and resistance to natural weathering.

**LACKPOXI N 2628**

PRODUCT DESCRIPTION: Two-component high solids high build epoxy topcoat cured with polyamide. Topcoat for anticorrosive protection in aggressive environments with high concentration of humidity and salt spray.

External Coating of Dry-Type Transformers

Option WEG

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>WEGTERM HPD 364</td>
<td>1</td>
<td>-</td>
<td>30° to 35°</td>
</tr>
</tbody>
</table>

**W-TERM HPD 364**

PRODUCT DESCRIPTION: Two-component phenolic epoxy coating with excellent chemical and anticorrosive resistance that is maintained when used at high temperatures. Dry heat resistance up to 220°C.

Internal Coating of Transformer Tanks

Option 1

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>STARLFEX AC 277</td>
<td>1</td>
<td>-</td>
<td>22° to 23°</td>
</tr>
</tbody>
</table>

**STARLFEX AC 277**

PRODUCT DESCRIPTION: Two-component amine adduct based coating. It has very low elimination of gases when in contact with transformer oil. Complies with ABNT EB-2060 Standard (NBR 11388), and it is ideal for internal coating of transformer tanks.

Option 2

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flooding</td>
<td>Conventional Gun</td>
</tr>
<tr>
<td>WEGPOXI TFP 304</td>
<td>1</td>
<td>-</td>
<td>20° to 25°</td>
</tr>
</tbody>
</table>

**W-POXI TFP 304**

PRODUCT DESCRIPTION: Two-component polyamine epoxy primer with high anticorrosive protection, flexibility, hardness and excellent applicability. Recommended for internal coating of tanks of the electric transformer industry, where the application and drying processes are essential.
Internal Coating of Radiators

Option 1

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>STARSELF 354</td>
<td>1</td>
<td>Flooding Conventional Gun µm VS% TSR (m²/L)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15’ to 18’ - 20 20 ± 2 16</td>
<td></td>
</tr>
</tbody>
</table>

STARGELF 354

PRODUCT DESCRIPTION: Single component modified epoxy self-priming. Resistant to immersion heat up to 90°C continuous and 120°C discontinuous. It has excellent resistance to transformer oil. Easy application and fast drying to touch. It complies with ABNT NBR 14274 Standard (resistant to radiator oil).

Option 2

<table>
<thead>
<tr>
<th>Product</th>
<th>Coats</th>
<th>Application Method - Viscosity CF # 4 to 25°C</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>STARDUR AC/SB 486</td>
<td>1</td>
<td>Flooding Conventional Gun µm VS% TSR (m²/L)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20’ to 25’ - 35 58 ± 2% 16</td>
<td></td>
</tr>
</tbody>
</table>

STARDUR AC/SB 486


External Coating with Water Based Products

Always concerned about sustainability issues, WEG Coatings follows the trend and commitment with Coatings Care® program to offer new solutions that provide protection and lower environmental impact. In this regard, WEG Coatings have developed innovative water based products for coating transformers.

<table>
<thead>
<tr>
<th>Environment according ISO 12944-2 Standard</th>
<th>Primer Coating</th>
<th>Intermediate</th>
<th>Top Coat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>W-POX HIDRO TFP 334</td>
<td>-</td>
<td>WEGTHANE HIDRO HPA 501</td>
</tr>
<tr>
<td>C4</td>
<td>W-POX HIDRO RZP 335</td>
<td>W-POX HIDRO TFP 334</td>
<td>WEGTHANE HIDRO HPA 501</td>
</tr>
<tr>
<td>C5</td>
<td>W-POX HIDRO RZP 335</td>
<td>W-POX HIDRO MCP 304</td>
<td>WEGTHANE HIDRO HPA 501</td>
</tr>
</tbody>
</table>

W-POX HIDRO TFP 334

PRODUCT DESCRIPTION: Epoxy primer water-soluble two-component with anticorrosive phosphate pigmentation and rapid drying. It has excellent adhesion on carbon steel and primer.

W-POX HIDRO RZP 335

PRODUCT DESCRIPTION: Epoxy primer water-soluble, zinc-rich two-component polyamide. The product provides corrosion protection to carbon steel through the galvanic action of the metallic zinc pigment. Recommended for urban and industrial environments of medium and high aggressiveness.

W-POX HIDRO MCP 304

PRODUCT DESCRIPTION: Intermediate epoxy polyamine of high two-component thickness, pigmented with micaceous iron oxide. It offers good chemical resistance and high corrosion protection. It has excellent adhesion on primer based on zinc or epoxy. Recommended for urban and industrial environments of medium and high aggressiveness.

WEGTHANE HIDRO HPA 501

PRODUCT DESCRIPTION: Aliphatic, glossy, two-component, water-soluble acrylic polyurethane finishing paint. Product developed to compose a system of anticorrosive protection and resistance to natural weathering. The product promotes a high gloss film where strength and aesthetics are required. Combining the product with primer and / or epoxy intermediates provides a system of great durability.
Enamel Coating and Impregnation

WEG impregnation varnishes and resins are polyester or epoxy based products that offer excellent dielectric properties, flexibility, hardness, chemical resistance, adhesion and compatibility.

They are ideal for application in power transformers and distribution with Thermal Classes B, F and H for Low and High Voltage Transformers.

Varnishes for Transformers

<table>
<thead>
<tr>
<th>Product</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>LACKTHERM 1355</td>
<td>Impregnation varnish class F for oil transformers with oven curing</td>
</tr>
<tr>
<td>LACKTHERM 1303</td>
<td>Impregnation varnish class B for small transformers (electronics industry) with air drying</td>
</tr>
<tr>
<td>LACKTHERM 1351</td>
<td>Impregnation varnish FW grade for air-dried oil transformers</td>
</tr>
</tbody>
</table>

For more information, refer to the product technical bulletin or contact our technical department.
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For those countries where there is not a WEG own operation, find our local distributor at www.weg.net.