Product Specification Sheet:

**Tinorethane Anti-Fouling Paints**

Exterior & Interior

Curing agent: Hardener 31

Aliphatic polyurethane non-yellowing paints with excellent weather resistance

Non-toxic after drying. Free of lead, mercury, cadmium, hexavalent chromium & halogenated solvents

Tinorethane Anti-Fouling Paint, series 9000

Tinorethane Anti-Fouling Lacquer, Nr. 15335

Tinorethane Paint – Ext., series 11500

Tinorethane Primer Sealer, Nr. 15330

**CHARACTERISTICS**

Aliphatic polyurethane two-pack solvent based anti-fouling paint & lacquer of high performance, excellent intercoat adhesion, UV resistance & remarkable durability for swimming pools, marine works and for surfaces to be immersed or subjected to condensation or growth of algae & fungus.

Tinorethane Anti-Fouling Paints do not absorb any of the UV range of the solar spectrum, have excellent gloss retention & non-yellowing properties, coupled with firm adhesion to steel, galvanized metals, concrete & wood surfaces, as well as to previously applied coatings of epoxy & polyurethane based coatings. They show good resistance to alkali and saponification, chemicals, alcohol, detergent & salt solutions, hydraulic fluids, staining substances, fresh & sea water etc... With good fungistatic and bacteriostatic properties.

These coatings meet the specifications of the building industry with good water vapour transmission, and enough flexibility to withstand application temperatures to -10°C & thermal stability up to 150°C. Tests according to DIN 53536 standards reveal that their high resistance against diffusion of CO₂, chlorides & other gaseous compounds into concrete structures protects against damage by carbonation. They are processed of ingredients & binders which fulfil the requirements of the building materials Fire behavior classification "flame retardant class 1", (German Standards 4102 - State Materials Testing Office - Dortmund). Their radiation stability & good decontamination properties resist the absorption of radioactive materials in nuclear installations, radioactive areas & x-ray rooms.

Tinorethane Anti-Fouling Paint, series 9000 & Lacquer Nr. 15335 incorporate a proportionate composition of effective non-toxic anti-fouling ingredients & preservatives (phenol free) to safeguard against infestation with fungus & growth of algae & molds in swimming pools & high humid premises, food industry & underwater. Treat water of swimming pools to insure proper protection against algae. The biocidal ingredients have been examined by the German Federal Health Office (BGA) with regard to their health-related properties, and are registered in Germany and EU: EC-No. (EINECS) 211-986-9 and in Switzerland: BAG.T Nr. 611484.

Swimming pool paints exposed to sunshine need treatment to insure anti-algae protection.

Tinorethane Primer Sealer, Nr. 15330 is a colorless non-yellowing primer sealer with good penetrating properties to satisfy the absorption of the substrate meeting DIN 53495 tests for water absorption, coupled with excellent resistance to saponification and reduction of thermal conductivity.
TECHNICAL DATA

Polyurethane (polyacrylate with aliphatic polyisocyanate), complying with the technical requirements of International Specifications ISO 12944-5 "protective paint systems for surfaces to be immersed in fresh or sea water (categories Im1 – Im2), and US specification CID A-A-3120 type E for swimming pools.

COMPOSITION

<table>
<thead>
<tr>
<th></th>
<th>Series 9000</th>
<th>Nr. 15335</th>
<th>Series 11500</th>
<th>Nr. 15330</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Total solids, by volume</td>
<td>51%</td>
<td>46%</td>
<td>54%</td>
<td>45%</td>
</tr>
<tr>
<td>- Total solids, by weight</td>
<td>65%</td>
<td>52%</td>
<td>68%</td>
<td>50%</td>
</tr>
<tr>
<td>- Non volatile vehicle (resins), by weight</td>
<td>36%</td>
<td></td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>- Main pigment, Rutile Titanium Dioxide, of total pigments</td>
<td>&gt; 98%</td>
<td>&gt; 98%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Density kg/L</td>
<td>1.24</td>
<td>0.98</td>
<td>1.26</td>
<td>0.98</td>
</tr>
<tr>
<td>- Toxicology</td>
<td>as per Institute for Toxicology–Germany</td>
<td>as per Institute for Toxicology–Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Temperature tolerance °C</td>
<td>-10 to 150</td>
<td>-10 to 150</td>
<td>-10 to 150</td>
<td>-10 to 150</td>
</tr>
<tr>
<td>- Mixing ratio, Hardener 31 to Base Component, by volume</td>
<td>1:6.9</td>
<td>1:6.7</td>
<td>1:6.3</td>
<td>1:6.1</td>
</tr>
<tr>
<td></td>
<td>14.5%</td>
<td>15%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

RECOMMENDED USES

Water resistant paints for swimming pools & marine applications such as boats, buoys, harbour installations and on general surfaces to be immersed in fresh or saline water.

They are ideal for exterior & interior application on concrete, masonry, metal, galvanized metals, wood & gypsum surfaces in laundries, very humid rooms, sellers, hydraulic engineering works, dairies, abattoirs, food & beverage processing plants, breweries, refreshment plants, kitchens, etc… Where algae, bacterial growth and dampness need treatment, it is recommended to use the anti fouling types, series 9000 or Nr. 15335.

SURFACE PREPARATION

Surfaces must be solid clean & dry, free from efflorescence, oil, salt, dirt, rust & other contaminants. Deteriorated paint remnants, oils or stains must be removed completely.

Treatment of non-painted surfaces:

Best results on concrete are obtained by sand or shot blasting to remove laitance & dust contaminants. Acid etching pre-treatment with a muriatic acid solution (5-10% HCl in water) brushed out on the concrete surfaces, & after about 10 minutes when the solution ceases to effervesce, flush thoroughly with clean water & leave to dry thoroughly, is usually adequate for most jobs especially after scarifying. Mechanical & manual cleaning is usually adequate for normal jobs.

All cracks, holes and surface breaks must be repaired with a non-shrink patching mixture, TINOPOXY S.F. PUTTY Nr. 14500 (epoxy base) or TINOPOXY CEMENT CONCRETE COMPOUND.

Alkaline and acid surfaces should be cleaned and neutralized. Moisture into concrete should not exceed 6%.

Best results on steel are obtained by abrasive blasting to International Standards (Sa 2½).

Mechanical cleaning and thorough wire brushing followed by washing is often sufficient for normal exposures.

Hot-dip-galvanized surfaces need pre-treatment and should be free from contaminants, zinc corrosion or oxidation products (white rust) zinc ash or salts. Etch surfaces with TINOPRIME ACTIVATOR 7 followed by washing with water and spot prime welded areas & cuts with TINOPOXY ZINC RICH PRIMER Nr. 15400 at 40µm d.f.t.

Moisture content in wood should not exceed 10%. Fill cracks and holes etc… with a suitable filler. Smooth wooden surfaces properly, either with mechanical buffer or with sand paper then dust.
Treatment of previously painted surfaces:
Non-disintegrated paints that do not swell under the effect of highly aggressive solvent based paints (like Pu or epoxies) should be roughened properly and tested for compatibility and adhesion.
Flaking, blistered, cracking or heavily chalking paint should be removed by sand blasting, flame spraying, paint removers (clean with water after using paint removers) or mechanical tools & reboned by a priming coat.

PRIMING
Prime concrete & masonry surfaces to be immersed and/or to be exposed to weather conditions with Tinorethane Primer Sealer Nr. 15330, or with Tinorethane Anti-Fouling Lacquer Nr. 15335 which is a self-priming fungistatic colorless coating, both diluted up to 100% with TINOSOLVE 1001, avoiding ponding.
Prime galvanized steel with TINORETHANE ANTI-RUST PRIMER 15312 /15313 at 80µm d.f.t. , and mild steel with TINOPOXY ZINC RICH PRIMER 15400
or with TINOPOXY ANTI-RUST PRIMER 15420/15432/15435 at 80µm d.f.t.

MIXING
Pour contents of Base Component into a larger container, add its HARDENER 31 (supplied with each type) and stir properly till a homogeneous mix is attained. Mixture remains usable for 1 hour at 23°C & 65% r.h..

THINNING
The first coat of Tinorethane Primer Sealer Nr. 15330 and/or Tinorethane Anti-Fouling Lacquer Nr. 15335 should be diluted up to 100% with TINOSOLVE 1001 depending on the absorption of the surface and method used. Consecutive coats of all Tinorethane paints could be diluted with TINOSOLVE 1001 by 20-25% for brush/ roller application and about 30% for conventional spray application. Airless spray application needs about 15% dilution. For spraying with a quicker drying solvent, use TINOSOLVE 1020

APPLICATION
Prepare surface and prime as recommended above and leave to dry about 24 hours, then apply top coats of the appropriate type, leaving overnight intervals between each coat.
Immediately after mixing & thinning, apply paint by brush, roller or spray gun.
Top coats’ application is usually carried out at a rate of about 40µm d.f.t. per coat (usually after 12 hours).
Top coating or recoating could be carried out after drying of the preceding coat, or can be delayed as they have good intercoat adhesion.
Immediately after use, clean tools and equipment with solvent.
Avoid application on hot surfaces in sunny days or on moist surfaces. Afternoon hours in the shade is most appropriate.
Treat water of swimming pools to insure proper protection against algae.

DRYING & RECOATING TIME
At temperature of 23°C & 65% r.h., a coated film of 120µm w.f.t.
- Dries to touch in about 1 hour
- Dries to recoat overnight
- Dries to handle in about 24 hrs.
Higher temperatures accelerate drying time and reduce pot life and vice-versa.
Optimum curing is usually reached after a few days. Painted surfaces to be immersed should be left about 4-6 days at room temperature to achieve complete drying.

GLOSS
Available in gloss finish for swimming pools and surfaces to be immersed. Semi-gloss and eggshell finishes are available for above water level.

COVERAGE
Depends on condition of surface and film thickness required.
Contents of one US gallon of BASE COMPONENT + its HARDENER 31 of:
- **Series 9000**: 4.330 liters cover 55 sq.m. at 40µm d.f.t.
- **Nr. 15335**: 4.350 liters cover 50 sq.m. at 40µm d.f.t. & 60 sq.m. at 33µm d.f.t.
- **Series 11500**: 4.385 litres cover 59 sq.m. at 40µm d.f.t.
- **Nr. 15330**: 4.405 liters cover 60 sq.m. at 33µm d.f.t.

**COLORS**

Series 9000 & 11500 are available in light & trim shades as shown on the color shades, (custom colors available on request). 15330 & 15335 are transparent primer sealers and lacquers.

**PACKING**

Into standard tin containers of:
- 1 US gallon = 3.78 L
- 1 US quart = 0.94 L
- 5 US gallons pail = 18.9 L (on request).

Each container is supplied with its appropriate pack of HARDENER. Every 4 gallons or 6 quarts are crated to a carton box.

**CAUTION**

Flammable liquid, keep away from flame or high heat.
Avoid inhalation of spray mist & arrange for adequate spraying precautions when painting in closed areas, or in closed water reservoirs.

**Tinorethane Paint Anti-Fouling Paint series 9000 & Lacquer Nr. 15335** in their liquid form should be handled with care. Eating, drinking and smoking must be prohibited during work. If the product comes into contact with the skin, the affected area should be immediately washed with large amounts of soap & water. Splashes in the eyes should be immediately rinsed with plenty of clean water & medical care should be sought. Keep in original container tightly closed.

This paint is non-toxic after drying. When the paint is used for domestic applications, rinse-off paint film with water after drying.

**WARRANTY**

TINOL products are warranted to be free of material and manufacturing defects, and to give the performance required of good quality coatings of International Standards, when properly applied in accordance with the written directions and the Code of Practice.

If any product proves to contain material or manufacturing defects that substantially affect its performance, it will be either replaced free of charge or purchase price will be reimbursed. Other liabilities or claims for any consequential loss or damage are disclaimed.