



# RAINBOW

## POLYURETHANE COATING – UP-450

### Specification Data

<b>Type</b>	A two-pack, high-solids colored coating based on acrylic polyol resin with non-yellowing polyisocyanate hardener.
<b>Uses</b>	Used for wooden, metal, FRP products and steel structures such as ships, vehicles, bridges, oil refineries, power stations, pulp factories, chemical plants etc.
<b>Characteristics</b>	<ul style="list-style-type: none"><li>• High gloss and excellent appearance.</li><li>• Excellent weather resistance with gloss and color retention.</li><li>• Excellent resistance to chemicals.</li><li>• Excellent adhesion, hardness, flexibility and abrasion resistance.</li></ul>
<b>Color</b>	A broad range of colors is upon customer request.
<b>Finish</b>	Gloss
<b>VOC values</b>	336 g/L , use No.736 thinner to thin up 5% (378 g/L) or 15% (445 g/L).
<b>Volume Solids</b>	55±3%
<b>Theoretical Coverage</b>	36 m <sup>2</sup> /Gal 9.5 m <sup>2</sup> /L 7.9 m <sup>2</sup> /Kg (DFT :2.4 mils)
<b>Dry Film Thickness</b>	1.6~3.2 mils per coat. Dry film thickness in excess of 3.2 mils (80 microns) per coat is not recommended
<b>Service Temperature</b>	Continuous : 200°F Non-Continuous :250°F
<b>Preceding Coats</b>	EP-999GF Epoxy High Solids Glass Flake Coating / No.1002 Epoxy Primer / No.1006 Epoxy Zinc Rich Primer / No.1007 Epoxy Red Lead Primer / No.1009 Epoxy Red Oxide Primer / No.1050 Epoxy M.I.O. Primer / No.1061 High Solids Epoxy Coating / No.700 One Pack Polyurethane Maintenance Primer

### Performance Data

Test Method	System	Results
ISO 4628-6-07 ISO 4624-02 Cyclic Corrosive Test	Blasted Steel 1 ct. IZ-01 (75 microns) 1 ct. EP-999GF(150microns) 1 ct. UP-450 (60 microns)	Chalking rating : 0.5 Original adhesive strength : 5.2 MPa Percentage of adhesive strength retention after cyclic corrosive test : 62.9%(3.27 MPa)
ASTM F963 Soluble Heavy Metals Test	1 ct. UP-450	n.d.(Sb 、As 、Cd 、Cr 、Pb 、Hg 、Se)
CNS 15200-5-3 Flexibility	1 ct. UP-450	No cracking and peeling on film
CNS 15200-7-6 Impact resistance	1 ct. UP-450	No cracking and peeling on film
CNS 15200-5-6 Adhesiveness between layers	1 ct. EP116 1 ct. UP-04 PU intermediate 1 ct. UP-450	No abnormality
CNS 15200-6-1 Alkali resistance	1 ct. EP116 1 ct. UP-04 PU intermediate 1 ct. UP-450	No abnormality
CNS 15200-6-1 Acid resistance	1 ct. EP116 1 ct. UP-04 PU intermediate 1 ct. UP-450	No abnormality

EPDM71UP450X V2.0

# YUNG CHI PAINT & VARNISH MFG. CO., LTD.

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CNS 15200-7-4 Humidity and cool-heat cycling resistance	1 ct. EP116 1 ct. UP-04 PU intermediate 1 ct. UP-450	Withstand humidity and cool-heat cycling
CNS 15200-7-6 Accelerated weather resistance	1 ct. EP116 1 ct. UP-04 PU intermediate 1 ct. UP-450	Withstand accelerated weather resistance test of 500hrs. Appearance : No blistering · cracking and peeling on film. Color difference: Not larger than reference sample. Chalking grade: 0 Gloss retaining ratio(%): 87

Test reports and additional data available upon written request.

## Certification

- Norsok M-501-04 : Report number KV-12-08801XA-1 ( SGS Taiwan Ltd. )
- CNS15665 K2247(2013) : Report number 140826373-1 (Taiwan Paint Industry Association)

## Application Instruction

### • Surface preparation

**General** Remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating. Surfaces must be clean and dry. Moisture, grease, sludge, dust, corrosive salt must be thoroughly cleaned from substrate.

**Primed Surfaces** UP-450 should always be applied over a recommended anti-corrosive coating scheme. The primer surface should be dry and free from all contamination and UP-450 must be applied within the overcoating intervals specified (consult the relevant product data sheet).

**Areas of Breakdown and Damage** It should be prepared to the specified standard (Sa2 1/2 (ISO 8501-1:2007) or SSPC-SP6, Abrasive Blasting or SSPC-SP11, Power Tool Cleaning) and patch primed prior to the application of UP-450.

### • Mixing & Thinning

**Mixing** Mix base and hardener according to the mixing ratio and stir thoroughly.  
**Thinning** Use PU Thinner (No.736) to thin up 5~15%.  
**Mixing Ratio** Base : Hardener = 88 : 12 ( by weight )  
**Pot life** 3 hours at 25°C ( mixture, 77°F)

### • Equipment

**Spray Application** Avoid applying the paint in rainy or humid weather (the moisture above 85% RH), otherwise the adhesion will be affected by moisture of substrate and the paint film will be loss its gloss. All equipment must be cleaned immediately after use. When overcoating interval is exceeded, paint surface must be roughened to insure adhesion. Hardener cover must be tightly closed to avoid reaction with moisture in air to form bubbles and gelation.

**Airless Spray** Pump ratio 30:1 or greater  
Tip size : 0.015"~ 0.019"  
Output PSI : 2100~2500

**Brush** Application by brush is applicable. For special condition please consult with product manufacturer.

**Roller** Application by roller is applicable. For special condition please consult with product manufacturer.

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## • Environment conditions

Condition	Coating	Surface	Environment	Humidity
Normal	20~30°C (68°F~86°F)	20~30°C (68°F~86°F)	20~30°C (68°F~86°F)	30~55%
Minimum	5°C (41°F)	5°C (41°F)	5°C (41°F)	0%
Maximum	35°C (95°F)	42°C (108°F)	42°C (108°F)	85%

Industry standards are for substrate temperatures to be 3°C (5°F) above the dew point . the product simply requires the substrate temperature to be above the dew point.

**Caution :** This Product is moisture sensitive in the liquid stage and until cured. Protect from high humidity ,dew and direct moisture contact until cures. Application and/or curing in humidities above maximum, or exposure to moisture from rain or dew may result in a loss of gloss and/or microbubbling of the product.

## • Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Handle	Dry to Recoat & Topcoat
5°C (41°F)	18 hours	18 hours
15°C (59°F)	10 hours	10 hours
25°C (77°F)	4 hours	4 hours
35°C (95°F)	1.5 hours	1.5 hours

## • Cleanup & Safety

- Cleanup** Use PU Thinner (No.736) to clean. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
- Safety** Please read and follow all caution statements on this product data sheet and MSDS for this product.
- Ventilation** Proper ventilation and protective measures must be provided during application and drying to keep solvent vapor concentrations within safe limits and to protect against toxic or oxygen deficient hazards.

## • Package, Handling & Storage

- Shelf Life** Part A :Minimum 2 years under normal storage conditions  
Part B :Minimum 1 years under normal storage conditions
- Shipping Weight** Part A : 1 Gallon – 4.94kg 5 Gallon – 24.1kg  
Part B : 1 Gallon – 0.74kg 5 Gallon – 3.3kg
- Storage Temperature & Humidity** 5-35°C (41-95°F)  
0-90% Relative Humidity
- Flash Point** Part A: 25°C (77°F)  
Part B: 47°C (116°F)
- Storage** Store in dry, shaded conditions away from sources of heat and ignition.

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