

Product Data Sheet

YDN385 | Fully Waterborne High Imino Methyl Etherified Melamine Resin

Ydnresin | A Division of YDN Group

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1. Product Description

YDN385 is a **fully water-soluble**, partially methyl etherified melamine formaldehyde resin, engineered for use as a **crosslinking agent in water-based coating systems**. It features **high imino and hydroxymethyl functionality**, delivering fast self-condensation, improved film hardness, and strong compatibility with a broad range of anionic emulsions and polymer dispersions.

2. Key Features

-  Fully soluble in water (zero solvent)
 -  High imino group content — enhances reactivity and hardness
 -  Excellent compatibility with acrylics, polyesters, emulsions
 -  Low free formaldehyde ($\leq 0.5\%$) for safer use
 -  Stable at neutral to mildly alkaline pH (8.5–9.5)
 -  Cures with mild acid catalyst (organic or inorganic)
 -  Improves film resistance to heat and plastic deformation
 -  Reduces VOC emission compared to solvent-based crosslinkers
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3. Typical Applications

- Waterborne wood coatings
- Emulsion-based industrial and decorative topcoats
- Acrylic, polyester, alkyd emulsions
- Eco-friendly OEM and furniture coatings
- Water-soluble dispersion systems for metal or plastic

4. Technical Specifications

Property	Value
Appearance	Transparent viscous liquid
Solvent	Water
Solid Content (105°C × 3h)	≥78%
Viscosity (30°C)	800–1500 mPa·s
Density (23°C)	~1250 kg/m ³
Flash Point (closed cup)	>100°C
Free Formaldehyde Content	≤0.5%
pH (1:1 solution with water)	8.5–9.5
Shelf Life	6 months (sealed, cool storage)

5. Solubility Profile

Solvent Type	Solubility
Water	✅ Fully Soluble
Alcohols	⚠️ Partially Soluble
Ketones	❌ Not Soluble

Solvent Type	Solubility
Esters	✗ Not Soluble
Aliphatic Hydrocarbons	✗ Not Soluble
Aromatics	✗ Not Soluble

6. Polymer Compatibility

Polymer Type	Compatibility
Waterborne Acrylic	✓ Excellent
Polyester Dispersion	✓ Excellent
Alkyd Emulsions	✓ Good
Polyurethane Emulsions	✓ Good
Epoxy Waterborne Systems	⚠ Moderate

7. Competitive Comparison

Feature	YDN385	CYMEL® 385 (Allnex)	Hexion UFR-WA	Synthomer WaterMel MF
Solvent Base	Water	Butanol	Methanol blend	Water
Water Solubility	✓ Full	⚠ Partial	⚠ Partial	✓ Full
Imino Functionality	High	Moderate	Moderate	Moderate

Feature	YDN385	CYMEL® 385 (Allnex)	Hexion UFR- WA	Synthomer WaterMel MF
Free Formaldehyde (%)	≤0.5%	≤1.0%	≤1.0%	≤0.8%
Catalyst Requirement	Weak acid	Strong acid	Acid required	Acid required
pH Stability Range	7.0–8.5	6.5–7.5	6.5–8.0	6.5–8.5
Shelf Life	6 months	6 months	6 months	6 months

8. Packaging

- 20L HDPE Drum
- 200L Steel Drum
- 1000L IBC Tote

9. Storage & Handling

- Store in **cool, dry, well-ventilated** environments
- Avoid direct sunlight and extreme temperatures
- Keep container tightly sealed
- Shelf life: **6 months** when stored at ≤25°C in original packaging
- Use appropriate **PPE**: gloves, goggles, protective clothing

10. Contact Information

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