

HYBRIDUR® for Metal Coatings

How do you transform your industrial metal coatings formulations from “good enough” to “high performance”? The answer is HYBRIDUR® waterborne acrylic urethane dispersions from Evonik.

APPLICATIONS
INCLUDE:
INTERIOR & EXTERIOR
INDUSTRIAL COATINGS
AND COATINGS FOR
ARCHITECTURAL
METAL

Our coatings solution is versatile and pushes your industrial coatings formulations ahead in every performance category. These anionically stabilized polymers are true urethane-acrylic hybrids that offer excellent wetting, adhesion, barrier and film properties. Hybridur® dispersions are an excellent choice for industrial metal coating applications. They provide VOC compliance, barrier and corrosion resistance properties and outstanding resistance to ultraviolet radiation making them a natural choice for both interior and exterior industrial coatings and coatings for architectural metal.



PREMIUM PERFORMANCE

- Excellent gloss
- Superior weatherability
- Anti-corrosion properties

IMPROVED PRODUCTIVITY

- Total system cost (paint, application, and maintenance)
- True urethane-acrylic hybrid
- One component system
- Ease of application

ECO-FRIENDLY PRODUCTS

- VOC compliance
- No harmful materials
- Registered on all major global chemical inventory registries

PROPERTIES AND SELECTION GUIDE FOR INDOOR WOOD APPLICATION

	Solids (%)	Viscosity Brookfield (cP)	pH	Freeze-Thaw Stability Cycles	Mechanical Stability	Hot Box Stability	Density (lb/gal)	Metal Coatings
Hybridur® 570	40 - 42	50 - 150	7.5 - 8.5	10 +	Good	Good	8.6	+
Hybridur® 580	40 - 42	50 - 150	7.5 - 8.5	10 +	Good	Good	8.7	+
Hybridur® 870	40	< 150	7.5 - 9.0	5	Good	Good	8.7	++
Hybridur® 878	40	< 150	7.5 - 8.5	5	Good	Good	8.7	+



STARTING POINT FORMULATION HYBRIDUR® 870 GLOSS WHITE COATING 50G/L VOC WITH ENVIROGEM® AD01

MATERIAL	POUNDS	GALLONS	SUPPLIER
Resin-Free Grind: Add the following into a clean container under mild agitation and mix until dissolved			
Water (Deionized)	56.21	6.74	
ZetaSpers® 1200 (Dispersant)	6.78	0.76	Evonik
ZetaSpers® 2100 (Dispersant)	6.78	0.80	Evonik
Surfynol® DF-75 (Defoamer)	0.60	0.07	Evonik
Continue agitation while adding the pigment below			
Ti-Pure™ R-706 (TiO ₂ Pigment)	299.80	8.98	Chemours
Increase speed to high and disperse to Hegman ≥ 7 grind. Temperature must not exceed 140°F			
Blend: Add the following into a separate, clean container under mild agitation and mix until blended			
Hybridur® 870	655.80	78.27	Evonik
Pre-blend the next 5 items before adding to the Hybridur® 870 polymer dispersion with strong agitation			
DOWNAOL® TPnB	7.50	0.97	Dow Chemical
EnvroGem® AD01 (Surfactant)	7.50	1.00	Evonik
Optifilm® 400	18.73	2.31	Eastman
Surfynol® DF 58 (Defoamer)	0.38	0.05	Evonik
Dynol® 604 Wetting Agent	0.38	0.05	Evonik
Final Blend: Slowly add the resin-free grind to the blend and mix with mild agitation until homogeneous			
TOTAL	1090.46	100	

HYBRIDUR® 870 DTM COATING APPLICATION PERFORMANCE PROPERTIES* (SALT SPRAY PERFORMANCE AFTER 500 HRS)

FORMULATION	DEGREE OF RUST	SCRIBE CREEP /FIELD BLISTERING	BLISTER SIZE
Hybridur® 870 DTM (500 hrs)	None	10/10	10 (No blisters)
FORMULATION PROPERTIES	VALUE	APPLICATION PROPERTIES	VALUE
Weight Solids %	46.5	Adhesion Dry (ASTMD3359)	5A
Volume Solids %	36.4	Adhesion Wet (24 hr. @70°F)	5A
Viscosity cP	500	Gloss, 60°(ASTM D 523)	14
PVC%	16.4%	Direct and Reverse impact resistance (ASTM D4366)	160
VOC, lb/gal (g/l)	1.93 (231)	Double Rubs (ASTM D4752)	
Density, lb/gal	9.79	IPA	125
Humidity resistance (ASTM D 22247 100° F /100% RH 1000 hrs)	No blisters	MEK	>200

*Coating properties were tested over cold rolled steel with a zinc phosphate treatment (Bondrite 952). Coatings were applied using wire-wound drawdown rod and were allowed to dry to 77°F and 50% relative humidity for 7 days. DFT 1.8 mils

STARTING POINT FORMULATION HYBRIDUR® 878 DISPERSION GLOSS WHITE COATING

MATERIAL	POUNDS	GALLONS	SUPPLIER
Resin-Free Grind: Add the following into a clean container under mild agitation and mix until dissolved			
Water (Deionized)	21.45	2.57	
Disperbyk-190 (Dispersant)	25.47	2.90	Byk-Chemie
Surfynol DF-58 (Defoamer)	0.85	0.10	Evonik
Continue agitation while adding the pigment below			
Ti-Pure™ R-706 (TiO ₂ Pigment)	211.96	6.37	Chemours
Increase speed to high and disperse to Hegman ≥ 7 grind. Temperature must not exceed 140°F. Reduce speed and add the following with medium agitation until blended.			
Water (Deionized)	7.38	0.88	
Blend: Add the following into a separate, clean container under mild agitation and mix until blended			
Hybridur® 878 Dispersion	645.84	74.25	Evonik
Pre-blend the next 4 items before adding to the Hybridur® 870 polymer dispersion with strong agitation			
ARCOSOLVE DPNB Glycol Ether (Solvent)	48.45	6.38	Lyondell
ARCOSOLVE TPM Glycol Ether (Solvent)	48.45	6.06	Lyondell
BYK-346 (Surfactant)	3.25	0.39	Byk-chemie
Surfynol® DF-58 (Defoamer)	0.85	0.10	Evonik
Final Blend: Slowly add the resin-free grind to the blend and mix with mild agitation until homogeneous			
TOTAL	1013.95	100	

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