



Epotec THW 4510/ Cetepox 484R

Epotec THW 4510 is a water based epoxy curing agent, it is supplied as an aqueous solution at 60% solids in water. It gives excellent performance in combination with CeTePox 484R to give waterbased coatings for the protection of metals against corrosion.

CeTePox 484R is an aqueous dispersion of a solid Type 1 epoxy resin. The resin is dispersed using proprietary epoxy-functional non-ionic emulsifiers and is supplied at 53% solids in water and organic co-solvent. It is completely water reducible.



ADITYA BIRLA CHEMICALS (THAILAND) LTD (EPOXY DIVISION)



Product Specifications

Waterbased Type 1 Epoxy Resin Dispersion

CeTePox 484R		
Appearance	Milky white	-
EEW	490-550	g/eq
Viscosity @25°C*	300-1300	cPs
Solid contents	50-55	%
Density @23°C	1.06-1.1	g/cm ³

*Viscosity by Rheometer, shear rate 100 s⁻¹

Waterbased Curing Agent Solution

THW 4510		
Appearance	Yellowish-liquid	-
AHEW	227	g/eq
Viscosity @25°C**	20,000 – 25,000	cPs
Solid contents	59 - 61	%
Density @23°C	1.09	g/cm ³
Amine value	205 - 220	mgKOH/g
Color	4	Gardner

(Tentative Specification, maybe subject to change)

** viscosity measured by Brookfield Viscometer, Spindle # 31, 1 rpm

This system gives longer pot life, fast drying time, low viscosity and good protective coating.

Advantages

1. **Long pot life**
2. **Rapid dry time**
3. **Low viscosity**
4. **Superior Resistance To Salt Spray Exposure**

Specification

Epotec THW 4510

Appearance	Visual	Yellow liquid
Colour	ASTM D 1544-04	6.0 G max.
Viscosity @25°C	ASTM D 2196-05	15,000-30,000 cP
Non-volatiles	By calculation	60±2 %
Amine value	DIN 16945	200-220 mgKOH/g

CeTePox 484R

Property	Test method	Units	Specification
Appearance	Visual	-----	White / Milky
Non-volatile content	ASTM D1259-06	wt %	51 - 55
Epoxy equivalent weight*	ASTM D 1652-04	g/ eq.	490 - 550
Viscosity** shear rate 100 s ⁻¹	ISO 3219	cPs	300 - 1300
Density @23°C	ASTM D 1475-98	g/cm ³	1.06 – 1.10
Volume Mean Particle Size	Laser Diffraction	µm	<1.1

* Based on solids

** Rheometer viscosity @25°C, spindle cp50



Characteristics

CeTePox 484R/Epotec THW 4510

Mixing Ratio 484R : THW 4510	---	100 : 14
Pot life 150 gmix	TEC-AS-P-111	~300 Min
Mix viscosity at 25°C		810 cp
Drying Time		0.5 hrs

* = Typical properties are indicated for information only

Formulation

Guideline formulation Water borne primer

Part A

<u>Pos.</u>	<u>Raw Material</u>	<u>Amount (g)</u>	<u>Supplier</u>
1	Epotec THW 4510,	83.6	Aditya Birla Chemicals Ltd
2	DisperByk 194N	6.0	BYK Chemie GmbH
3	BYK 037	3.0	BYK Chemie GmbH
4	BYK 420	10.4	BYK Chemie GmbH
5	Additive F2M	18.1	Straetmans High TAC GmbH
6	Deionised Water	18.1	Local Supply
7	TI-PURE® R960	25.0	DuPont
8	Bayferrox 318 M	27.2	Lanxess Deutschland GmbH
9	Deionised Water	211.7	Local Supply
10	MicroTalc IT Extra	226.4	Mondo Minerals
11	Deionised Water	149.1	Local Supply
12	Dowanol PM	13.6	Dow Chemicals Ltd
13	Heucophos Zam Plus	181.1	Heubach
14	Deionised Water	26.6	Local Supply
		<u>1000.0 g</u>	

Part B

<u>Pos.</u>	<u>Raw Materials</u>	<u>Amount (g)</u>	<u>Supplier</u>
10	CeTePox 484R	597.0	Aditya Birla Chemicals Ltd
		<u>597 g</u>	



Test results



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Accelerated Corrosion Resistance Testing (Salt Spray Chamber ASTM B117)



Application Properties

Property	Test Method	Unit	Value
Mixing Ratio (Part A:Part B)			1.67:1
PVC		%	30
VOC content		g.L	61.25
Solid content		wt%	54.05
Drying Time		hrs	0.5
Pot life @ 25°C, 150 g mix		minutes	Not end pot life
Viscosity mix		cp	228
Gloss at 60°			2.0
Hardness (konig)		-	30 sec
- 1 day		-	93 sec
- 7 days			
Film thickness		micron	40 - 50
Adhesion before test salt spray	ISO2409:1992	rating	0
Flexibility	GB/T6742/ISO1519:2002	mm	3.7
Impact Resistance	GB/T20642.2/ISO6272-1	Kg.m2	2.0
Salt spray (720 hrs)			
Rusting	ASTM D610-08(2012)	rating	10
Blisters	ASTM D714-02(2009)	rating	10
Rust Creep	ASTM D1654-08	mm	0.3
Adhesion	ISO2409:1992	rating	1
Salt Water Resistance (168 hours, 5% NaCl)	GB/T9274-1998		No Change In Film, No Blistering