

## Epoxy

### Epoxy Amine Primer

Epoxy primer is designed based on epoxy resin and polyamine hardener and has the ability to penetrate the pores of concrete, plaster and wood due to its low viscosity. On the one hand, with its very high adhesion to the concrete surface, it increases the adhesion of the epoxy coating, and on the other hand prevents the separation of the coating by preventing moisture from penetrating into the coating.

property	Specification Value
Density	0/96±0/05 gr/cm <sup>3</sup>
Dust free time	10 - 15 Minutes
Tack free time	30 – 60 Minutes
Dry to Handle	2-3 Hours



### Epoxy Amine Intermediate Coat

This coating is designed on the basis of epoxy amine resin and polyamine hardener, which is used as an intermediate layer of the lining and the top color to increase the thickness, more resistance of the color to atmospheric factors, increase the physical and mechanical properties and resistance to water and chemical substances of the color, as well as Increasing thickness is used.

property	Specification Value
Solid content	55%
Viscosity 50% (200c)	6000-9000 CP
Acid Value (solid)	Max 14



### Epoxy Amine Final Coat

This coating is designed based on epoxy resin and polyamine hardener and special additives for flexibility and non-absorption of dust particles in the atmosphere (Anti Dust). Among the important properties of this product, it is self-leveling due to its low viscosity, transparency and brightness of the surface, good mechanical, electrical and thermal properties, as well as high flexibility.

property	Specification Value
Volume Solids	94±2
Dust free time	6 Hours
Dry to Handle	24 Hours
Fully Cured	7 Days



### Polyamine Epoxy Varnish

This coating is formulated on the basis of epoxy resin and polyamine hardener, it has very good adhesion to the surface of concrete, metal, stone, etc. This coating is transparent and has no pigment or filler, so there is no color change in the vicinity of amides and alkalis and the bottom layer is completely visible.

property	Specification Value
Density	1±0.1 gr/cm <sup>3</sup>
Solid content	45 1% By Volume
	68 ±1% By Weight
Dust free time	4 Hours
Dry to Handle	24 Hours



## Resins

### Epoxy Amide Resin

Polyamide epoxy resin with characteristics such as high corrosion resistance, chemical strength in the foundation and metal skeletons and structures, is used in places where a durable and resistant coating is needed. Epoxy resins are thermosetting polymers that have special mechanical and chemical properties.

property	Test Method	Unit	Typical Values
Appearance	Visual	-----	Clear Light Yellow Liquid
Epoxide Equivalent	ASTM D1652	g/eq	Between 434 - 555
Epoxy Value	ASTM D1652	mol/100 g	Between 0.180 - 0.230
Viscosity	DIN 53015@250C	mpas	Between 6000 - 12000



### Epoxy Amine Resin

Epoxyamine resin is a thermoset resin that consists of bisphenol A and a hardener. The use of epoxy is very wide and it is used in the production of epoxy flooring, top paint and primer, glue, etc. This resin is used in a wide range of fields such as paint, electricity, civil engineering and bonds. Epoxy resin has excellent adhesion properties and also after curing, it has excellent properties on mechanical strength, chemical resistance, electrical insulation.

property	Test Method	Unit	Typical Values
Appearance	Visual	-----	Clearless Transparent Liquid
Epoxide Equivalent	ASTM D1652	g/eq	Between 185 - 192
Viscosity	DIN 53015@250C	mpas	Between 10000 - 14000





## Resins

### Long Oil Alkyd Resins

Long-Oil Alkyd Resins have an oil length between 55-70% and are usually produced based on vegetable fatty acids such as soy, sunflower, etc. These resins dry in a longer time and are soluble in aliphatics. Long Oil resins are suitable for use in construction, protective and anti-rust paints due to their adhesive properties and lack of brittleness.

property	Specification Value
Solid content	70 ± 1%
Color Gardner	Max 5
Viscosity 50% (200c)	900 – 1700 CP
Acid Value (solid)	Max 12



### Medium Oil Alkyd Resins

Medium-Oil Alkyd Resins have a medium chain length of about 45-55%, which are produced on the basis of oils such as safflower oil, soybean oil, etc. The drying time of these resins is shorter than Long Oil resins and they dissolve in aliphatic solvents. Medium alkyds are used in interior spaces and car oil paints

property	Specification Value
Solid content	55%
Color Gardner	Max 3.5
Viscosity 50% (200c)	6000-9000 CP
Acid Value (solid)	Max 14



### Short Oil Alkyd Resin

Short-Oil Alkyd Resins have a short oil length of about 30-40%. These resins are generally produced based on drying oils such as soybean oil or non-drying oils such as coconut and linseed. Short alkyd resins have a longer drying time and usually have limited solubility in aromatics.

property	Specification Value
Solid content	60%
Color Gardner	Max 3.5
Viscosity 50% (200c)	15000-25000 CP
Acid Value (solid)	Max 8



## Resins

### Polyurethane Resin

Hydroxylated acrylic resin designed to cross-link with isocyanates to make anti-corrosion and two-component paints resistant to atmospheric agents and chemicals.

property	Specification Value
Solid Content	60 ± 1%
Viscosity (25°C)	1300-2300 CP
Acid Value	3-9 mg KOH/gr
Density	1 g/cm <sup>3</sup>



### Single Component Thermoplastic Resin

Single-component thermoplastic acrylic traffic resin is based on acrylic monomers. This resin is supplied as 60% in toluene solvent. In addition, unlike most resins, this type of resin is single component. Single component thermoplastic acrylic traffic resin is compatible with some aliphatic solvents and also has good chemical and mechanical resistance. High pigment absorption, fast drying and resistance to yellowing are among the features of this resin.

property	Specification Value
Solid content	60 ± 1%
Viscosity	80-130 Sec
Acid Value (solid)	12-18 mgHOK/gr
Density	0.9 – 1.0 g/cm <sup>3</sup>



### Two Component Thermoplastic Resin

Cold Plast Acrylic Resin (pure) are prepared by the polymerization of acrylic and methacrylate monomers, which is supplied as two components. The main component is the resin and the second component is the reaction initiator.

property	Specification Value
Viscosity (25°C)	18 - 25 sec
Acid Value	4 – 6 mgKOH/gr
Density	0.98 – 1.1 g/cm <sup>3</sup>
Color	Cloudy-yellow



## Hardeners

### Polyamide Hardener

Poly Amide hardner gives good adhesion,flexibility and high impact resistance to final epoxy product.

property	Specification Value
Solid content	80% ± 2%
Amine Value	190-260 (mg KOH/gr)
Color	Max. (Gardner) 10
Solvent(s)	Xylene
Flash point	Approx 27°C



### Polyamine Hardener

Polyamine Epoxy hardener is used in the formulation of room temperature curing compositions such as industrial flooring, tank lining and solvent free coating.

#### Benefits

- Low viscosity
- Excellent surface appearance
- Imparts good mechanical performance

property	Specification Value
Viscosity	Between 500-700
Color	Min
Density	Gardner
Pot life	1.03 g/ml



## MEG

### MEG

lthe plant design capacity is 400 kta MEG under shell license. The primary design case is based on production of MEG as main product and DEG and TEG as by products.below table provides a summary of the design case

property	Specification Value
Color(pt-co)	Max 5
DEG	0.08wt%max
water	0.08wt%max
95 Vol	Max.196 c





## Additives

### Aerosil

Aerosil , or in other words, silica foam, is an effective substance in increasing the concentration and adhesion of various chemicals. This material is widely used in the industries of dyeing, cosmetics, fiberglass, etc. Erosil is a white crystalline powder based on amorphous silica.

property	Specification Value
Specific surface area(BET)	200±20 m <sup>2</sup> /g
Loss of drying	≤2.0 %
Loss of ignition	≤2.0 %
Temped density	30-60 g/dm <sup>3</sup>



### Titanium Dioxide

Titanium Dioxide is Zirconia and Alumina treated rutile titanium dioxide pigment. It is proved to have excellent outdoor durability and super gloss in paint and coating, ink and plastic industries.

property	Specification Value
Crystal form	Rutile
Density	4 g/cm <sup>3</sup>
Specific Resistance	150 min



### Bentone

Bentone is an organic derivate of a bentonite clay. This rheological additive is designed for low to intermediate polarity organic systems. The advantages of bentone is increases viscosity, provides thixotropy ...

Item	Unit	Specification	Test Result
Appearance		Pale Yellow/Off-White Powder	Pale Yellow Powder
Moisture Content (105° C)	%	≤3.50	2.69
Loss on Ignition	%	≤40.0	24.73
Apparent Viscosity	Pa.s	≥0.50	0.88



### Pigment

Color materials are generally classified into two groups: colors and pigments. As you know, pigments are different from colors. Pigments only color the surface of objects and do not dissolve in water, while the dyes must be absorbed by the material to be dyed. Pigments are used in various industries.

Parameter	Values
Specific gravity	6.0 g/cm <sup>3</sup>
Conductivity	Max. 500 micro-siemens
Weatherability	2-3



## Halal

### Methanol

Methanol with the chemical formula (CH<sub>3</sub>OH) is a colorless, toxic and volatile liquid and is used in the production of industrial solvents and paints. Methanol is one of the alcohols that due to its precise composition and the amount of small pollutants in its structure; It is used for all kinds of analysis in laboratory environments

Properties	Unit	Test method	Value
color	Apha	ASTM D - 1209	5 max.
Carbonisable	Apha	ASTM C - 0346	5 max.
Acidity (As CH <sub>3</sub> -COOH)	wt %	ASTM D - 1613	0.003 max.
Distillation Range	°C	ASTM D - 1078	1 max.
Permanganate Time	minutire	ASTM D - 1363	50 min.
Acetone	wt %	ASTM D - 1612	0.003 max.
Non Volatile Matter	mgr/100ml	ASTM D - 1353	2 max.



## Monomer

### Butyl Acrylate

Butyl acrylate is a flammable , colorless and transparent liquid that mixes easily in organic solvents. depending on the monomer selection and chemical reaction conditions, various physical properties can be realized after polymerization.

Properties	Unit	method	Butyl acrylate
color	APHA	ASTM D1209	≤10
acidity	wtPPM	ASTM D1613	50≥
Specific gravity	20/4c	ASTM D1298	0.896-0.901
Heat capacity	Cal/g c	20c	0.468
Viscosity	cP	20°C	0.856
Freezing Point			-64.6 °C
Flash Point			38 °C

