

## Technical Short Description

DISPONIL LS 500 is an emulsifier for the manufacture of water-reducible epoxy resin emulsions, as well as for the use in emulsion polymerization.

## Composition

Modified poly alkylene oxide

## Characteristic values

### Quality Control Data

Item	Value	Method
Water Content (mass%) ( )	0 - 0,5 %	93002001 QC2064.0
Hydroxyl number [mg KOH/g]	25 - 30	93003701 QC2058.0
Density (70 °C)	1,050 - 1,054 g/cm <sup>3</sup>	DIN 51757 V 4 (MOD.)
pH value (1 Weight% in Potassium chloride solution 0,03% )	6 - 7	93007501 QP1274.0

### Additional Product Descriptive Data

Item	Value	Method
Color	White	
Odor	little intrinsic odour	
State	waxy, solid, pellet-form	
Flash point	> 100 °C	
Melting point/range	43 - 47 °C	
Bulk density	300 - 400 g/l	

## Application

### Use

Colourless epoxy resin emulsion, without reactive diluent

Guide formula:

98 p. b. w. epoxy resin (EEW 190)

2 p. b. w. DISPONIL LS 500

Heat the liquid epoxy resin to approx. 45 °C and add DISPONIL LS 500 while stirring. More water (e.g. approx. 30 p.b.w.) can be added by stirring to adjust viscosity at a circumferential speed of 12 m/sec.

Generally, a white stable emulsion will form after about 15 minutes. After cooling the curing agent (e.g. 100 p.b.w. WATERPOXY 603 /Cognis, Epikure CA 360/Shell) is added. More water for dilution should be premixed with curing agent.

### Dosage

1 - 2%, calculated on epoxy resin.

## Technical Application Data

### Curing diagram (König pendulum hardness, DIN 53157)

Wet film thickness	100 µm	200 µm
after 24 hours	66 sec	55 sec
after 48 hours	125 sec	78 sec
after 72 hours	166 sec	120 sec
after 96 hours	167 sec	132 sec

### Pigmented resin emulsion

#### Guide formulation for a white paint (for application by brush):

I	384.0 p. b. w. 16.0 p. b. w.	epoxy resin DISPONIL LS 500
II	400.0 p. b. w. 5.0 p. b. w.	rutil titanium dioxide Foamaster TCX
III	195.0 p. b. w.	water
	<b>1,000.0 p. b. w.</b>	

Heat I to approx. 45 °C while stirring.

Add II and disperse to achieve particle size of below 15 µm.

Add III after grinding and emulsify at a circumferential speed of approx. 12 m/sec for 10 - 15 minutes.

Ratio binder : pigment : water = 1 : 1 : 0.5

A viscosity reduction of the basic paint can be obtained by adding further water. A working viscosity is generally achieved after adding the curing agent or the curing agent solution, although the viscosity can still be adjusted at this stage by simply stirring in more water.

Commercially available water-reducible curing agents often have a very high viscosity. In this case it is essential that solutions should be prepared containing a solid content of 40 %.

Suitable epoxy resins are e.g.: **CHEM-RES E 20 (Cognis)**, Epikote 808, 815, 828 (Deutsche Shell), DER 331 (Dow), Araldit GY 250, GY 255, Eupox 776 (Vantico),. Suitable curing agents are e.g.: **WATERPOXY 603, WATERPOXY 751 (Cognis)**, Epikure CA 360 (Deutsche Shell), Aradur XE 36, XE 430, XE 435, HZ 340 (Vantico).

According to tests we have carried out, the colourless emulsions have a storage stability of more than 6 months. This applies both to storage at room temperature and at 50 °C. Solidification will occur during storage at temperatures near the freezing point. This effect is reversible by heating. However, after storage at lower temperatures, stirring will be required to ensure adequate homogenization.

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## Transportation, Handling & Storage

### Handling

Please refer to material safety data sheet for details.

### Storage Conditions

After storage at lower temperatures, stirring is required to ensure adequate homogenization.

### Shelf life

Subject to appropriate storage in closed original containers under the usual storage and temperature conditions, DISPONIL LS 500 is stable for at least 2 years.

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