

Industrial Coatings

Technical Data Sheet

Waterpoxy[®] 751



Product Description	Waterpoxy [®] 751 is an amine-based curing agent in a water solution designed to cure both epoxy resin emulsions and standard liquid epoxy resins.
Key Features & Benefits	<ul style="list-style-type: none">- Very fast drying speed- Long pot life- Very good corrosion resistance
Chemical Composition	Isolated amine adduct in water with < 1% free amine content

Properties

Product Specifications	Appearance*	clear liquid
	Amine value	174 – 192 mg KOH/g
	Active content (1 hr @ 130°C)	57.5 – 60.5%
	Viscosity at 25°C (Brookfield)	8,500 – 15,000 cps
	Gardner color	8 max
Typical Characteristics	H equivalent weight (as supplied)	225
	Pot life (with standard epoxy resin)	2.5 – 3 hours
	Pot life (with Waterpoxy [®] 1455/1422)	over 8 hours
	Phr (with standard epoxy resin)	110 – 130
	Phr (with Waterpoxy [®] 1455)	19 – 23
	Phr (with Waterpoxy [®] 1422)	18 – 20

*Solution could be slightly hazy without influencing dilutability and performance.
These typical values should not be interpreted as specifications.

Applications

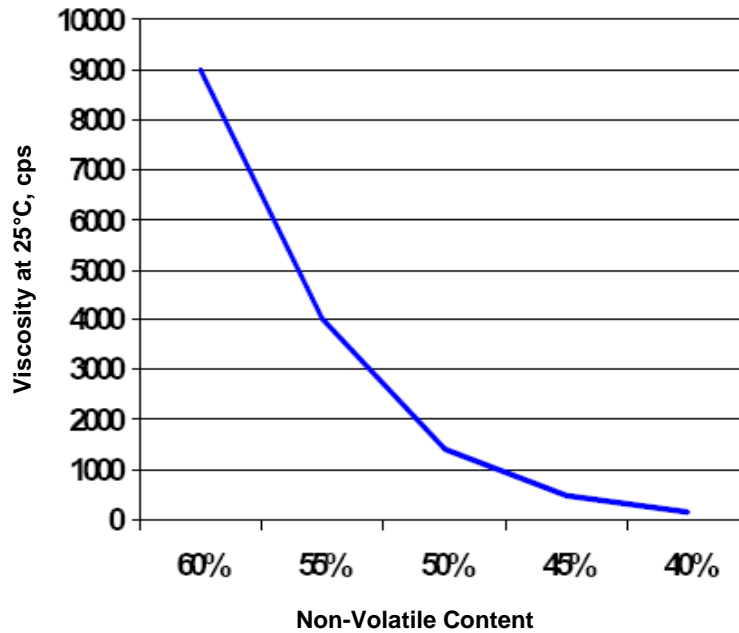
Waterpoxy[®] 751 is an amine-based curing agent in a water solution that is particularly suitable to cure both epoxy resin emulsions and standard liquid epoxy resins. It is useful for formulating epoxy anticorrosive coatings/flooring coatings to be applied in food, beverage, pharmaceutical industries, hospitals, schools, etc.

Waterpoxy[®] 751 is recommended for applications such as:

- Interior industrial metal coating applications
- Interior wood/concrete floor coating applications

When used in combination with solid emulsion epoxy resins, it offers very fast drying speed, long pot life and very good corrosion resistance. When used in combination with standard liquid epoxy resin, it shows a definable pot life end point, very good flow properties, excellent pigment wetting and good chemical resistance. It is also very useful for concrete protection at low thickness (i.e. primers, anti-dust coatings) and self-leveling floorings.

Waterpoxy® 751 Dilution Profile



High film thickness application is related to the amount of water contained in the ready-to-use compound. Application tests did not develop cracking due to film shrinkage in the following systems:

System	Water on Total Formulation	Film Thickness
Clear primer	40 – 50%	100 microns wet
Topcoat (pigmented)	20 – 25%	500 microns wet
Self-leveling flooring	10 – 14%	1 – 1.5 mm wet

Combination with standard liquid epoxy resins

Waterpoxy® 751 acts as an epoxy resin emulsifier. This property is most effective when the two components (curing agent and epoxy resin) are of a similar, but not very low viscosity.

Mixing

Due to chemical reaction, Waterpoxy® 751 and epoxy resins should not be mixed until just prior to use. When properly mixed, it develops a homogenous and stable emulsion.

Since Waterpoxy® 751 is easily dilutable with water; it is possible to obtain application viscosity by mixing pre-diluted hardener and epoxy resin without the need of further on-site water dilution. In this instance, the following recommendations should be followed:

- use a mechanical mixer
- add small increments of the pre-diluted curing agent to the epoxy resin
- do not reduce the solid content of Waterpoxy® 751 to less than 35%

Pot life

Generally in the case of water-based systems, usable application time is regulated by emulsion stability and epoxy/hardener reaction speed.

Normally, emulsion break occurs before the end of pot life is reached, which is evident by water separation and pigment flocculation while the product is still fluid. This behavior is undesirable as it is difficult to identify the end of pot life.

Waterpoxy® 751, when properly mixed with epoxy resins to give a homogeneous emulsion behaves as a normal solvent-free system, showing an increase in viscosity up to the final gel. The addition of more water when the viscosity of the mixed system becomes too high is not recommended, even though this may be common practice.

Induction time

In order to allow the complete development of the film characteristics, 10 – 15 minutes induction time should be sufficient.

Combination with Waterpoxy® 1455 and Waterpoxy® 1422

Mixing ratio/operation

Since the epoxy resin is an emulsion, a homogeneous emulsion is easily obtained by mixing the two components. Due to the components polymeric structures, the phr is very versatile and can vary significantly depending on its required performance.

Topcoats: stoichiometric phr is suggested to develop the best hardness and chemical resistance.

Waterpoxy® 1455: Waterpoxy® 751	100:23
Waterpoxy® 1422: Waterpoxy® 751	100:20

Anticorrosive Primer: phr below the stoichiometric ratio offers the best protective performance reducing the presence of unreacted amine groups in the cured film.

Waterpoxy® 1455: Waterpoxy® 751	100:18 - 19
Waterpoxy® 1422: Waterpoxy® 751	100:18 - 19

Pot life

It is possible that crosslinking of the epoxy resin and curing agent takes place in the emulsion, thus greatly improving the emulsion stability compared to standard epoxies. This behavior does not give a visual indication that the end of pot life has been reached. However, as the pot life exceeds the length of a normal working day, there is ample working time.

Induction time

In order to allow the complete development of the film characteristics, 10 – 15 minutes should be sufficient.

Film thickness

This system contains a large amount of water and is only suitable for coating applications. A maximum wet film thickness of 100 microns for clear coatings and 200 microns for pigmented systems is recommended.

Starting Point Formulation

The following starting point formulations are recommended for an initial evaluation of Waterpoxy® 751. Additional optimization of the formulations may be required to achieve desired results for specific applications.

Base Paint, Formula N.1

Materials	Pounds
Waterpoxy® 751	18.0
Titanium dioxide	12.8
Black iron oxide	0.6
Yellow iron oxide	0.6
Baryte	24.0
Nepheline syenite	24.0
Smectite clay 3%	3.0
Defoamer	0.4
Loxanol® DPN	0.8
Tripropylene glycol methyl ether	0.9
DSX® 1550	0.4
Water	14.5
TOTAL	100.00
Chem Res® E 30	15.0

Base Paint, Formula N.2

Materials	Pounds
Waterpoxy [®] 751	30.30
Titanium dioxide	10.90
Black iron oxide	0.50
Yellow iron oxide	0.50
Baryte	20.40
Nepheline syenite	20.40
Smectite clay 3%	2.55
Defoamer	0.35
Loxanol [®] DPN	0.75
Tripropylene glycol methyl ether	0.75
DSX [®] 1550	0.35
Water	12.30
TOTAL	100.00
Chem Res [®] E 30	25.00

Anticorrosive Primer Formula

Part A	Pounds
Waterpoxy [®] 1455	50.0
Anticorrosive pigment	9.2
Talc	5.0
Baryte	8.5
Red iron oxide	5.8
Alcophor [®] 827	0.9
Foamaster [®] TCX	0.6
Water	20.0
Total	100.0
Part B	
Waterpoxy [®] 751 (60% solids)	9 – 9.5

Note: Grinding is suggested not to exceed 50°C. Water addition can be split between grinding and discharging.

Formulation attributes of Anticorrosive Primer

Total solvent content	3.2%
Pot life	Over 8 hours
Tack-free time (100 microns wet)	30 minutes
Over-coatability	1 – 48 hours
Trough cure	1 – 2 days

Topcoat with Waterpoxy[®] 1455 Formula

Part A	Pounds
Waterpoxy [®] 1455	53.0
Titanium dioxide	20.0
Baryte	7.0
Grey pigment	2.0
Foamaster [®] TCX	0.4
Water	17.6
Total	100.0
Part B	
Waterpoxy [®] 751 (60% solids)	12

Note: Grinding is suggested not to exceed 50°C. Water addition can be split between grinding and discharging.

Formulation attributes of Topcoat with Waterpoxy[®] 1455 Formula

Total solvent content	3.3%
Pot life	Over 8 hours
Tack-free time (100 microns wet)	40 minutes
Over-coatability	1 – 48 hours
Trough cure	1 – 2 days

Topcoat with Waterpoxy® 1422 Formula

Better gloss and hardness are achieved with Waterpoxy® 1422.

Part A	Pounds
Waterpoxy® 1422	53.0
Titanium dioxide	20.0
Baryte	7.0
Grey pigment	2.0
Foamaster® TCX	0.4
Water	17.6
Total	100.0
Part B	
Waterpoxy® 751 (60% solids)	10.5

Note: Grinding is suggested not to exceed 50°C. Water addition can be split between grinding and discharging.

Formulation attributes of Topcoat with Waterpoxy® 1422 Formula

Total solvent content	4.8%
Pot life	Over 8 hours
Tack-free time (100 microns wet)	40 minutes
Over-coatability	1 – 48 hours
Trough cure	1 – 2 days

Pigmented Water-based Epoxy Coating System

This system can be used for horizontal and vertical surfaces and can be thinned by adding approximately 5% water to the mixed system. If 10% water is added, material can be used as a primer. For best results, a vacuum dissolver is recommended. Standard mixer can be used but will produce air bubbles in the finished system.

Part A	Pounds
Waterpoxy® 751	24.5
Foamaster® 223	1.0
Perenol® W 3244	0.5
DSX® 1550	0.4
Loxanol® 842 DP 3	2.5
Hydropalat® 188-A	0.5
Water	17.6
Pigment powder	9.0
Magnesium silicate talc	15.0
Baryte	29.0
TOTAL	100.0
Part B	
Chem Res® E 30	100

Note: Mixing ratio of Part A to Part B is 100:20.

Grey Primer with Waterpoxy® 1422 Formula

Part A	Pounds
Waterpoxy® 1422	47.0
Foamaster® TCX	0.5
Hydropalat® 7003	0.3
Sovermol® 9155	1.0
Water	10.5
Pigment (5µm particle size)	6.0
Alcophor® 827	1.0
Titanium dioxide (Al coated)	5.5
Calcium carbonate (ground)	21.4
Mica	6.0
Soot	0.05
Hydrophobic fumed silica	0.05
Corrosion inhibitor L1	0.2
Foamaster® TCX	0.5
TOTAL	100.00
Part B	
Waterpoxy® 751 (60% in water)	8.9

Note: Grinding is suggested to be below 50°C.

Formulation attributes of Topcoat with Waterpoxy® 1422 Formula

Pot life	6 – 8 hours
Tack-free time (100 microns wet)	15 minutes approx.
Over-coatability	1 – 48 hours
Trough cure	1 – 2 days

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures described in Federal, State, and Local health and safety regulations, thorough ventilation of the workplace, good skin care, and wearing of protective goggles.

Material Safety Data Sheet

All safety information is provided in the Material Safety Data Sheet for Waterpoxy® 751.

Storage

Waterpoxy® 751 should be kept in tightly closed containers when not in use and stored in a cool, dry place. Properly stored and protected, an unopened container of Waterpoxy® 751 should have a shelf life of at least one year.

Important

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