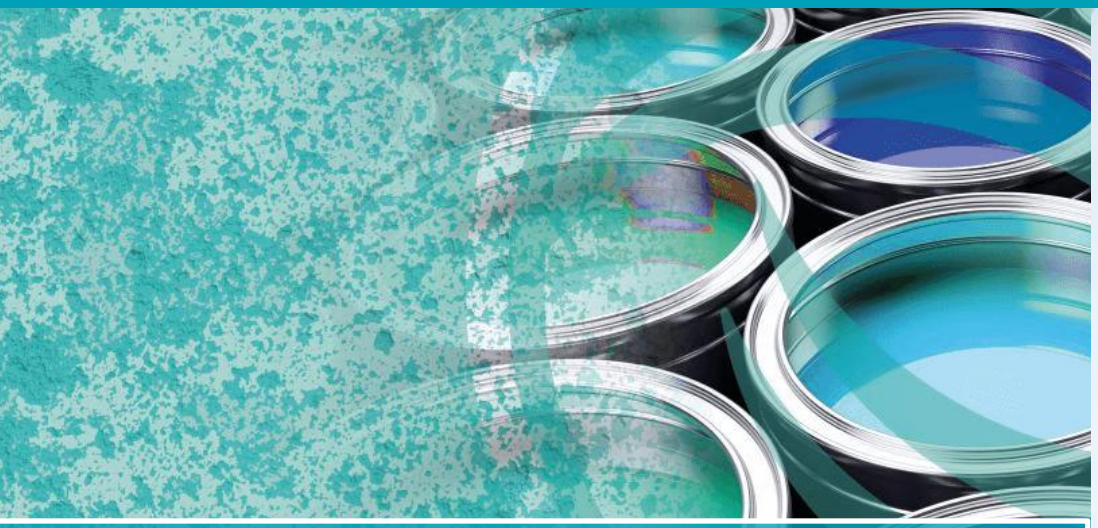
CHEMICAL
Varena T.P.T
PRODUCTS FOR A SECURE FUTURE

POXAMIN
ADVANCED EPOXY HARDENER TECHNOLOGIES

The Curing Company Dr. Irankhahi



CURING RESINS & ADDITIVES

POXAMIN Epoxy Curing Agents

product	Primers	Primers for substrates [Osmosis]	Mortars	Roller coatings	Self-leveling coatings	Sealants	Fillers	Coatings in contact with potable water	Chemical resistant coatings	UV-resistant coatings	Washable joint sealers
POXAMIN 235	■■	-	■■	■■	■■	■■	■■	-	■	-	-
POXAMIN 246	■■	-	■■	■■	■■	■■	■■	-	■■	-	-
POXAMIN 270	■■	--	■■	■■	■■	■■	■■	■■	■	-	-
POXAMIN 200	■	-	■	■■	■■	■■	■	-	■	■■	-
POXAMIN 201	■	-	■	■■	■■	■■	■	-	■	■■	-
POXAMIN 2285	■■	■	■	■■	■	■■	■	-	■	■■	■■

■■ highly suitable ■ suitable - not recommended

POXAMIN
ADVANCED EPOXY HARDENER TECHNOLOGIES

POXAMIN, Polymer Hardeners

The objective of the epoxy resin hardeners from the POXAMIN family is to offer the high performance profile of standard-products that have been used to date for applications for floors and coatings.

Product	Viscosity [mPas] / (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN 235	500 - 650	250 - 350	115	approx. 36	100	1,02 ± 0,02
POXAMIN 246	140 - 240	275 - 375	93	approx. 39	100	1,02 ± 0,02
POXAMIN 270	530 - 630	250 - 350	100	approx. 18	100	1,02 ± 0,02
POXAMIN 243	800 - 900	230 - 330	115	approx. 50	100	1.05 ± 0,02

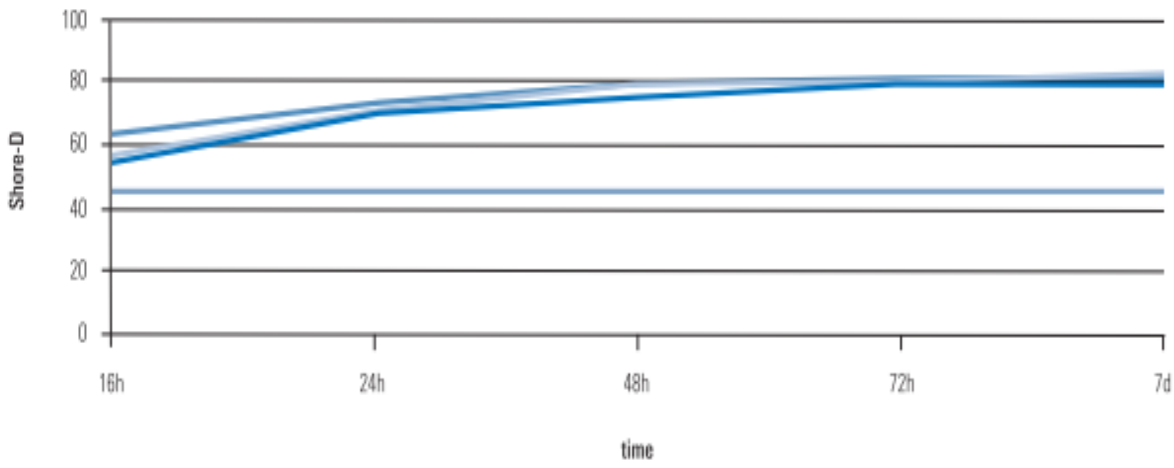
POYAMIN CA 235 is a cycloaliphatic polymer hardener with medium viscosity and serfficient working time. This product demonstrates good hardening properties, chemical resistance and good surface qualities. This hardener is suitable for the production of primers, roller coatings and self-levelling top coatings.

POXAMIN CA 246, this product demonstrates good hardening properties, chemical resistance and good surface qualities. Successful formulations of primers, mortars, roller coatings and self-levelling top coatings may be made with this product.

POXAMIN CA 270 is a cycloaliphatic polymer hardener with a shorter working time. This product demonstrates rapid hardening, chemical resistance and good surface qualities. This hardener is suitable for the production of primers and self-levelling top coatings and can be used for coatings that come into
contact with potable water.

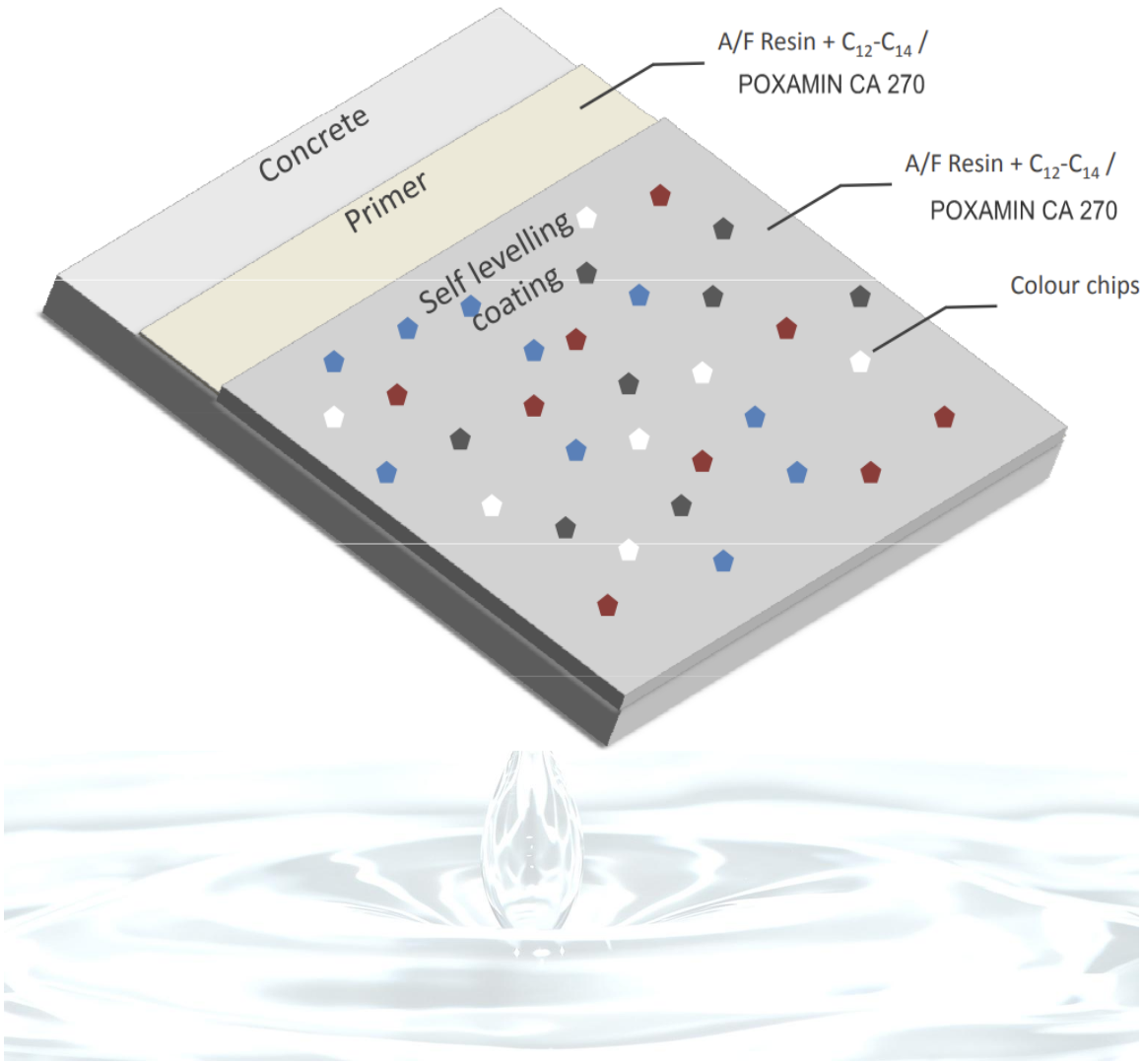
POXAMIN CA 243 can be used as a curative for solvent free epoxy flooring systems. It is used as an universal curative for self-levelling flooring systems as well as for high filled mortars on concrete ground. It has good surface properties and good curing at low temperature.

The composition is complied to the ``Epoxy Guideline of the UBA (Umweltbundesamt, German Federal Environmental Agency)´´ applicable for organic coating in contact with drinking water (date 16.05.2007).

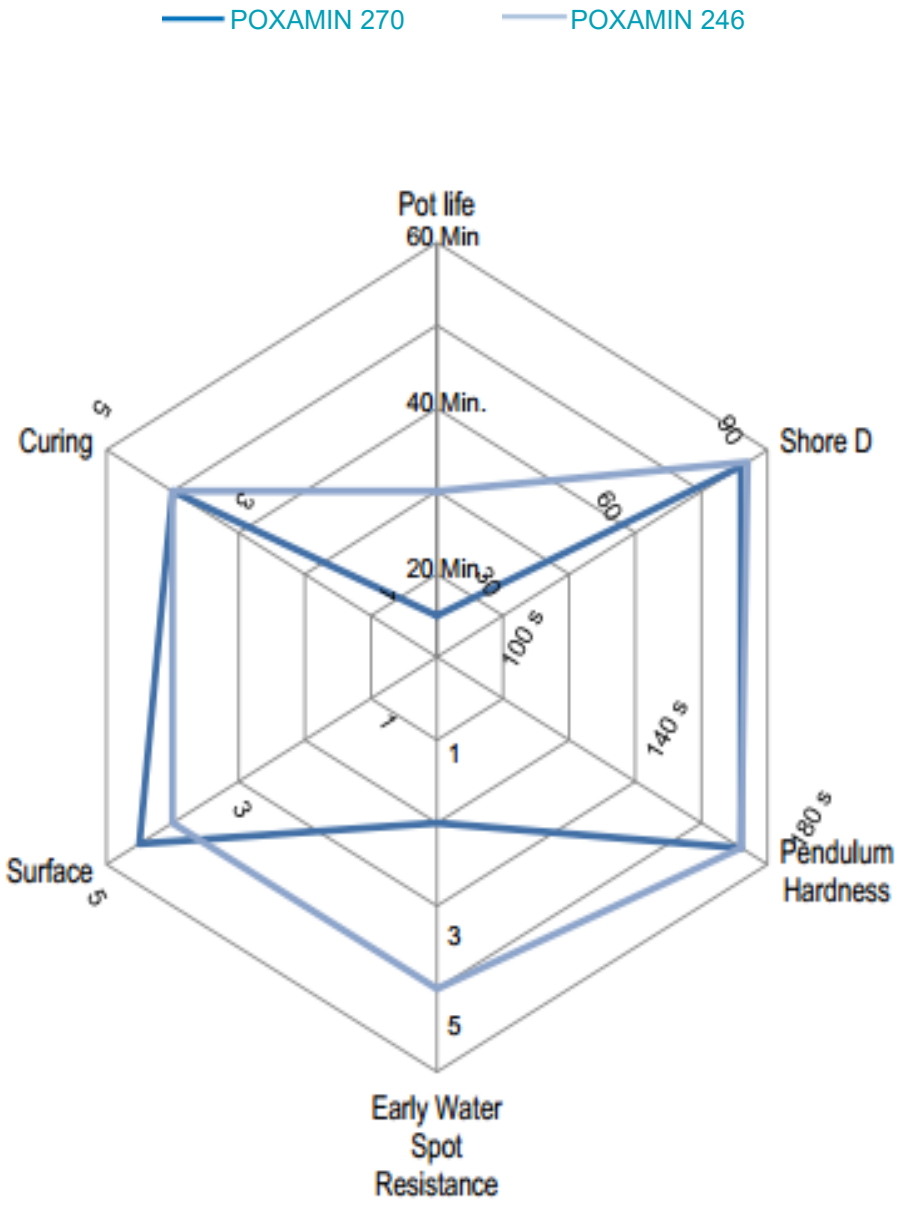


APPROVALS: FDA INFORMATION

POXAMIN CA 235; POXAMIN CA 270, POXAMIN CA 243 and POXAMIN CA 246 are polyamine resin complies with FDA requlations listed under the following sections of the Title 21 CFR § 175.300 (Resinous and Polymeric Coatings) part vii epoxy resins, catalyst, and adjuncts.

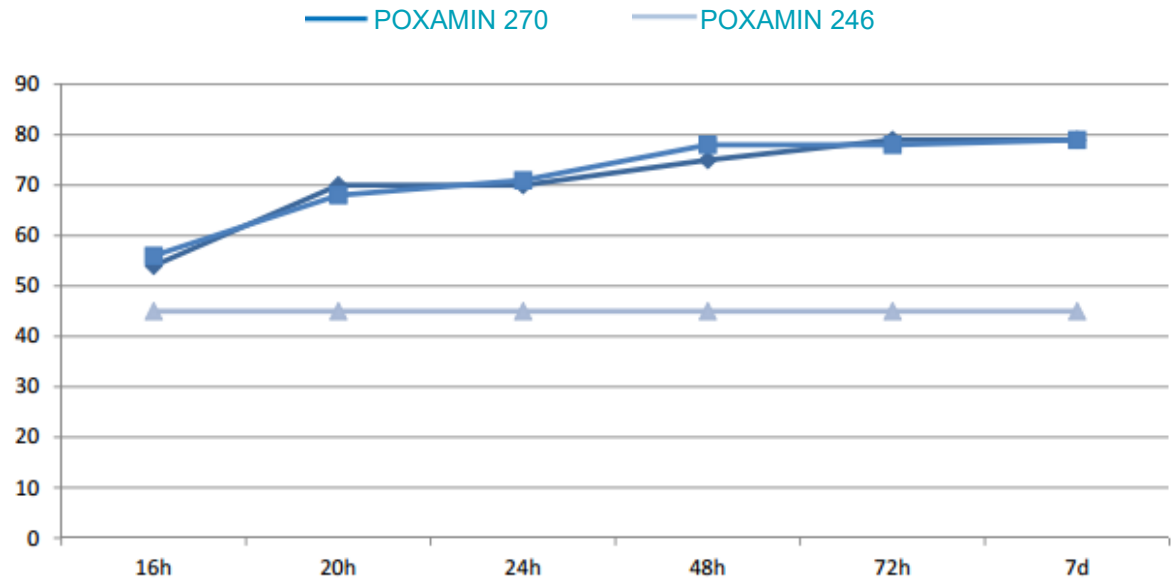


Performance Profile



* With A/F –resin (C12-C14 diluted)
1 = poor
5 = excellent

Shore D

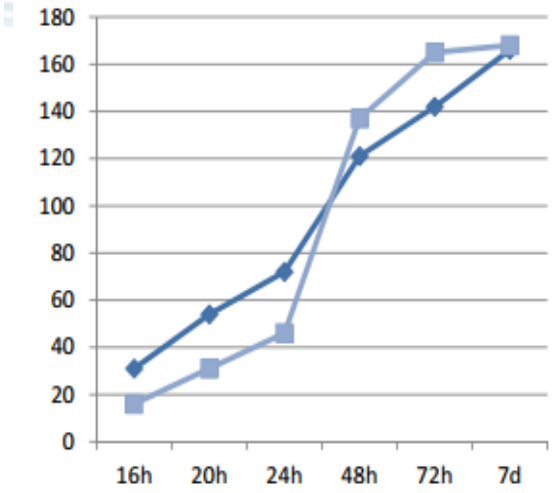


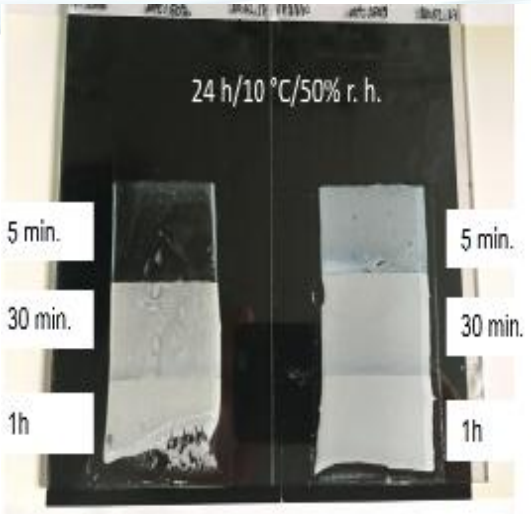
Pendulum Hardness

Early Water Spot Resistance

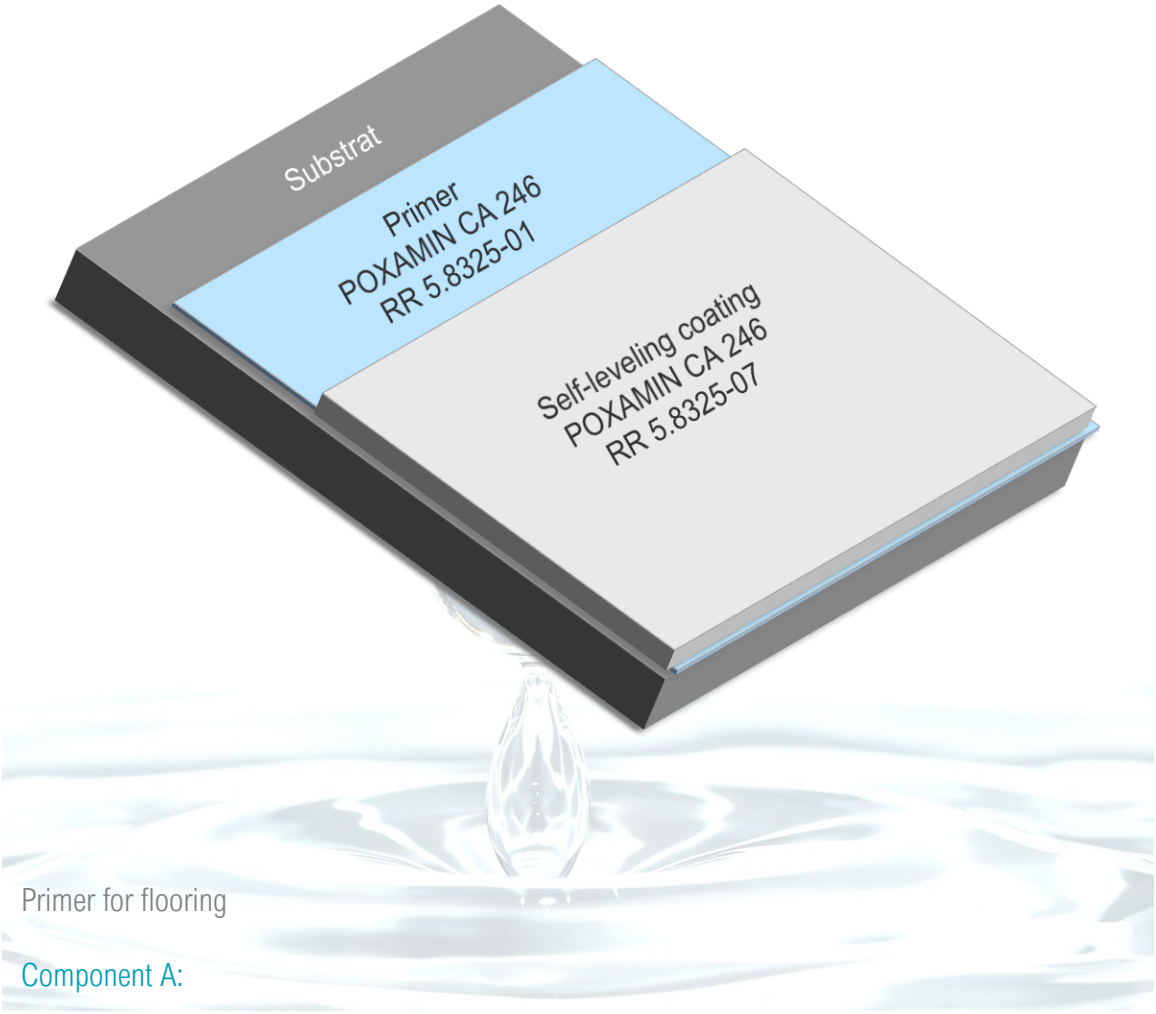
CA 270 CA 246

CA 246 CA 270





POXAMIN CA 246 in a primer and topcoat



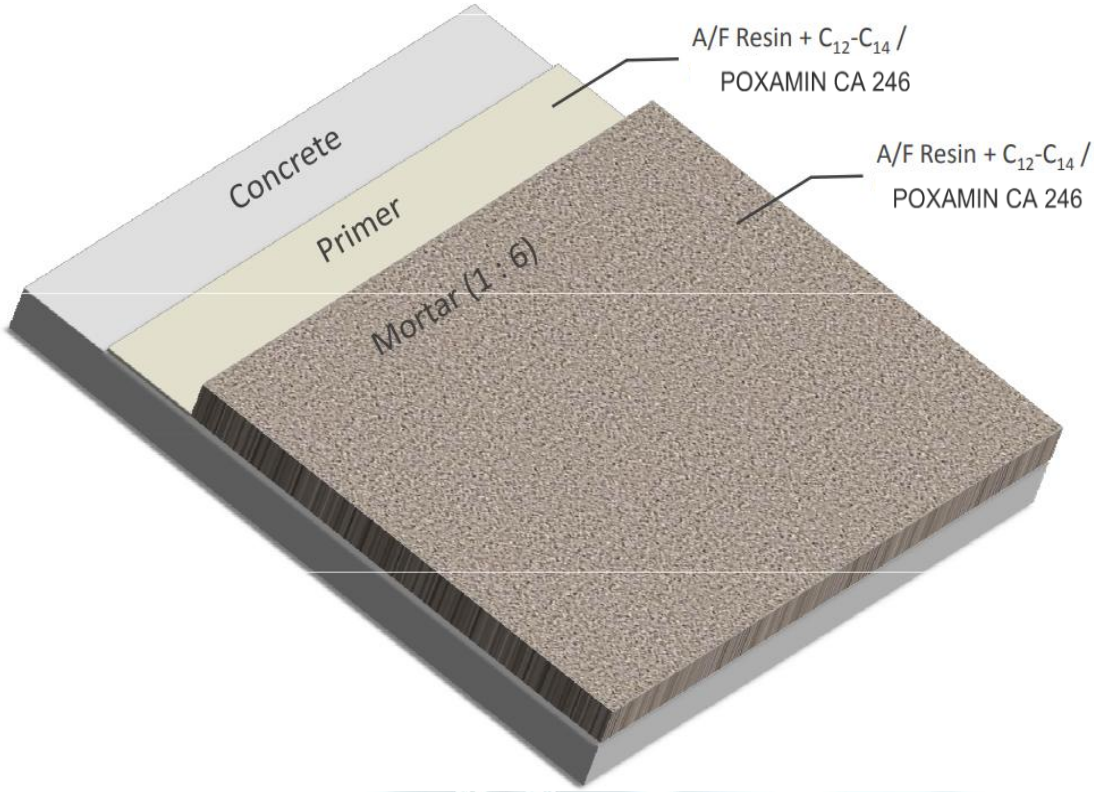
Primer for flooring

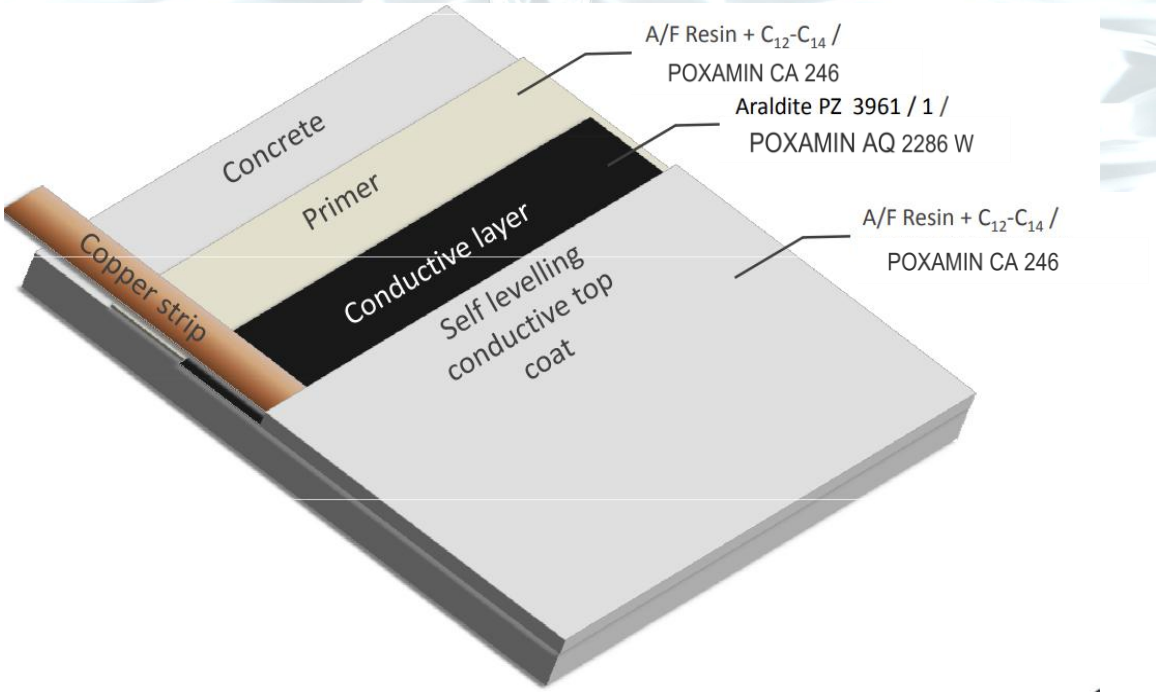
Component A:

1	Epilox A 19-00		60,00	Leuna Harze
2	THORFOAM AC 135		0,50	VARENA
3	Araldite DY-E		20,00	Huntsman
4	Epilox F 17-00		19,50	Leuna Harze
			100,00	

Componente B:

1	POXAMIN CA 246		47,00	VARENA





Topcoat for flooring

Component A:

1	Epilox A 19-00		30,00	Leuna Harze
2	THORFOAM AC 135		0,30	VARENA
3	Wetting agent		0,40	
4	Kronos 2190		4,50	Kronos
5	Bayferrox 318 M		0,50	BASF
6	Quarzmehl W 6		26,40	Quarzwerke
7	Quarzmehl H 600		6,00	Quarzwerke
8	Schwerspat EWO 423		10,00	Baryt Industrie
9	Epilox F 17-00		15,00	Leuna Harze
10	Wetting agent		0,30	
11	Araldite DY-E		5,00	Huntsman
12	THORFLEX FL 4-50		0,90	VARENA
13	THORFOAM AC 135		0,70	VARENA
			100,00	

Component B:

1	POXAMIN CA 246		25,00	VARENA

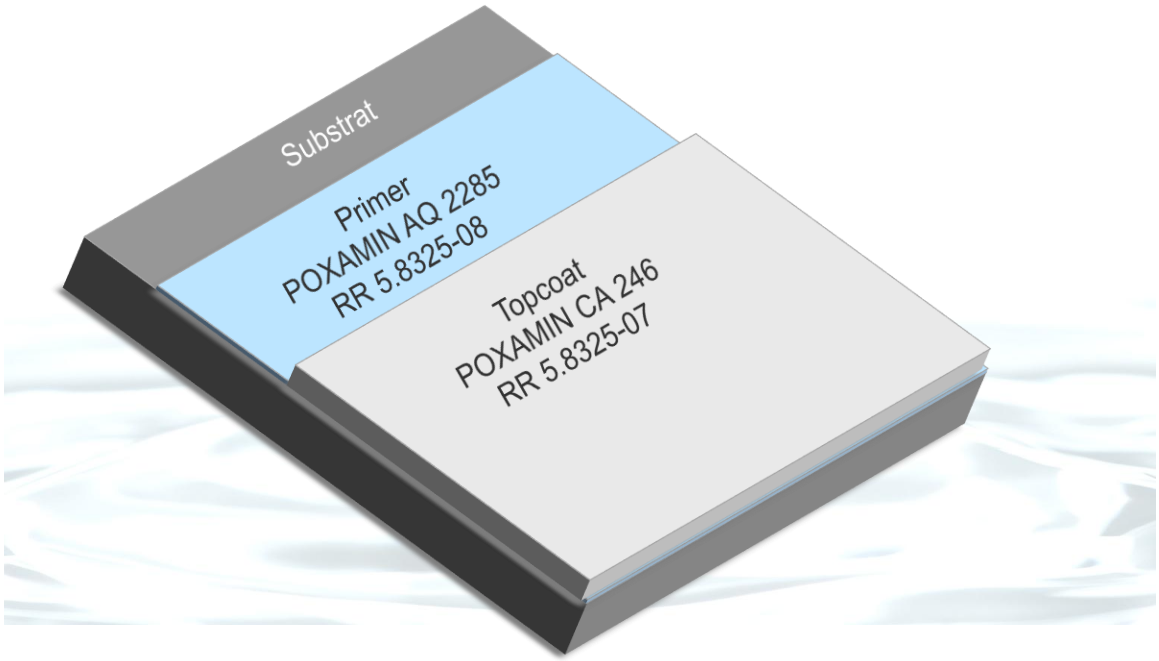
APPROVALS: FDA INFORMATION

POXAMIN CA 235; POXAMIN CA 270, POXAMIN CA 243 and POXAMIN CA 246 are polyamine resin complies with FDA requlations listed under the following sections of the Title 21 CFR § 175.300 (Resinous and Polymeric Coatings) part vii epoxy resins, catalyst, and adjuncts.

POXAMIN AQ 2285 W

in a waterbased primer for anti-osmosis coating

No osmotic blistering on wet substrates



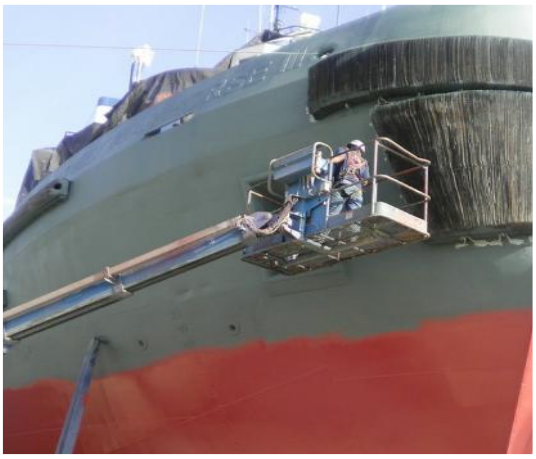
Primer for anti-osmose coating

Component A:

1	Epilox A 19-00		60,00	Leuna Harze
2	THORFOAM AC 135		0,50	VARENA
3	Araldite DY-E		9,50	Huntsman
4	Araldite DY-H		15,00	Huntsman
5	Epilox F 17-00		15,00	Leuna Harze
			100,00	

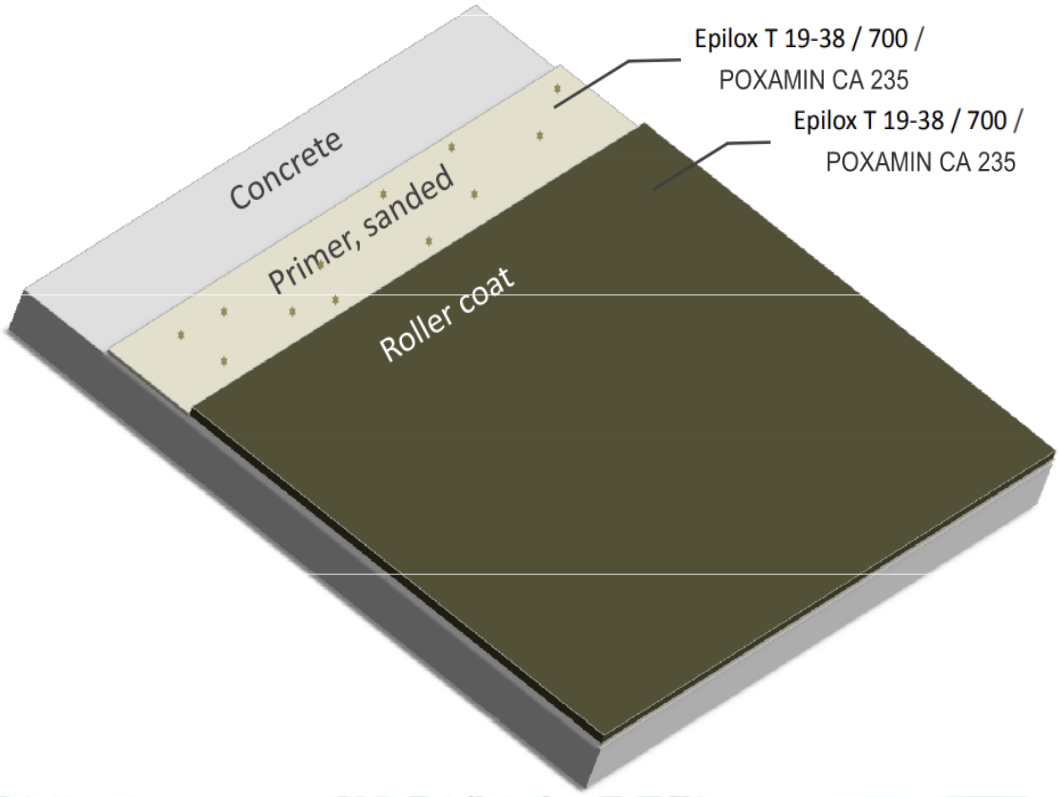
Component B:

1	POXAMIN AQ 2285		62,00	VARENA

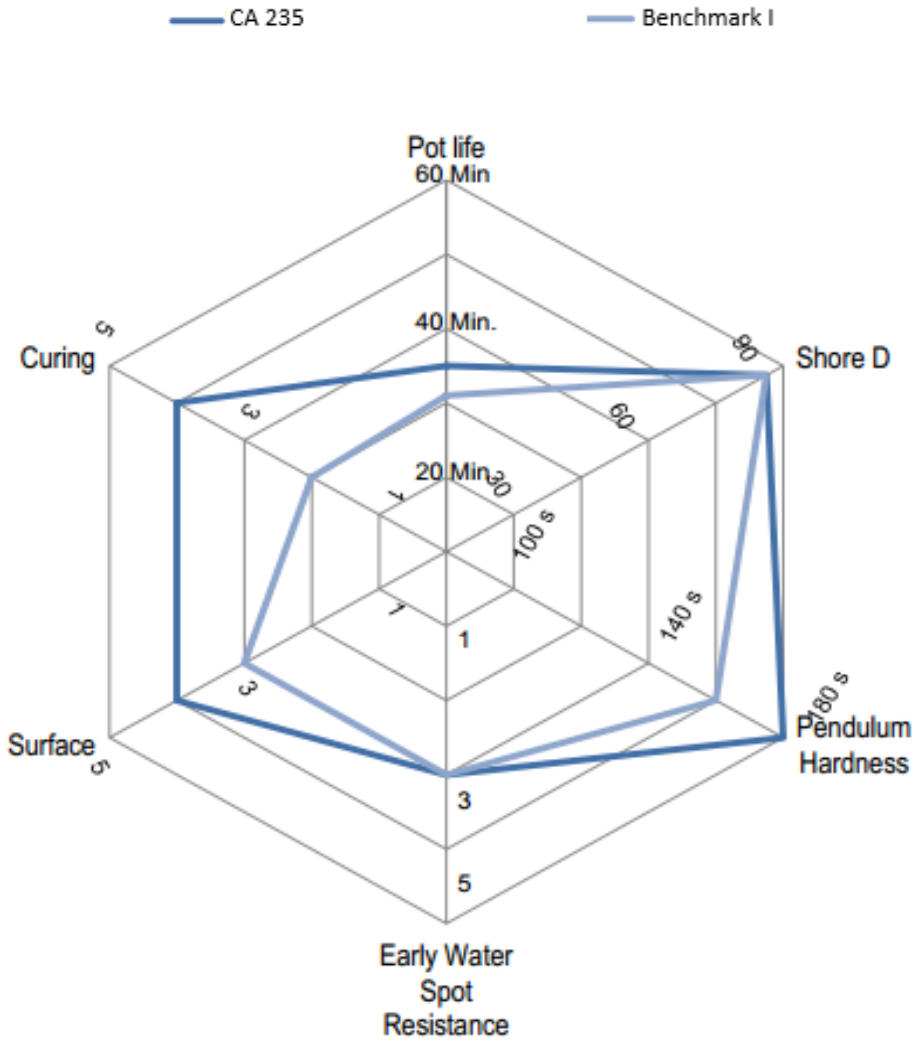


Anti-osmose

Prime the way to anticorrosion coating durability with POXAMIN for high performance water-based epoxy primer.

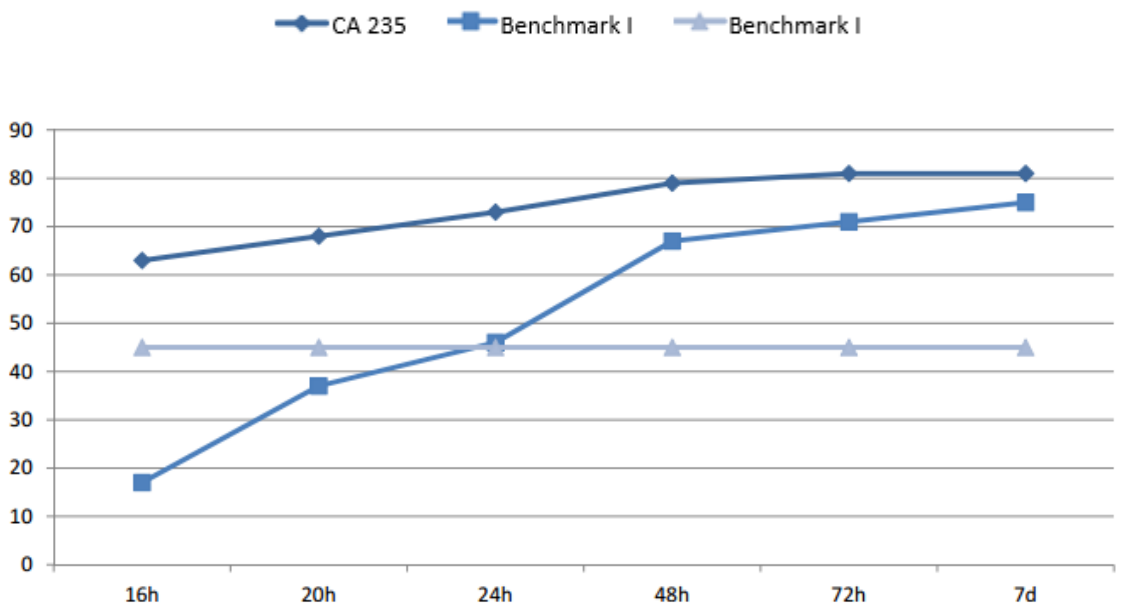


Performance Profile

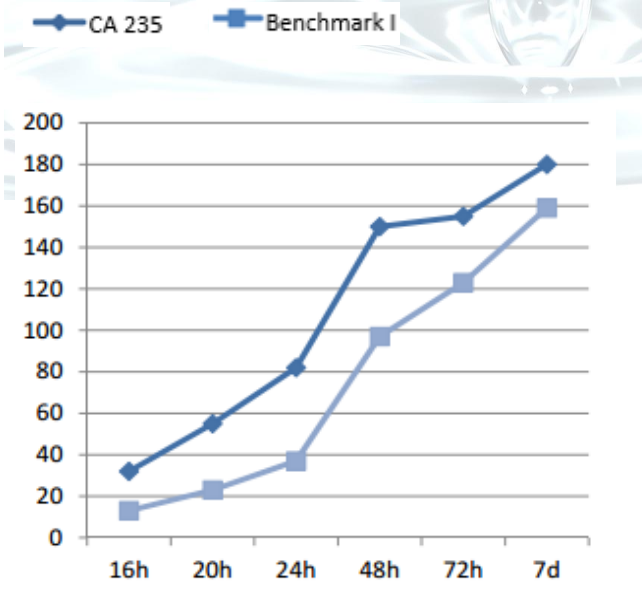


* With A/F –resin (C12-C14 diluted)
1 = poor
5 = excellent

Shore D

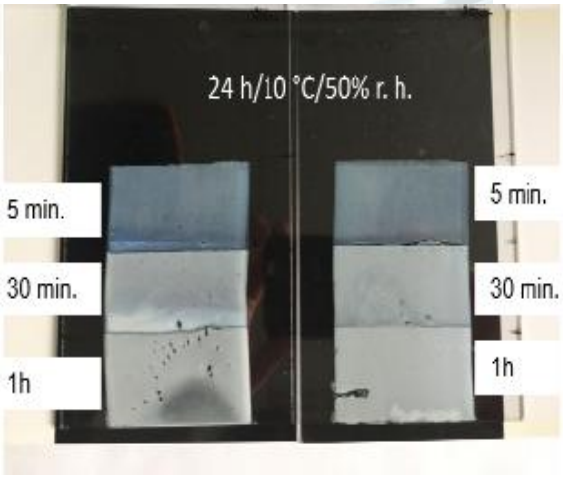


Pendulum Hardness



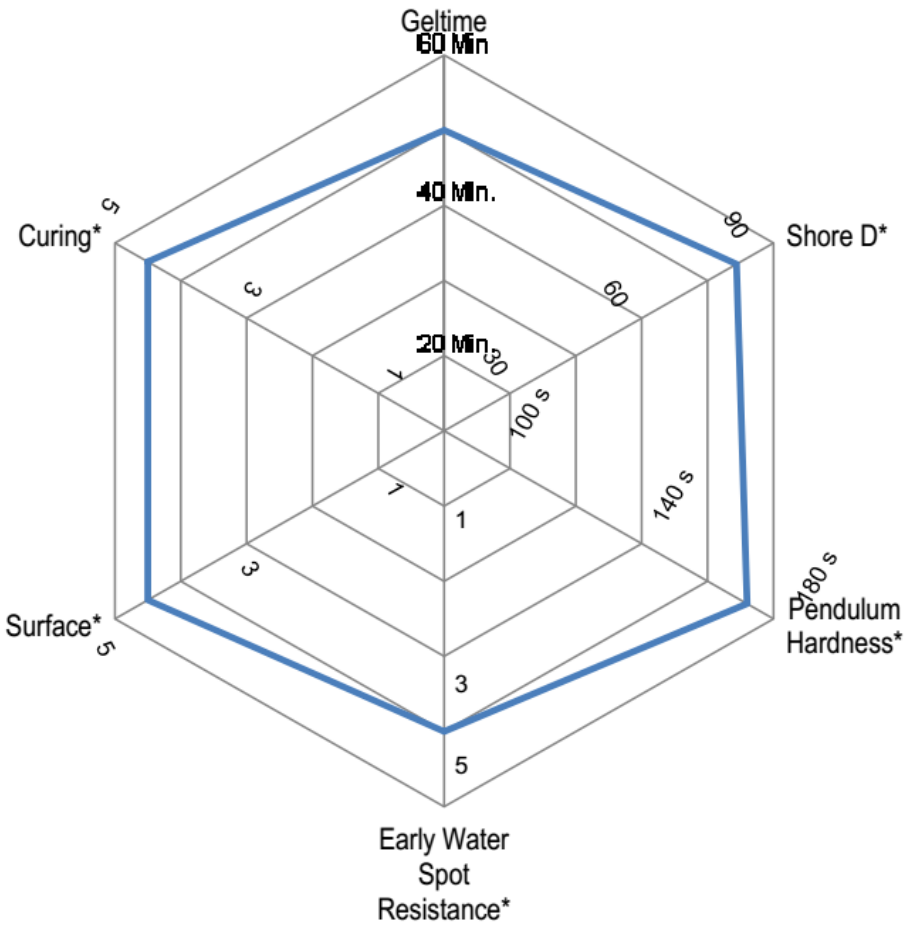
Early Water Spot Resistance

Benchmark I POXAMIN CA 235



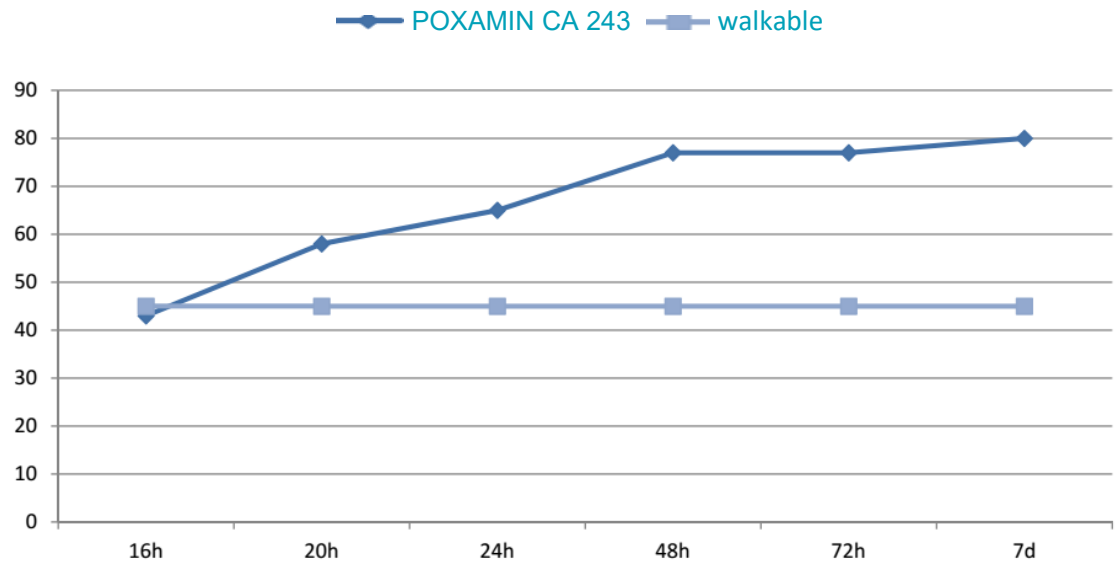
Performance Profile

POXAMIN CA 243



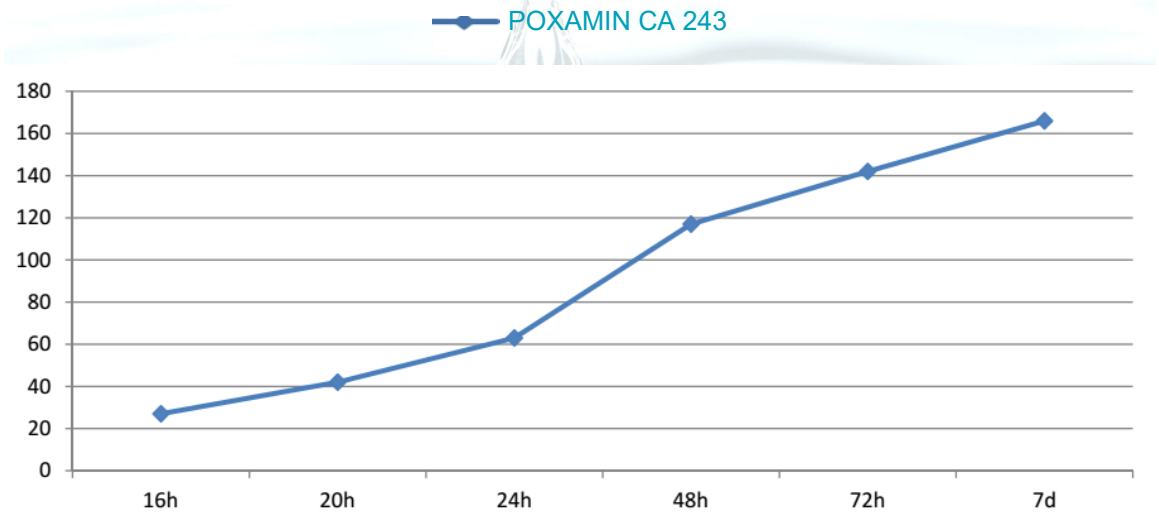
* With A/F –resin (C12-C14 diluted)
1 = poor
5 = excellent

Shore D at 20°C / 50% RH



* with A/F-resin (C12-C14 diluted)

Pendulum Hardness at 20°C / 50% RH, 200 µm

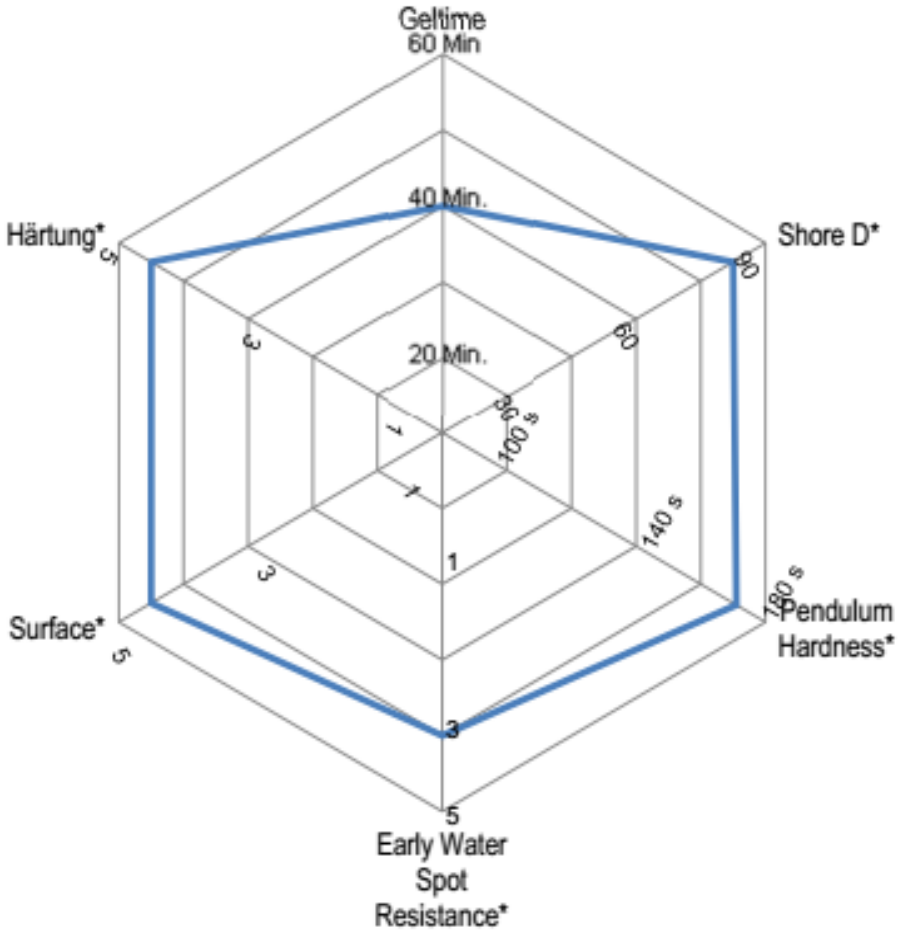


* with A/F-resin (C12-C14 diluted)

The product described in this preliminary technical data sheet is a trial product which has not yet been industrially manufactured. VARENA has not yet been able to monitor performance over a sufficiently period and therefore, cannot accept liability or provide a warranty for the product, in particular on its suitability for specific applications.

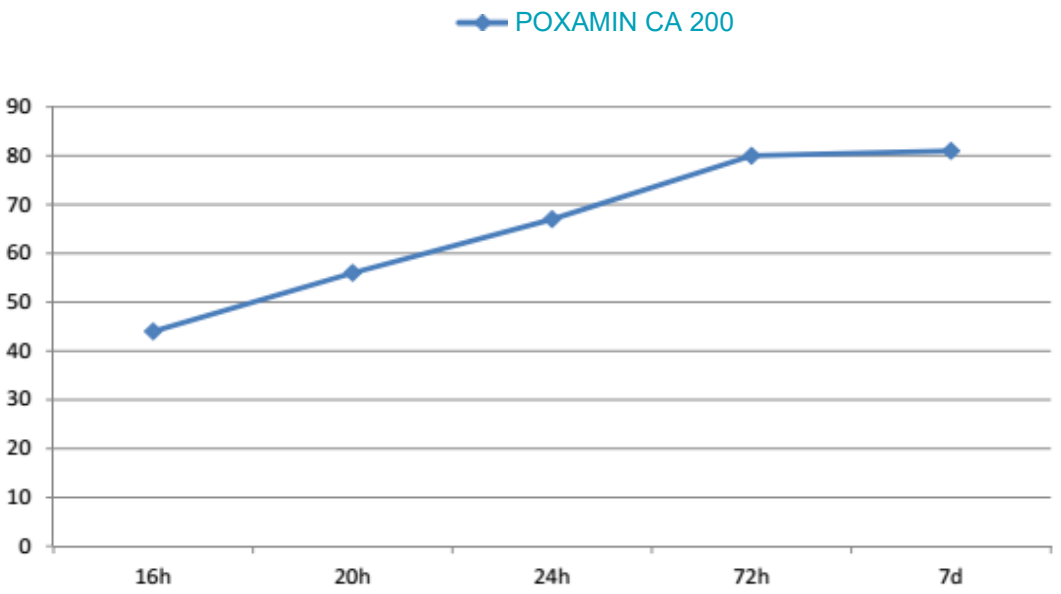
Performance Profile

POXAMIN CA 200



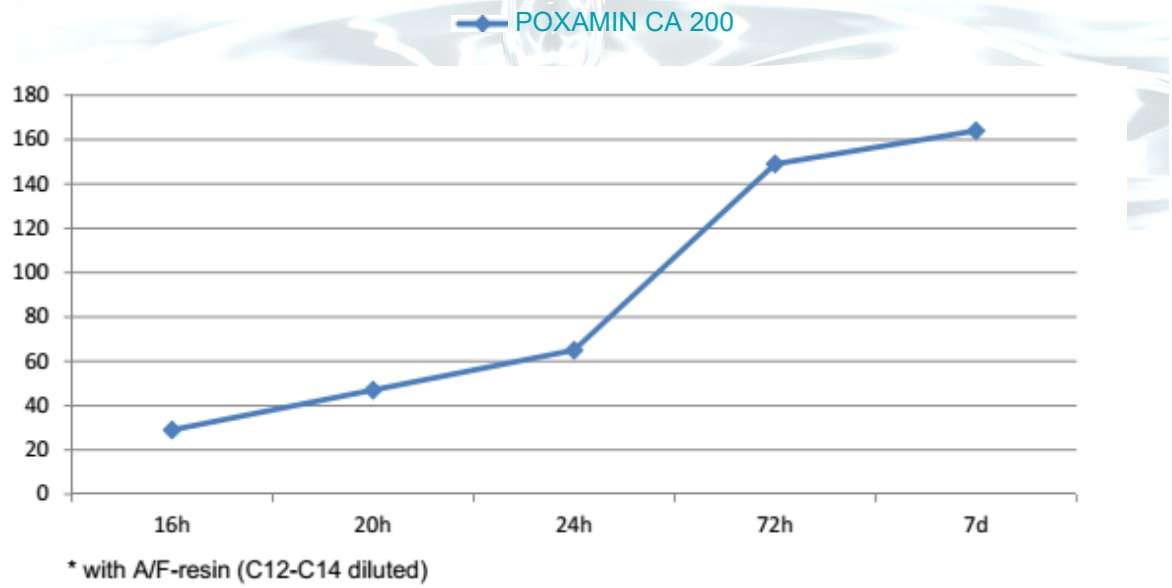
* With A/F –resin (C12-C14 diluted)
1 = poor
5 = excellent

Shore D at 20°C / 50% RH



* with A/F-resin (C12-C14 diluted)

Pendulum Hardness at 20°C / 50% RH, 200 µm

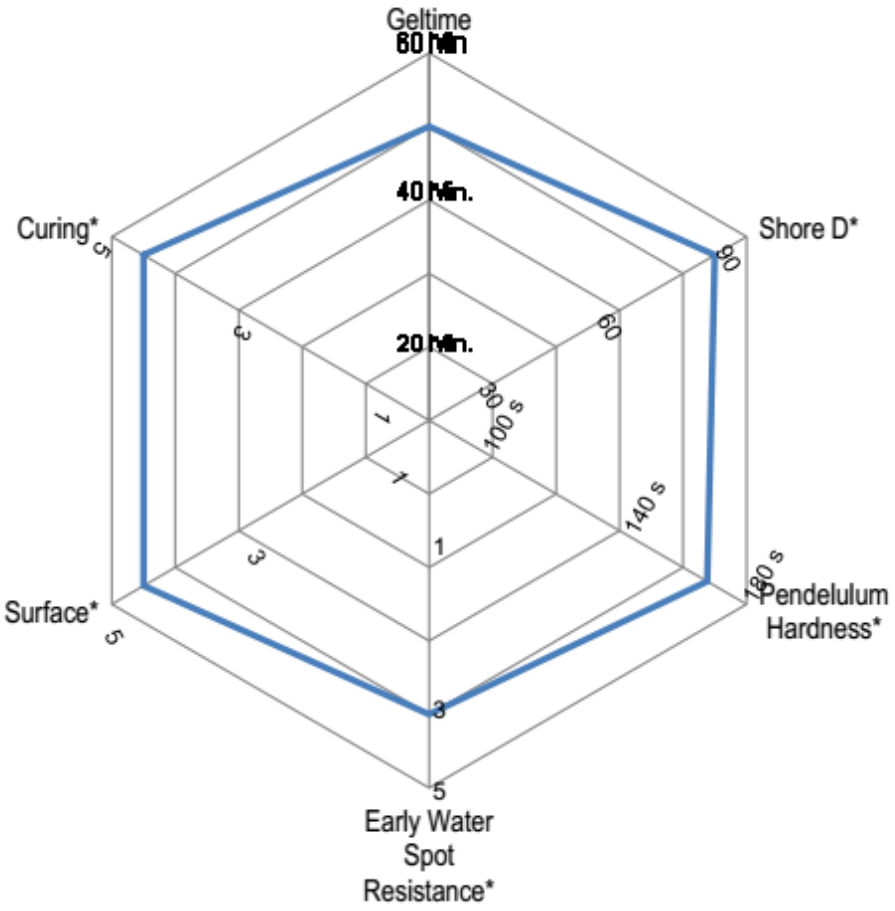


* with A/F-resin (C12-C14 diluted)

The product described in this preliminary technical data sheet is a trial product which has not yet been industrially manufactured. VARENA has not yet been able to monitor performance over a sufficiently period and therefore, cannot accept liability or provide a warranty for the product, in particular on its suitability for specific applications.

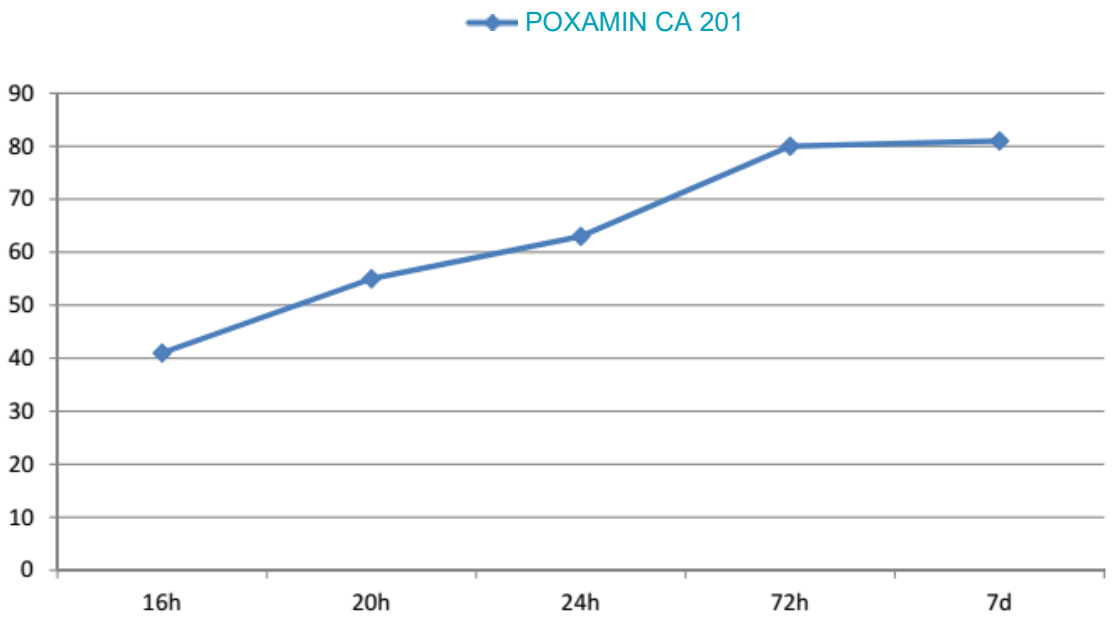
Performance Profile

POXAMIN CA 201



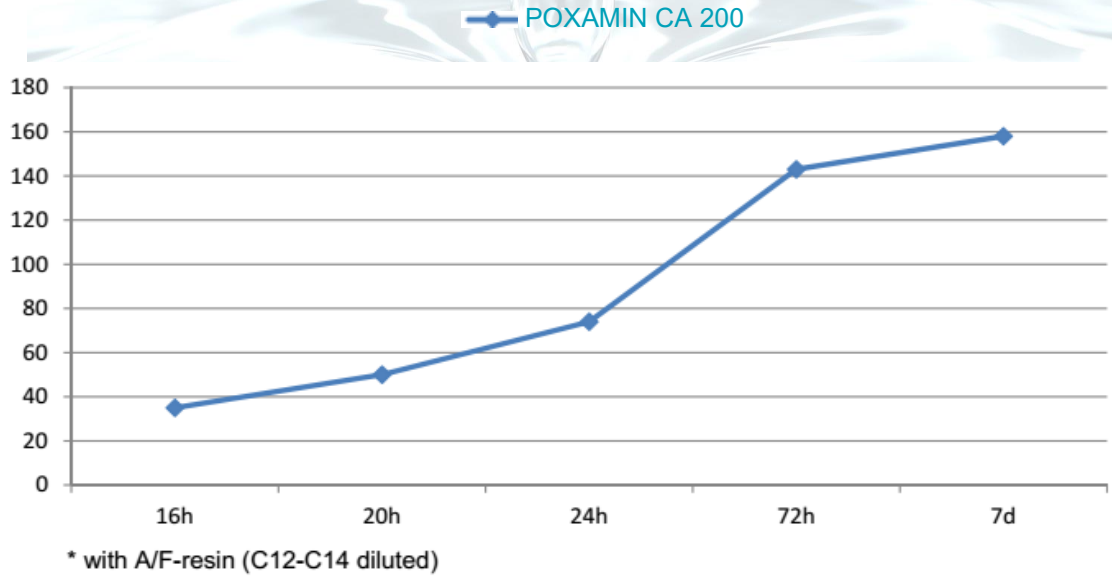
* With A/F –resin (C12-C14 diluted)
1 = poor
5 = excellent

Shore D at 20°C / 50% RH



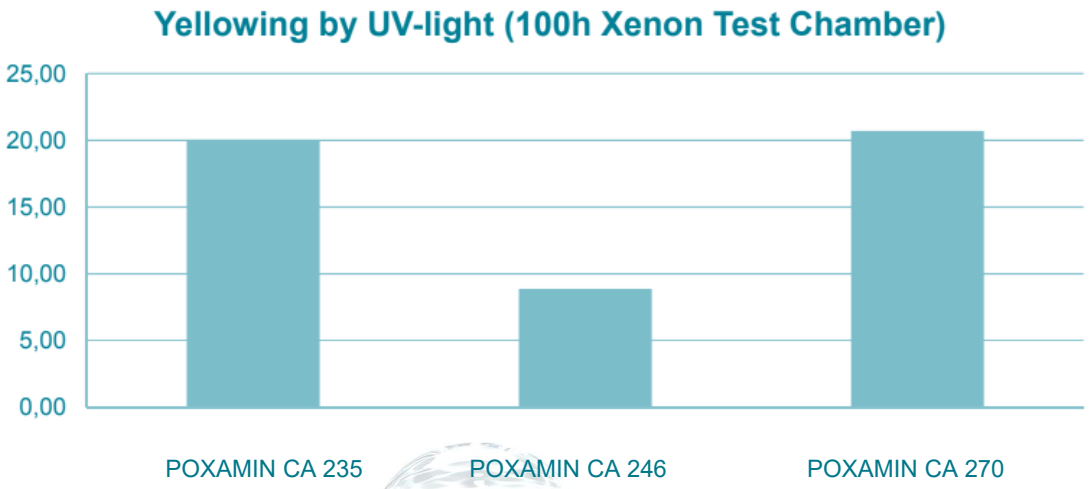
* with A/F-resin (C12-C14 diluted)

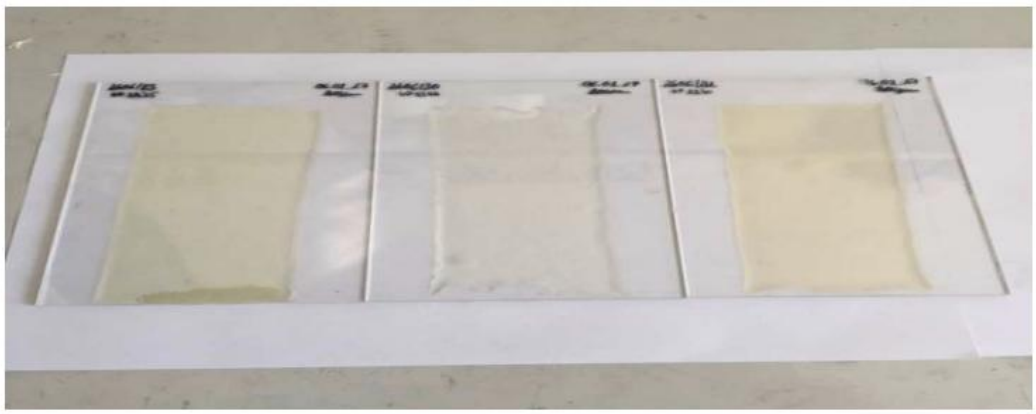
Pendulum Hardness at 20°C / 50% RH, 200 µm



* with A/F-resin (C12-C14 diluted)

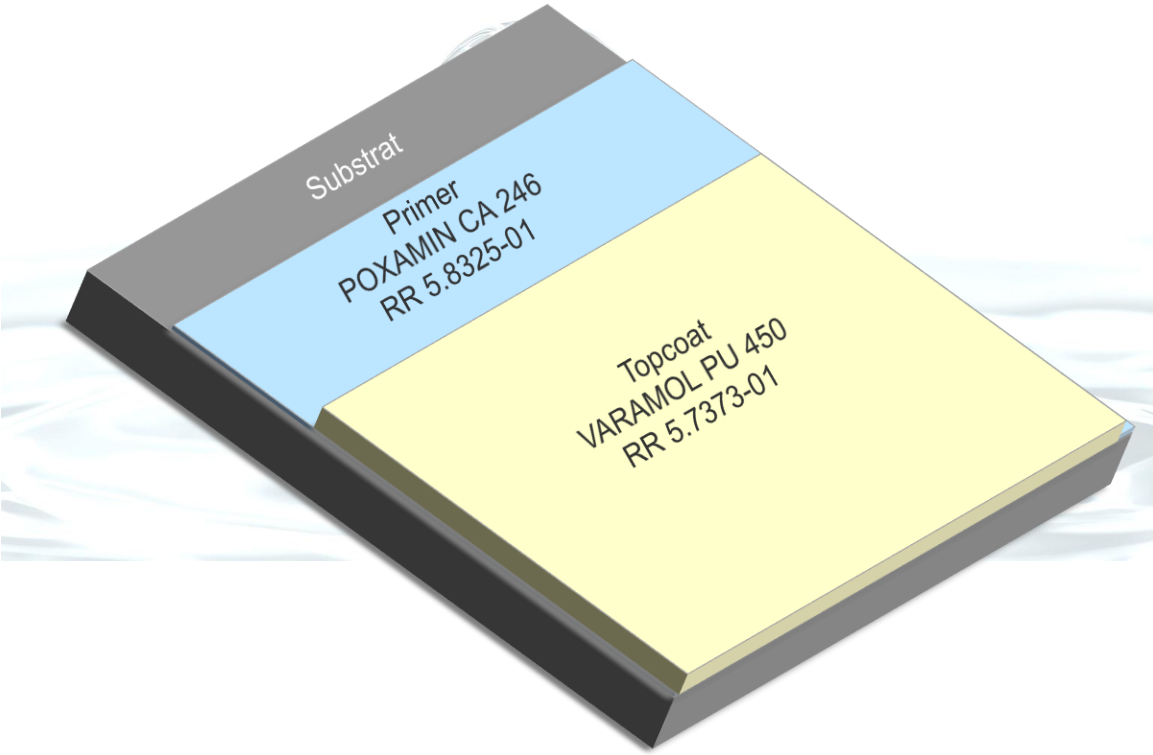
POXAMIN CA Curatives





VARAMOL PU 450

POXAMIN CA 246 in a primer and topcoat with VARAMOL PU 450



Topcoat for 2 K flooring, gray

Component A:

1	VARAMOL PU 450		45,50	VARENA
2	Silosiv Paste P3		9,00	Grace
3	Schwerspat		38,50	Sachtleben
4	Kronos 2190		5,50	Kronos
5	Bayferrox 318 M		0,50	BASF
6	THORFOAM AC 135		1,00	VARENA
			100,00	

Component B:

1	SUPRASEC 2496		20,60	Hunstmann

Manufacturing specification:

Mix all components in the order indicated.

Mixing ratio: 100.00 g Component A, 20.60 g Component B.

Stoichiometry: 95%

Pot life 23 °C: approx. 30 minutes.

PU-TOPCOAT

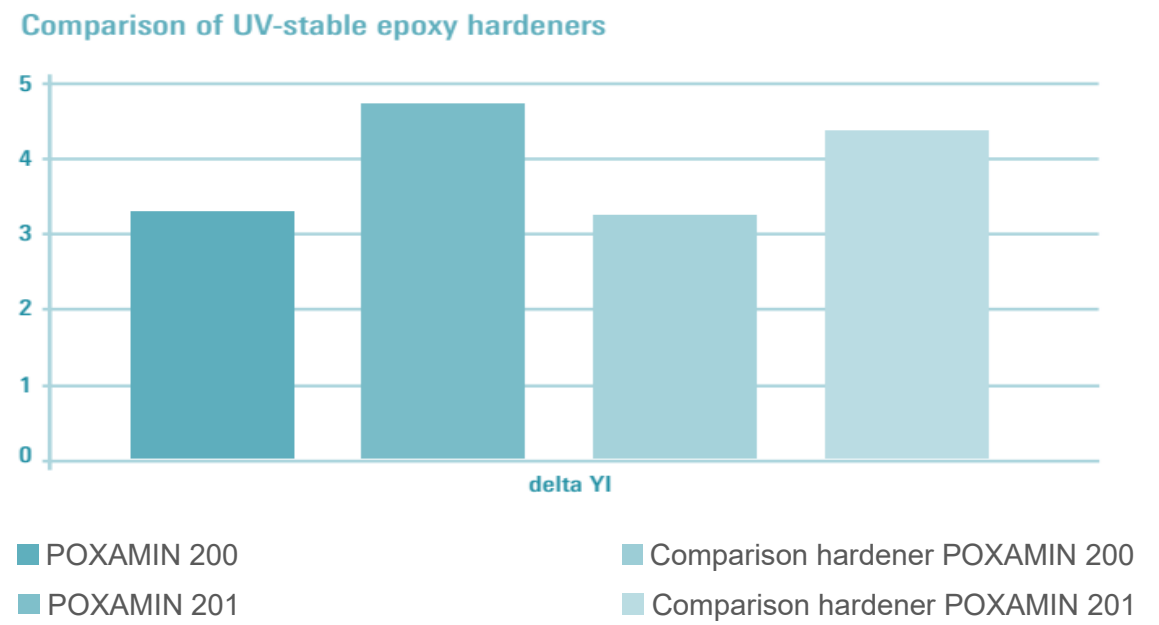
POXAMIN
ADVANCED EPOXY HARDENER TECHNOLOGIES

POXAMIN - more highly
UV-resistant polymer hardeners

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN 200	590 - 790	290 - 390	89	approx. 40	100	1,02 ± 0,02
POXAMIN 201	480 - 680	275 - 375	85	approx. 50	100	1,02 ± 0,02

POXAMIN CA 200 is a modified cycloaliphatic polymer hardener with a low yellowing tendency. This hardener can be used for coatings systems that are intended to yield visually attractive surfaces.

POXAMIN CA 201 is a modified cycloaliphatic polymer hardener with good colour stability. The application area of this hardener includes roller coatings, self- levelling top coatings and mortar systems.



Q-SUN XE-1 XENON TEST CHAMBER (100 hours 340 nm)

TECHNOLOGIES FOR A SECURE FUTURE

POXAMIN AQ

WATER-BASED EPOXY HARDENER

Water-based products have also come to play an ever increasing role in construction chemistry. VARENA has succeeded in developing a water-based epoxy resin hardener that is suitable for use in primers, EP mortars and EP floor coating systems.

The polymer epoxy resin hardener **POXAMIN AQ 2228** is **VOC-free** and 80% dissolvable in water. It is particularly noteworthy for its compatibility with liquid resins and solid resin dispersions. **POXAMIN HQ 2228** has emulsifying properties while also featuring excellent and swift hardening in comparison with market standards, even in the case of very high coating thicknesses. The product achieves very good surface properties and a high Shore D hardness value.

Furthermore, **POXAMIN HQ 2228** is notable for its low shrinkage qualities and good UV stability. This polymer epoxy resin hardener is suitable for moist substrates and can thus also be used in coatings with high water vapour permeability (prevention of osmotic blistering). The gel time can be adjusted by means of a selection of resin components. An extended gel time of approx. 38 minutes has been determined in combination with H epoxy.

Our research and development department is always intent on taking all market requirements into account in the process of developing new products. To this end, VARENA stays in constant close contact with its customers from the industry.

POXAMIN AQ 2285 W

Waterbased polymer amine curing agent with booster function

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN AQ 2285	< 10.000	300 - 400	86	approx.16	80 in water	1,02 ± 0,02

POXAMIN AQ 2285 W is a waterbased polymer epoxy curing agent with excellent hardening properties. This product demonstrates good UV stability and good hardening characteristics for high coating thicknesses. When used with fluid epoxy resins, this hardener is notable for yielding particularly good surfaces. POXAMIN AQ 2285 W is compatible with liquid resins and also solid resin dispersion. It has emulsifying properties, low shrinkage and also very good full cure properties also in high film thickness and visible end of pot life with liquid resins.

POXAMIN AQ

Waterbased polymer hardeners

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN AQ 2616	< 9.000	380 - 380	86	approx.16	80 in water	1,03 ± 0,02

Pendel-hardness [s]	209 s / 200 µm after 7 days RT
Shore D	81 / ISO 868, after 7 days RT

with Bisphenol A/F-resin with hexanediol diglycidyl ether, EEW: 172.5

POXAMIN AQ 2616 W is a waterbased polymer hardener with excellent hardening properties. the hardener system has a very low inherent colouring, fast water resistance and has good surface properties.

HQ 2616 is suitable for the production of sealers and self-levelling coating systems.

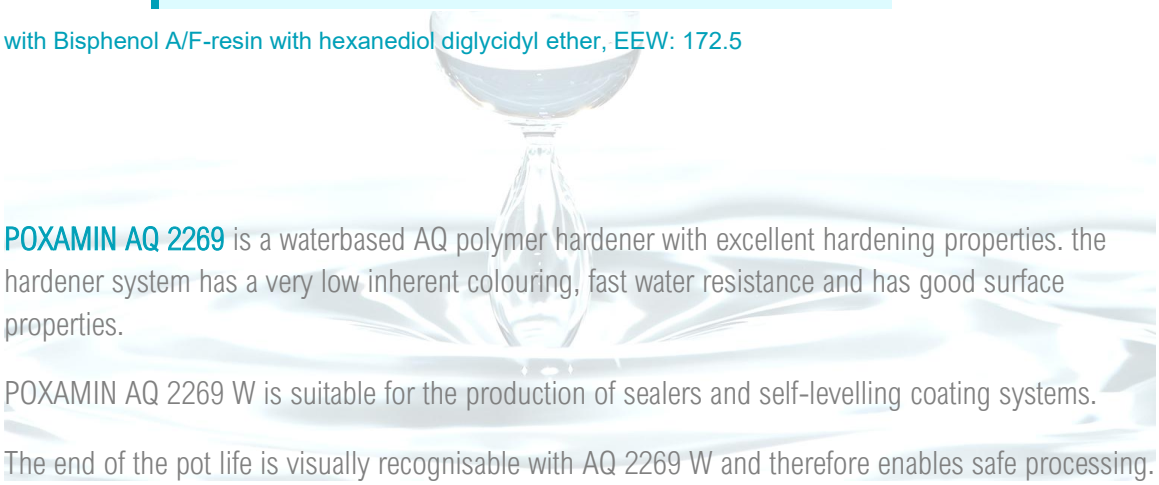
The end of the pot life is visually recognisable with HQ 2616 and therefore enables safe processing.

Waterbased AQ polymer hardeners

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN AQ 2269	< 10.000	250 - 350	115	approx. 24	75 in water	1,05 ± 0,02

Pendel-hardness [s]	180 s / 200 µm n. 7 days RT 20 °C / 50% r.F.
Shore D	80 / ISO 868, after 7 d RT 20 °C / 50% r.F.

with Bisphenol A/F-resin with hexanediol diglycidyl ether, EEW: 172.5



POXAMIN AQ 2269 is a waterbased AQ polymer hardener with excellent hardening properties. the hardener system has a very low inherent colouring, fast water resistance and has good surface properties.

POXAMIN AQ 2269 W is suitable for the production of sealers and self-levelling coating systems.

The end of the pot life is visually recognisable with AQ 2269 W and therefore enables safe processing.

POXAMIN AQ 2648 W

Waterbased polymer hardeners

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN AQ 2648	< 25.000	300 - 400	86	approx. 23	100	1,03 ± 0,02

Pendel-hardness [s]	180 s / 200 µm n. 7 days RT 20 °C / 50% r.F.
Shore D	80 / ISO 868, after 7 d RT 20 °C / 50% r.F.

with Bisphenol A/F-resin with hexanediol diglycidyl ether, EEW: 172.5

POXAMIN AQ 2648 W is a waterbased polymer hardener with excellent hardening properties. the hardener system has a very low inherent colouring, fast water resistance and has good surface properties.

POXAMIN AQ 2648 W is suitable for the production of sealers and self-levelling coating systems.

POXAMIN AQ
agents, are Zero-VOC

and may not affect environmental conditions

POXAMIN Epoxy Curing Agents

POXAMIN AQ; Epoxy Hardener: water-borne polyamide, polyamidoamine adduct, polyamine and polyamine adduct

Product	Characteristic	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
AQ 2386	Water thinnable polyamine	3.900 – 4.100	280 – 380	86	30	80 in WA	AQ 2386 is mainly used as curing agent for the manufacture of sealings and self-levelling coating systems. This curing system has a very low self-colouring, a fast water resistance and shows good surface properties.
AQ 2170	Water based polyamide	50 – 150	110 – 130	115	45	50 in IB/WA	A reactive polyamide resin designed for use with solid or liquid epoxy resins for flexible and resistant thermoset coating applications that cure at room temperature.
AQ 2175	Water based polyamide	600 – 650	170 – 190	170	45	50 in IB/WA	Reactive polyamide resin designed for use with solid or liquid epoxy resins for flexible, resistant thermosetting coating applications that cure at room temperature.
AQ 2621	Water based polyamidoamine adduct	4.000 – 7.000	185 – 225	165	60	70 in BG/WA	Used in civil engineering in combination with Epikote 255 or 816. Recomended usage rate (phr) 100 : 120-130.
AQ 2285	Polyamine adduct	< 10.000	300 – 400	86	16	80 in WA	AQ 2285 is mainly used as curing agent for the manufacture of sealings and selflevelling coating systems.
AQ 2286	Polyamin adduct	< 10.000	250 – 350	115	24	75 in WA	This curing system has a very low self-colouring, a fast water resistance and shows good surface properties.
AQ 2616	Polyamine adduct	< 9.000	280 – 280	86	25	80 in WA	The hardener system has a very low color, a fast water resistance and has good surface properties. POXAMIN AQ 2616 is suitable for the production of sealants and self-leveling coating systems.
AQ 2648	Polyamine adduct	< 25.000	300 – 400	86	35	100%	The hardener system has a very low color, a fast water resistance and has good surface properties.

Using water as a solvent to meet high regulatory demands

Replacement of Mannich bases by innovative epoxy hardener

Phenol-free rapid hardener as co-hardener in high solids

The challenge was to develop a rapid hardener which would offer hardening characteristics corresponding to those of traditional Mannich bases, at the same time as avoiding the problematic R62 labelling.

POXAMIN 388 H

- Low yellowing tendency
- Good surface properties
- Good early water resistance
- Low viscosity
- No R62 labelling

Product	Viscosity [mPas] (25°C)	Amine Value [mg KOH/g]	H-Equivalent g/Val.	Gel time [min]	Solid [%]	Density g/cm³
POXAMIN 388 H	< 250	388	75	approx. 10	100	1,02 ± 0,02

POXAMIN 388 H significantly extends the application range for rapid hardeners. For example, it is now possible to accelerate hardener systems for more visually demanding applications. The disadvantages of Mannich bases, such as severe yellowing or higher viscosity, have been overcome to the greatest possible extent. To facilitate the exchange of Mannich bases, the H-active equivalent weight has been set to 75 g/eq.

*Contains hydrocarbon resins.

Innovative epoxy hardener!

VARADUR BF

free from benzyl alcohol

POXAMIN H 510 BF

Phenol-free and benzyl alcohol-free, as low emission standard flooring hardener.

POXAMIN H 510 BF is low emission standard flooring hardener with excellent general properties.

POXAMIN H 510 BF is modified stabilized cycloaliphatic polyamine hardener, free from alkyl phenols and benzyl alcohol.

Colour,[Gardner]	< 2
Amin Value [mg KOH/g]	320 ± 20
Density at 23 °C [g/cm³]	1,00 ± 0,01
Viscosity at 25 °C [mPa.s]	525 ± 100
Active-H-Equiv. Weight [g/val]	approx. 93
Pot-life** [min.]	approx. 27 ± 4
Pendel-hardness [s]	180
Shore D	94
Delivery Form [%]	100

* with EP-Resin, EEW: 187

APPLICATION:

POXAMIN H 510 BF used as universal curing agent for benzyl alcohol free, nonylphenol free, light colour casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers, solvent free epoxy flooring systems.

POXAMIN H 509 BF

POXAMIN H 509 BF is a modified stabilized polyamine adduct hardener of reduced reactivity, free from benzyl alcohol.

Colour, [Gardner]	< 2
Efflux Time, 23°C [s]	39 ± 3
Density, 20 °C [g/cm³]	0,98 ± 0,02
Viscosity at 23 °C [mPa.s]	180 ± 50
Active-H-Equiv. Weight [g{val]	approx.. 90
Flexural Strength [Mpa]	ca. 73
Elongation at Break [%]	12
E-Moduls (Flexural) [Mpa]	2190
min. Curing Temp. [°C]	15
Pot-life [min.]	approx.. 80
Rec. Amount Hardener [g]	50
Shore D 1. 7 dr.t.	80
Tensile Strength [Mpa]	48

* with EP-Resin, EEW: 187

APPLICATION:

POXAMIN H 509 BF is preferably used in combination with suitable epoxy resin formulations for solvent-free systems. Main fields of application are primers and coatings. The lower reactivity enables usage in environments with higher temperature levels.

POXAMIN H 515 BF

POXAMIN H 515 BF is emission-free ``full reactive´´ modified polyamine adduct hardener, free from alkyl phenols and benzyl alcohol, with excellent water-spotting resistance and excellent general properties.

Colour,[Gardner]	< 2
Amin Value [mg KOH/g]	395 ± 30
Density at 23 °C [g/cm³]	1,02 ± 0,01
Viscosity at 25 °C [mPa.s]	565 ± 50
Active-H-Equiv. Weight [g/val]	approx. 82
Pot-life** [min.]	approx. 21 ± 4
Pendel-hardness [s]	180
Shore D	83
Delivery Form [%]	100

* with EP-Resin, EEW: 187

APPLICATION:

POXAMIN H 515 BF used as emission-free "full reactive" hardener with excellent general properties, with excellent water spotting resistance, good through-cure and good yellowing resistance.

POXAMIN H 1129 BF

POXAMIN H 1129 BF is low viscous and solvent free accelerated modified epoxy curing agent based on cycloaliphatic polyamine adduct free from nonyl phenol and benzyl alcohol for jointing mortars and high-performance, stain resistant, germ & water resistant epoxy grout for durable and easy-to-clean tile joints.

Colour,[Gardner]	< 2
Amin Value [mg KOH/g]	395 ± 30
Density at 23 °C [g/cm³]	1,03 ± 0,02
Viscosity at 25 °C [mPa.s]	max. 1000
Active-H-Equiv. Weight [g/val]	approx. 92
Pot-life** [min.]	approx. 30 ± 4
Amin value, mg KOH/g	520 - 620
Shore D	83
Delivery Form [%]	100

* with epoxy resin, EEW: 187

APPLICATION:

POXAMIN H 1129 BF is a low viscous fast-curing and highly reactive hardener, which is preferably used with suited epoxy resins for solvent-free epoxy systems. Main fields of application are chemical-resistant coating, epoxy joining mortars and like adhesives, putties and tar-epoxy-combinations.

POXAMIN H 1160 BF

POXAMIN H 1160 BF is a liquid, solvent-free, benzyl alcohol-free specialty polyamine hardener.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	550 ± 50
Viscosity at 20 °C [mPa.s]	10 ± 5
H-equivalent [g/val]	approx. 50
Pot life* / RT 25°C [min.]	approx. 15

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

POXAMIN H 1160 BF is mainly used in the stone-working industry for strengthening porous and fissured natural stone stabs, concrete and concrete ashlar and improving their surface qualities. In combination with spun glass fabrics it is also used for strengthening brittle natural stone slabs. The hardened product shows a minimal tendency to yellow if exposed to ultraviolet light or to warmth.

POXAMIN H 3385 BF

POXAMIN H 3385 BF is emission-free (VOC-free) ``full reactive´´ modified polyamine adduct hardener, free from alkyl phenols and benzyl alcohol, with excellent water-spotting resistance and excellent general properties.

Colour,[Gardner]	< 2
Amin Value [mg KOH/g]	315 ± 30
Density at 23 °C [g/cm³]	1,02 ± 0,01
Viscosity at 25 °C [mPa.s]	< 1.000
Active-H-Equiv. Weight [g/val]	approx. 93
Pot-life** [min.]	approx. 25 ± 4
Pendel-hardness [s]	170
Shore D	83
Delivery Form [%]	100

* with EP-Resin, EEW: 187

APPLICATION:

POXAMIN H 3385 BF used as emission-free "full reactive" hardener with excellent general properties, with excellent water spotting resistance, good through-cure and good yellowing resistance. POXAMIN H 3385 BF is mainly for the curing of chemical resistance flooring coatings.

POXAMIN H 3300 BF

POXAMIN H 3300 BF is emission-free (VOC-free) ``full reactive´´ modified polyamine adduct hardener, free from alkyl phenols and benzyl alcohol, with excellent water-spotting resistance and excellent general properties.

Colour,[Gardner]	< 2
Amin Value [mg KOH/g]	315 ± 30
Density at 23 °C [g/cm³]	1,02 ± 0,01
Viscosity at 25 °C [mPa.s]	< 1.000
Active-H-Equiv. Weight [g/val]	approx. 93
Pot-life** [min.]	approx. 25 ± 4
Pendel-hardness [s]	170
Shore D	83
Delivery Form [%]	100

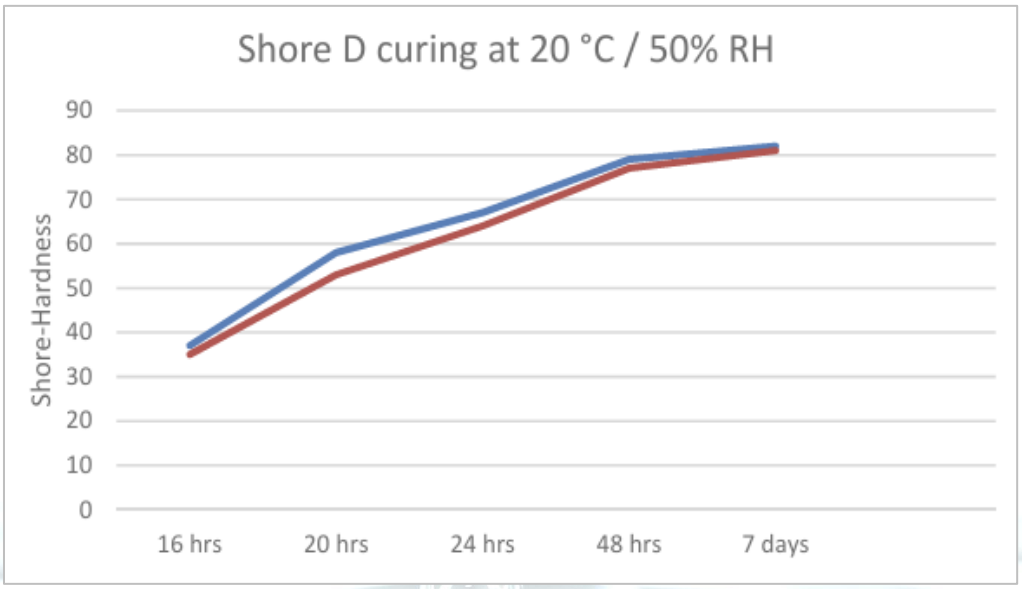
* with EP-Resin, EEW: 187

APPLICATION:

POXAMIN H 3300 BF used as emission-free "full reactive" hardener with excellent general properties, with excellent water spotting resistance, good through-cure and good yellowing resistance. POXAMIN H 3300 BF is mainly for the curing of chemical resistance flooring coatings.

ADVANTAGES:

- POXAMIN H 3300 BF has a good full cured time
- Free from benzyl alcohol
- Low carbamate liability
- VOC-free



POXAMIN HR 541

POXAMIN HR 541 is a liquid, solvent free, special polyamine hardener for contact with drinking water.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	500 ± 50
Viscosity at 20 °C [mPa.s]	160 ± 50
H-equivalent [g/val]	approx. 60
Pot life* / RT 25°C [min.]	approx. 15

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

POXAMIN HR 541 is mainly used as hardener component in combination with epoxy resin for corrosion protection, approved for contact with drinking water.

POXAMIN HC 30 M

POXAMIN HC 30 M is a solvent based modified amine epoxy adduct for the formulation of solvent based two component-EP-primers and topcoats.

POXAMIN HC 30 M is used in all types of solvent based two component-EP systems. In corresponding primers good corrosion resistance is achieved.

In combination with semi-solid epoxy resins such as Araldite GY 280, or solid resins such as Araldite GT 7071, GT 7072 or their solutions such as Araldite GZ 7071 X 75, POXAMIN 30 M is suitable for the production of solvent-containing, cold-curing anticorrosion coatings applied to metal or mineral substrates.

Used with multi-functional epoxy resins such as Araldite EPN 1180, POXAMIN HC 30 M is suitable for (top)-coatings with a particularly high degree of chemical resistance.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	190 ± 30
Viscosity at 20 °C [mPa.s]	8.000 – 12.000
H-equivalent [g/val]	approx. 380*
Pot life* / RT 25°C [min.]	approx. 8 hr
Delivery form	55% in isobutanol/xylene

* with standard A/F-epoxy resin, EEW: 450-500

POXAMIN
ADVANCED EPOXY HARDENER TECHNOLOGIES

POXAMIN H 285

POXAMIN H 285 is a liquid, solvent free, special polyamine hardener for chemical resistance coatings and flooring.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	320 ± 50
Viscosity at 25 °C [mPa.s]	400 - 600
H-equivalent [g/val]	approx. 98
Pot life* / RT 25°C [min.]	approx. 16

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

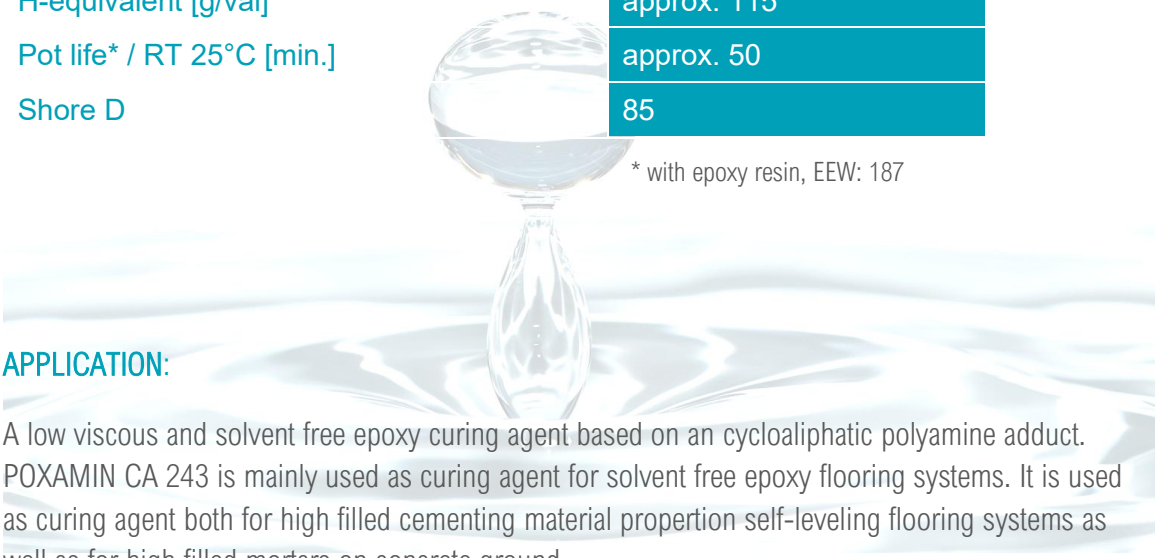
POXAMIN H 285 is mainly used as hardener component in combination with epoxy resin for chemical resistance coatings.

POXAMIN CA 243

POXAMIN CA 243 is low viscous and solvent free epoxy curing agent based on cycloaliphatic polyamine adduct free from nonyl phenol.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	300 ± 50
Viscosity at 25 °C [mPa.s]	350 ± 120
H-equivalent [g/val]	approx. 115
Pot life* / RT 25°C [min.]	approx. 50
Shore D	85

* with epoxy resin, EEW: 187



APPLICATION:

A low viscous and solvent free epoxy curing agent based on an cycloaliphatic polyamine adduct. POXAMIN CA 243 is mainly used as curing agent for solvent free epoxy flooring systems. It is used as curing agent both for high filled cementing material propertion self-leveling flooring systems as well as for high filled mortars on concrete ground.

POXAMIN CA 244

POXAMIN CA 244 is low viscous and solvent free epoxy curing agent based on cycloaliphatic polyamine adduct free from nonyl phenol.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	300 ± 50
Viscosity at 25 °C [mPa.s]	950 ± 300
H-equivalent [g/val]	approx. 115
Pot life* / RT 25°C [min.]	approx. 30
Shore D	85

* with epoxy resin, EEW: 187

APPLICATION:

Mainly used as curing agent for solvent free epoxy flooring systems. It is used as curing agent both for high filled cementing material proportion self-leveling flooring systems as well as for high filled mortars on concrete ground. At 10 °C. The composition is complied to the ``Epoxy Guideline of the UBA (Umweltbundesamt, German Federal Environmental Agency)´´ applicable for organic coating in contact with drinking water (date 16.05.2007).

POXAMIN H 294

POXAMIN H 294 is a liquid, solvent free, special polyamine hardener in combination with epoxy resin can be used in laminating systems.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	350 ± 50
Viscosity at 25 °C [mPa.s]	1.000 – 2.000
H-equivalent [g/val]	approx. 95
Pot life* / RT 25°C [min.]	approx. 25

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

POXAMIN H 294 is mainly used as hardener component in combination with epoxy resin for laminating systems.

your competent partner for procurement of

epoxy hardener and additive

POXAMIN HF 312

POXAMIN HF 312 is a liquid, solvent free, special polyamine hardener in combination with epoxy resin can be used in adhesive and tile joints and grouts.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	580 ± 50
Viscosity at 25 °C [mPa.s]	230 ± 50
H-equivalent [g/val]	approx. 56
Pot life* / RT 25°C [min.]	approx. 25

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

POXAMIN HF 312 is mainly used as hardener component in combination with epoxy resin for tile adhesive systems.

POXAMIN
ADVANCED EPOXY HARDENER TECHNOLOGIES

POXAMIN HB 297

POXAMIN HB 297 is a liquid, solvent free, special polyamine hardener in combination with epoxy resin can be used as accelerator for flooring adhesive and tile joints and grouts.

Colour index (as delivered) [Gardener]	< 6
Amin value [mg/KOH]	400 ± 50
Viscosity at 25 °C [mPa.s]	400 – 600
H-equivalent [g/val]	approx. 90
Pot life* / RT 25°C [min.]	approx. 11

* with standard A/F-epoxy resins, EEW:183 e.g. Epotec YD 522

APPLICATION:

POXAMIN HB 297 is mainly used as hardener component in combination with epoxy resin as accelerator for flooring adhesive and tile adhesive systems and mortar.

POXAMIN; Epoxy Hardener: polyamine, cycloaliphatic polyamine

Product	Characteristics	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
CA 209	Modified stabilized polyamine adduct	130 – 230 25°C	365 – 425	90	80	100	It is preferably used in combination with suitable epoxy resin formulations for solvent-free systems. Main fields of application are primers and coatings. The lower reactivity enables usage in environments with higher temperature levels.
CA 214	Phenol-free mannich base	650 – 950 25°C	345 – 445	73	15	100	CA 214 used as cold curing epoxy systems are suitable for a wide range of industrial applications, such as floorings, mortars, adhesives, coatings, lacquers and paints.
CA 215	Cycloaliphatic Polyamine Adduct	515 – 615 25°C	365 – 425	82	21	100	CA 215 is emission-free ``full reactive´´ modified polyamine adduct hardener, free from alkyl phenols and benzyl alcohol, with excellent water-spotting resistance and excellent general properties.
CA 235	Cycloaliphatic Polyamine Adduct	500 – 650 25°C	260 – 290	104	28	100	Modified cycloaliphatic polyamine adduct free from nonyl phenol. It is used in combination with suitable epoxy resin formulation for solvent-free systems. Main fields of application of this low-viscous hardener are ambient curing self-levelling-floorings adhesives.The composition is complied to the ``Epoxy Guideline of the UBA (Umweltbundesamt, German Federal Environmental Agency)´´ applicable for organic coating in contact with drinking water (date 16.05.2007).
CA 243	Cycloaliphatic Polyamine Resin	250 – 450 25ºC	230 – 330	115	50	100	A low viscous and solvent free epoxy curing agent based on an cycloaliphatic polyamine adduct. CA 243 is mainly used as curing agent for solvent free epoxy flooring systems. It is used as curing agent both for high filled cementing material propertion self-leveling flooring systems as well as for high filled mortars on concrete ground.
CA 244	Cycloaliphatic Polyamine Resin	650 – 1.250 25ºC	250 – 350	115	50	100	Mainly used as curing agent for solvent free epoxy flooring systems. It is used as curing agent both for high filled cementing material proportion self-leveling flooring systems as well as for high filled mortars on concrete ground. At 10 °C. The composition is complied to the ``Epoxy Guideline of the UBA (Umweltbundesamt, German Federal Environmental Agency)´´ applicable for organic coating in contact with drinking water (date 16.05.2007).
CA 210	Cycloaliphatic Polyamine Adduct	425 – 625 25°C	300 – 340	93	27	100	CA 210 used as universal curing agent for benzyl alcohol free, nonylphenol free, light color casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers, solvent free epoxy flooring systems.

POXAMIN; Epoxy Hardener: polyamine, cycloaliphatic polyamine

Product	Characteristics	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
CA 246	Cycloaliphatic Polyamine Adduct	140- 240 25°C	250 – 350	93	34	100	Modified cycloaliphatic polyamine adduct (nonylphenol-free). It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers.
CA 240 S	Cycloaliphatic Polyamine Adduct	300 – 400 25°C	260 – 300	93	31	100	Accelerated modified stabilised cycloaliphatic polyamine free from nonyl phenol. This is preferably used in combination with suited epoxy resins for solvent-free epoxy systems.
HC 249	Cycloaliphatic Polyamine Adduct	200 – 350 25°C	250 – 350	93	33	100	HC 249 is used as an universal curing for solvent-free epoxy systems. Main field of application is the formulation of primers and coating with good through-curing at temperatures down to +80 °C. Even after short curing periods the respective coatings are resistance to water.
HC 250	Cycloaliphatic Polyamine Adduct	280 – 400 25°C	250 – 350	92	40	100	Modified cycloaliphatic polyamine adduct (nonylphenol-free). Due to its relatively low yellowing tendency on UV exposure the HC 250 is useful for the formulation of epoxy binders for aesthetically demanding coatings, e.g. mortars and topcoats.
HC 255	Cycloaliphatic Polyamine Adduct	180 – 300 25°C	250 – 350	91	30	100	HC 255 is accelerated version of HC 550. It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers.
CA 260	Cycloaliphatic Polyamine Adduct	280 – 400 25°C	250 – 350	92	40	100	Modified cycloaliphatic polyamine adduct (nonylphenol-free). It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers
CA 265	Cycloaliphatic Polyamine Adduct	180 – 300 25°C	250 – 350	91	30	100	Modified cycloaliphatic polyamine adduct. It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers.
CA 270	Cycloaliphatic Polyamine Adduct	450 – 650 25°C	240 – 300	95	18	100	CA 270 is modified cycloaliphatic polyamine adduct and is the accelerated version of CA 270. It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers with good through-curing at temperatures down to + 80 °C.

POXAMIN; Epoxy Hardener: polyamine, cycloaliphatic polyamine

Product	Characteristics	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
CA 270-1	Cycloaliphatic Polyamine Adduct	180 – 300 25°C	250 – 350	95	12	100	CA 270-1 is modified cycloaliphatic polyamine adduct and is the accelerated version of CA 270. It is used as universal curing agent for casting, solvent-free laminating and coating resin systems as well as for adhesives and highly filled coating materials, mortars and primers with good through-curing
H 1160	Special polyamine hardener containing benzyl alcohol.	5 – 15 25°C	500 – 600	50	15	100	H 1160 is mainly used in the stone-working industry for strengthening porous and fissured natural stone stabs, concrete and concrete ashlar and improving their surface qualities. In combination with spun glass fabrics it is also used for strengthening brittle natural stone slabs.
HC 411	Polyamine Adduct	200 – 300	250 – 300	100	25	100	HC 411 can be used as a hardener component in combination with epoxy resin.
HC 30 M	Modified polyamidoamine adduct	8.000 -12.000	160 – 220	380	> 8 hr	100	A modified polyamine adduct, the curing of solvent based 2K-EP primers and topcoats used becomes.
HC 260	Modified polyaminadduct	460 – 660	250 – 350	102	46	100	HC 260 can be used as universal hardener for laminating and coating systems, high filled systems, mortars, primers and EP floor systems be used.
HC 261	Polyamine adduct	< 1.000	300 – 400	83	30	100	The hardener system has a very low color, a fast water resistance and has good surface properties, suitable for the production of water-based sealants and self-leveling coating systems.
H 285	Modified polyamine adduct	400 – 600	270 – 370	98	16	100	HC 285 is especially suitable for chemical resistant coatings.
H 284	Polyamine Adduct	< 10.000	270 – 370	97	40	100	As a hardener component in combination with epoxy resin for the area floor coating.
H 289	Polyamine Adduct	< 1.000	265 – 365	93	35	100	Modified cycloaliphatic polyamine adduct. It is used as universal curing agent for highly filled coating materials, mortars and primers.
H 294	Polyamine Adduct	< 2.000	300 – 400	95	40	100	Hardener component in combination with epoxy resin can be used in laminating systems.
H 266	Polyamine Adduct	< 25.000	400 – 500	72	35	100	Polyamine adduct, free from nonyl phenol. This is preferably used in combination with suited epoxy resins for solvent-free epoxy systems.
CA 200	Modified polyamine	590 – 790 25°C	290 – 390	89	40	100	Modified polyamine, free from nonyl phenol. This is preferably used in all types of floorings multilayer, selfleveling, mortars, in moderate to warm climate protective and decorative coatings and chemical resistant coatings and flooring, with good hardness and flexibility. The hardener has a higher stability against UV light.

POXAMIN; Epoxy Hardener: polyamine, cycloaliphatic polyamine

Product	Characteristics	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
CA 201	Modified Polyamine	480 – 680 25°C	300 – 400	85	50	100	Modified polyamine free from nonyl phenol. This is preferably used in all types of epoxy curing,with higher stability against UV light.
BF 388	Accelerated polyamine	200	300 – 400	75	10	100	Nonyl- and benzyl alcohol free, low viscose fast-setting hardener with mannich-base like through-cure and excellent properties.
CA 292	Modified polyamine adduct	400 – 600	270 – 370	95	40	100	CA 292 is a modified amine adduct, for the curing of chemical resistance coatings.
BF 3385	Polyamine Adduct	< 1.000	265 – 365	93	25	100	Nonyl- and benzyl alcohol free for flooring.
BF 3300	Polyamine Adduct	max. 1.000	265 – 365	93	25	100	Benzyl alcohol, nonylphenol free for flooring and for the curing of chemical resistance coatings.
HB 297	Polyamine Adduct	400 – 600	350 – 450	90	11	100	HB 297 S used as accelerators in mortars or adhesives.

POXAMIN PK; Epoxy Hardener, non-modified, solvent-based and solvent-free polycondensation polyamine

Product	Characteristics	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
PK 600	Polyamine Resin	300 – 550 25°C	625 – 775	50	50	100	A liquid, special polyamine hardener, solvent and benzylalcohol free. PK 600 is mainly used as curing agent for solvent free epoxy coatings.
PK 660	Polyamine Resin	8.000 -12.000 25ºC	230 – 270	380	360	55	A solvent based amine epoxy adduct for the formulation of solvent based epoxy primers and top coats.
PK 690	Polyamine Resin	50 – 100 25ºC	350 – 450	90	240	100	A liquid, solvent free, special polycondensated polyamine hardener containing benzyl alcohol. PK 690 is mainly used as curing agent for solvent free epoxy flooring systems. PK 690 is designed as hardener for epoxy system with certain elasticity properties of the cured films.

POXAMIN H 600

POXAMIN H 600 is low emission standard epoxy hardener with excellent general properties.

POXAMIN H 600 is a polycondensate polyamine, free from alkyl phenols and benzyl alcohol. Acts as a curing agent. Used for solvent free epoxy coatings.

In some cases, if POXAMIN H 600 is used as single curing agent, some surface imperfections may occur.

Colour index (as delivered) [Gardener]	< 2
Amin value [mg/KOH]	700 ± 75
Viscosity at 20 °C [mPa.s]	450 ± 150
H-equivalent [g/val]	approx. 50
Pot life* / RT 25°C [min.]	approx. 50
Delivery form	100%

* with standard A/F-epoxy resins, EEW:170 – 180

VARAMOL PU; Polyurethane Floor Coating

Like epoxy, polyurethane is a thermosetting polymer and considered a high performance coating. It is commonly known as urethane for short, though that it is technically incorrect.

VARAMOL PU; Solvent-free products for polyurethane flooring and construction

Product	Supply Form [%]	Viscosity [mPa.s]/23°C	Acid Value [mgKOH/g]	OH-Value [mg KOH/g]	Main uses and characteristics
PU 162	Solvent-free	15.000 – 20.000	≤ 3	43	In certain combinations, e.g. with PU 1800 the addition of PU 162 increases the toughness and resistance to wear and abrasion of the paint films. Such combinations can be used to coat furniture, floors and parquet.
PU 400	Solvent-free	3.000 – 4.000	≤ 2	150-170	A low viscous and solvent-free branched polyol with ester and ether groups and is mainly used for the formulation of solvent-free coatings, sealings and adhesives, automotive PU-underboday, in combination with modified polyisocynates.
PU 450	Solvent-free	2.500 – 3.500	≤ 2	220-240	A low viscous and solvent-free branched polyol with ester and ether groups and is mainly used for the formulation of solvent-free coatings, sealings and adhesives in combination with modified polyisocynates.
PU 1800	Solvent-free	25.000 – 36.000	≤ 3	215	In combination with polyisocyanates, used in flexible two-component polyurethane coatings for wood substrates, parquet and plastics.
PU 1200	Solvent-free	16.000 – 30.000	≤ 4	165	Slightly branched polyester polyol, in the formulation of flexible PU-coatings.

Starting point formulation 5. 7373-02

Two-component polyurethane floor coating; tough but flexible, self-levelling, near zero VOC with VARAMOL PU 450

Component A:

STEP 1				[% by wt]
1	VARAMOL PU 450	VARENA	23,01	19,1
2	Finma-Sorb 430 PR	Finma Chemie GmbH	9,16	7,6
3	Baytes EWO	Sachtleben	38,55	32,0
4	Tronox R-KB-2	Tronox Pigments GmbH	4,46	3,7
5	Chromoxide Green GN	Lanxess AG	1,45	1,2
STEP 2				
	VARAMOL PU 450	VARENA	22,89	19,0
STEP 3				
	BYK A 501	BYK-Chemie GmbH	0,48	0,4

Component B:

7	Desmodur VL	Covestro	20,48	17,0
	Total		**120,48**	**100,00**

Characteristic date:

Crosslinking NCO / OH :		1.1
Mixing ratio of component 1:2	[% by wt.]	10 : 2.05
Density of the formulation	[g/cm³, 20 °C]	approx. 1,5
Application rate per m² at 1,5 mm film thickness	[kg]	approx. 2,3
Working time at 23 °C	[min.]	approx. 30

Component 1 is formulated in a three-step process. Vacuum dissolvers have proved ideal as they prevent the incorporation of air.

Step 1: Disperse at approx. 12 m/s, preferably in a vacuum (< 200 mbar), for more than 15 to 20 min. Then check the fineness of grind (≤ 20 µm).

Step 2: Add the remaining polyol and stir at approx. 5 m/s, preferably in a vacuum (< 200 mbar), for approx. 5 min.

Step 3: Add the deaeration agent and homogenise at approx. 3 m/s at normal pressure for approx. 3 min.

Epoxy Curing Agents

POXAMIN PA

POLYAMIDOAMINE

POXAMIN Epoxy Curing Agents

High-Performance Raw Materials for Construction & Protective Coating

We offer a full line of high-quality, performance-oriented epoxy curing agents and modifiers for a wide variety of applications, including industrial coatings, civil engineering and construction, adhesives, and composites. Our experienced technical specialists have an in-depth understanding of your market requirements and are able to provide the right level of technical service and support you need.

Polyamides are known for their water and corrosion resistance. We offer a range of polyamides and adducts that include standard grades as well as grades that do not require an induction time, improved chemical resistance, lower viscosity and faster cure speed. Polyamides are most commonly used in metal coatings applications, particularly primers, and also find uses in adhesives, putties, sealants, cable jointing and electrical encapsulation.

Epoxy Curing Agents for Coatings & Paints

POXAMIN Epoxy Curing Agents

POXAMIN PA; Epoxy Hardener: solventborne and solvent free polyamides

Product	Characteristic	Viscosity [mPas]	Amine Value [mg KOH/g]	Theoretical Amine Hydrogen Equivalent Weight [g/equil.]	Pot-life [min]	Solid [%]	Main uses and characteristics
PA 115	Polyamid	3.500 – 4.500 75ºC	230 – 246	198	240	100	A high viscosity, reactive polyamide resin designed for use with solid or liquid epoxy resins for flexible and resistant thermoset coating applications that cure at room temperature.
PA 115 X-70	Polyamid	400 – 600 40°C	155 – 175	283	420	70	A reactive polyamide resin designed for use with solid or liquid epoxy resins for flexible and resistant thermoset coating applications that cure at room temperature.
PA 125	Polyamid	650 – 950 75ºC	330 – 360	103	120	100	A medium viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines, designed for use with solid or liquid epoxy resins for flexible and resistant thermosetting coating applications that cure at room temperature.
PA 125 X-90	Polyamid	3.000 – 6.000 25°C	280 – 320	130	180	90	A medium viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines in supplied 86% in solvent xylene, designed for use with solid or liquid epoxy resins for high build coatings and where the prime requirement are fast cure and flexibility.
PA 140	Polyamid	8.000- 14.000 25°C	370 – 400	97	120	100	PA reactive solvent free, medium low viscosity polyamide resin designed for use with solid or liquid epoxy resins for touch, chemical resistance thermosetting coatings, curing at room temperature.
PA 145	Polyamid	4.000 – 6.000 25°C	380 – 455	103	150	100	A low viscosity, reactive polyamide resin designed for use with solid or liquid epoxy resins for high solid formulations. PA 345 epoxy-system are useful in encapsulating potting and laminating applications.
PA 150	Polyamidoamin	700 – 1.200 25°C	420 – 450	133	160	100	A reactive solvent free, low viscosity amido-amine resin for use with solid or liquid epoxy resins for flexible and chemical resistance thermosetting applications, curing at room temperature. PA 350 is useful in adhesives applications, electrical encapsulations, laminates and industrial maintenance coatings.

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