



Industry trusts in our chemistry

Product catalogue | USA MARKET

 **ddchem**
chemistry you can trust



dd *ouble souls*
in a single identity.

We could have become a typical big company with big turnovers. Or we could have remained small tailor-made specialists, creating bespoke products to match customers' needs. However, we decided to become both, and actually much more. This means a **solid business structure** acknowledged for high and **consistent quality standards**, combined with **great flexibility**, which we have extended to all aspects of our activity, from made-to-measure solutions for all requirements created by our R&D laboratory: the true heart of our production.

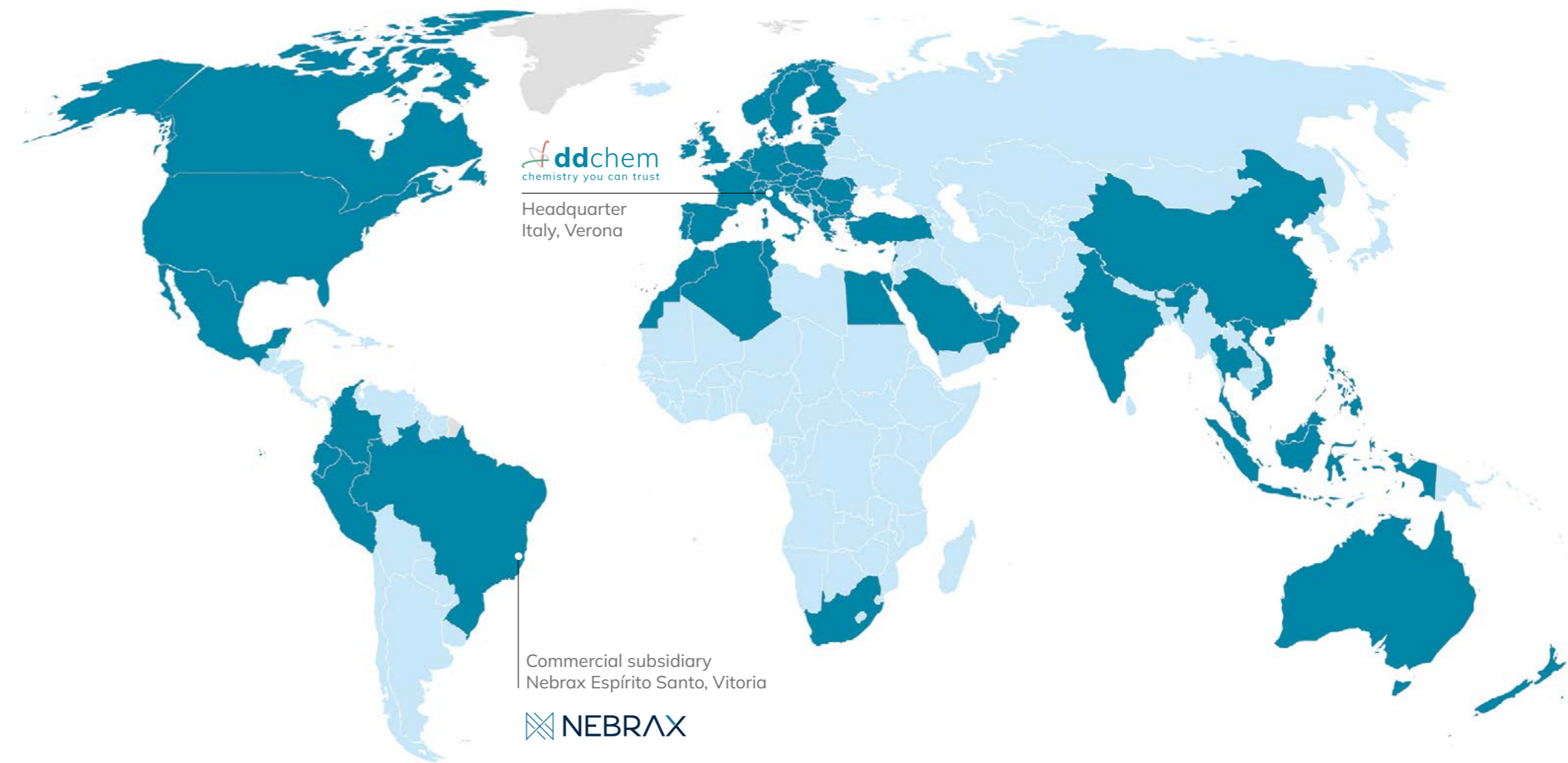
The sum of these **two souls** allows us to make the difference for an increasingly diversified, demanding, evolved market. A single identity that makes us unique in both the **natural stone** and **industry** sectors.

dd *istribution network*

worldwide quality.

Our quality has no boundaries, as does our distribution. Our products are appreciated and recognised throughout the world thanks to tireless work of our distributors.

50+ countries covered
70% export market
30% domestic market





dd *efinitely industry*

High performance in every dimension

We produce hardeners for high performance epoxy resins. We are specialized in the realization of reactive products like polyamides, polyamines and adducts. We serve companies of all sizes, responding competitively to the market without ever losing sight of performance and the possibility of product customization.

Hardeners and Epoxy:

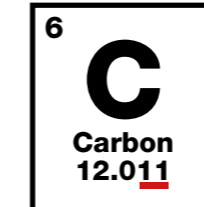
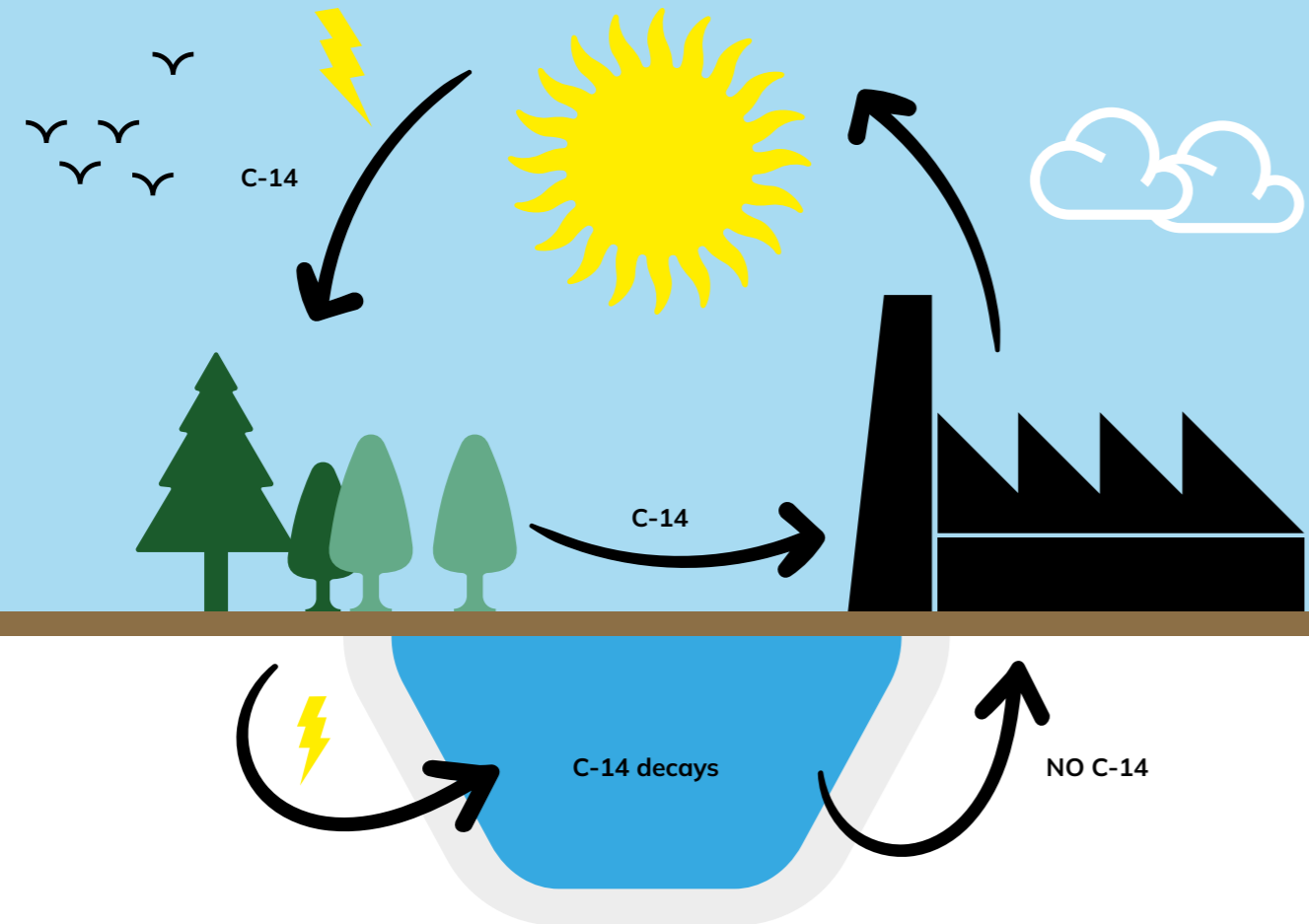
- Polyamidoamines
- Aliphatic amines
- Cycloaliphatic amines
- Epoxy resins
- Special products (bio-based, casting, SA-free and BA-free)

Applications:

- Protective coating
- Anticorrosion paints
- Constructions
- Civil engineering
- Flooring
- Composite

BIOBASED a good path to sustainability

The atomic mass of carbon is higher than 12 because of the presence of small quantities of C-13 and C-14 isotopes. The C-14 isotope originates mainly in the upper atmosphere from the collision of nitrogen with high energy particles arriving from the Sun. Plants photosynthesise C-14 and assimilate it constantly during their life cycles. After they die, the C-14 decays over thousands of years, and for this reason fossil carbon sources contain less C-14.



A carbon footprint is the calculated quantity of atmospheric carbon dioxide emissions released during the creation of a product, taking all contributing factors into account including raw materials, packaging, and delivery.

Some factors can reduce the total footprint. An example is the carbon dioxide absorbed during the life cycle of plants, which are then used as raw materials. An example is the carbon dioxide absorbed during the life cycle of plants, which are then used as raw materials. Other factors that can decrease emissions are the use of solar or geothermal energy as heat sources, and solar panels for electrical power. The concept of the circular economy starts from the idea of making the manufacture of goods fully sustainable, theoretically over infinite production cycles. ddchem's long-term objective is to get as close as possible to carbon neutrality.

We chose to start from the very top of the supply chain by selecting suppliers who share our philosophy and can certify the biobased content of their raw materials.

ASTM D6866

The American Society for Testing and Materials (ASTM) describes the C-14 analysis method applied to calculate the biobased carbon percentage using the equation shown below. This equation only considers the absolute carbon value to quantify the biobased content, and other elements like hydrogen, oxygen, and nitrogen are not taken into account.

$$\text{biobased carbon \%} = \frac{\text{biobased carbon}}{\text{total carbon}} \cdot 100$$

Biobased carbon content percentage

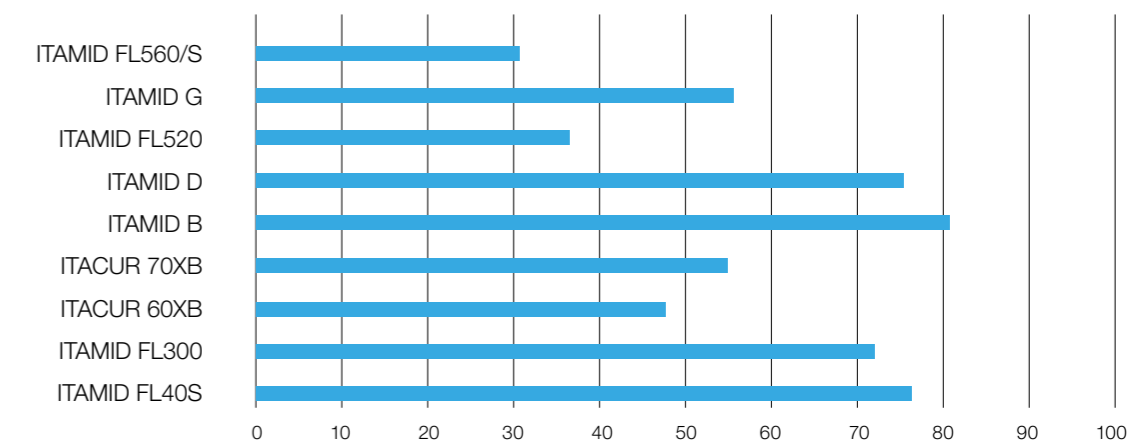


Table 1: Biobased carbon content according to ASTM 6866

EPOXY RESINS

FORMULATED EPOXY RESINS*

Product	Viscosity 25°C (mPas)	Density (g/cm³)	EEW equivalent epoxy weight (g/eq)	Labelling	Characteristics
ITAPOX 108	400-700	1,099	190		Standard formulated epoxy resin BADGE and monofunctional reactive diluent
ITAPOX 127	900-1300	1,13	185-195		Standard formulated epoxy resin BADGE and BAFGE and monofunctional reactive diluent. Improved crystallization resistance compared to ITAPOX 108
ITAPOX 129	750-1200	1,115	194-204		Low viscosity version of ITAPOX 127
ITAPOX 111	700-1100	1,121	185-195		Low viscosity version of ITAPOX 129
ITAPOX 121	800-1100	1,171	190		Standard formulated epoxy resin BADGE and CMR free reactive diluent
ITAPOX 401	450-750	1,136	190		Formulated Hybrid Epoxy/Acrylic Resin

STANDARD LIQUID EPOXY RESINS*

Product	Viscosity 25°C (mPas)	Density (g/cm³)	EEW equivalent epoxy weight (g/eq)	Labelling	Characteristics
ITAPOX 50	11000-14000	1,165	182-190		Epoxy Resin 100% BADGE Based
ITAPOX 50/50	5000-8000	1,176	170-180		Epoxy Resin 50% BADGE/ 50% BFDGE
ITAPOX 70/30	6000-10000	1,174	175-185		Epoxy Resin 70% BADGE/ 30% BFDGE
ITAPOX 75X	8000-13000	1,106	630		Solid resin 75% solid in xylene

WATER BASED*

Product	Viscosity 25°C (mPas)	Density (g/cm³)	EEW equivalent epoxy weight (g/eq)	Labelling	Characteristics
ITAPOX WATER 110	300-2600	1,05	950-1050	-	Solid epoxy resin dispersion in water with 49-55% solid content
ITAPOX WATER 201	400-5000	1,1	300-350		Liquid epoxy resin emulsion with 58-62% solid content

* These products are TSCA approved.

PROTECTIVE COATING

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of a standard solid epoxy resin 75% of solid resin in xylene with EEW=630g/eq)	Dry-hard time with ITAPOX 75X at 23°(hour) (ASTM D5895)	Labelling	Characteristics
ITAMID A60X	2000-3500	7,3	790	125	4,9		Very high viscosity polyamidoamine with a 60% solid content in xylene
ITAMID A60XM	2000-4000	6,0	790	125	6,1		Very high viscosity polyamidoamine with a 60% solid content in xylene and metoxypropanol
ITAMID B70X	800-1500	5,5	340	54	5,6		Standard grade curing agent for protective coating. High viscosity polyamidoamine with a 70% solid content in xylene.
ITACUR 500	1000-2000	0,5	272	43	3,0		High viscosity polyamine adduct with a 50% solid content. Improved reactivity and lighter colour.
ITACUR 50XB	1200-1800	0,4	331	53	4,8		Polyamine adduct with a 50% solid content in solvent. Improved reactivity and lighter colour.
ITACUR 50XM	1000-3000	0,4	331	53	4,9		Polyamine adduct with a 50% solid content in solvent. Improved reactivity and lighter colour.
ITACUR 60XB	90-1400	5,1	477	76	6,0		Alternative version to ITACUR 70XB with a solid content of 60%.
ITACUR 60XM	2000-4000	5,5	477	75	5,4		Alternative version to ITACUR 70XB with a solid content of 60% and metoxypropanol instead of butanol.
ITACUR 70XB	4500-6500	5,3	409	65	6,1		Standard grade curing agent for protective coating. High viscosity polyamidoamine adduct with a 70% solid content in solvent.
ITACUR 70XB-ES	4500-6500	5,3	340	54	5,6		Alternative version to ITACUR 70XB with AHEW of 340.
ITACUR 740XB	150-350	4,7	660	105	2,5		High viscosity polyamidoamine adduct with high reactivity
ITACUR 75X	3000-5500	5,2	162	26	6,9		Reactive polyamidoamine adduct in xylene for high solid applications.

These products are TSCA approved.

Product	Viscosity 75°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of epoxy resin with EEW=190g/eq)	Gel Time (20°C, 150g of mixture with ITAPOX 50 (EEW=190g/eq))	Labelling	Characteristics
ITAMID B	3100-3800	6,2	190	100	160-200		High solid Protective Coating - Bonding paste Pure polyamidoamine
ITAMID C	500-900	6,0	130	65	80-110		High solid Protective Coating - Bonding paste Pure polyamidoamine
ITAMID D	300-600	5,8	95	50	83		High solid Protective Coating - Bonding paste Pure polyamidoamine
ITAMID G	4500-6500 (at 25°C)	6,0	150	70	130-170		Medium viscosity formulated polyamidoamine with a 100% solid content. Suitable for high solid applications.
ITAMID F	2000-4000 (at 25°C)	5,8	95	50	125		Medium viscosity pure polyamidoamine with a 100% solid content. Suitable for high solid applications.

These products are TSCA approved.

EPOXY FLOORING

PRIMER These products are TSCA approved.

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of epoxy resin with EEW=190g/eq)	Shore D (24hrs / 23°C) with ITAPOX 127	Labelling	Characteristics
ITAMINE PD CA101_6	350-700	5,6	110	58	28		Polyamine PACM based curing agent. Possible application on wet substrate with good aesthetic appearance. Good vapour barrier properties.
ITAMINE PD CA102_12	100-400	4,2	95	50	70		Polyamine PACM based curing agent. Possible application on wet substrate with good aesthetic appearance. Low viscosity and excellent chemical resistance.
ITAMINE CA112	20-150	0,4	95	50	40 (48hrs)		Slow reactivity curing agent
ITAMINE CA395/S	250-550	1,0	95	50	77		BA-Free with higher reactivity compared to ITAMINE CA396 and excellent water resistance
ITAMINE CA396	150-450	0,9	95	50	74		BA-Free with lower reactivity compared to ITAMINE CA395/S and excellent water resistance
ITAMID PD FL103_5	3000-4000	6,2	114	60	71		Formulated polyamide and PACM based curing agent. Possible application on wet substrate and under-water applications. Good vapour barrier properties.
ITAMID FL520	500-1500	5,1	114	60	50		Polyamide adduct for critical conditions applications (low temperature and wet substrate). Good vapour barrier properties.
ITAMID FL520/S	500-1500	5,0	114	60	30		Faster gel time and slower Shore D development compare to ITAMID FL520
ITAMID FL521/S	500-1500	5,0	114	60	38		Bisphenol-A free version of ITAMID FL520/S
ITAMID FL550/S	200-500	4,5	95	50	51		Excellent resistance to Chlorine
ITAMID FL560	800-1800	5,2	115	60	52		Polyamide adduct for critical conditions applications (low temperature and wet substrate). Good vapour barrier properties. Long pot-life.
ITAMID FL560/S	500-1500	6,0	114	60	66		Faster version of ITAMID FL560
ITAMID FL561/S	500-1500	4,7	115	60	61		SA-free version of ITAMID FL520/S
ITAMID PD FL570_2	350-850	4,9	114	60	79		PACM based curing agent. Possible application on wet substrate and under-water applications
ITAMID PD FL571_3	400-900	4,8	93	49	45		Polyamine PACM based curing agent for standard primer applications

EPOXY FLOORING

SELF-LEVELLING

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of epoxy resin with EEW=190g/eq)	Shore D (24hrs / 23°C) with ITAPOX 127	Labelling	Characteristics
ITAMINE CA488	220-420	0,2	95	50	65		Standard product for self-levelling applications with PHR 50. Good yellowing resistance and excellent carbonatation resistance.
ITAMINE CA488LV	50-300	0,2	95	50	54		Lower viscosity version of CA488
ITAMINE CA489	220-420	0,1	95	50	70		SA free version of ITAMINE CA488
ITAMINE CA489LV	50-300	0,1	95	50	61		SA free version of ITAMINE CA488LV
ITAMINE CA492	360-560	0,5	95	50	71		Benzyl alcohol-free version of ITAMINE CA489LV
ITAMINE CA50	50-120	0,1	95	50	40		Alternative version to ITAMINE CA60 with PHR 50
ITAMINE CA60	300-500	0,1	114	60	40		Standard product for self-levelling applications with PHR 60. Excellent transparency and yellowing resistance.
ITAMINE CA67	400-600	0,0	111	60	50		Higher viscosity version of ITAMINE CA60
ITAMINE CA121	150-350	0,1	76	40	76		High reactivity product with PHR 40
ITAMINE CA165	100-300	0,2	95	50	57		Standard product for self-levelling applications. Improved acetic acid resistance compared to ITAMINE CA488
ITAMINE CA166	100-300	0,1	95	50	66		SA-free version of ITAMINE CA165
ITAMINE CA166LV	20-120	0,1	95	50	70		Lower viscosity version of ITAMINE CA166

These products are TSCA approved.

UV RESISTANT TOP COAT

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of epoxy resin with EEW=190g/eq)	Shore D (24hrs / 23°C) with ITAPOX 127	Labelling	Characteristics
ITAMINE CA1125	150-250	0,1	100	50	48		Long working time
ITAMINE CA125	100-300	0,0	95	50	50		Lower reactivity version of ITAMINE CA125S
ITAMINE CA125S	50-400	0,0	95	50	55		Good balance between reactivity and working time
ITAMINE CA62	10-100	0,0	85	45	38		Low viscosity and good reactivity

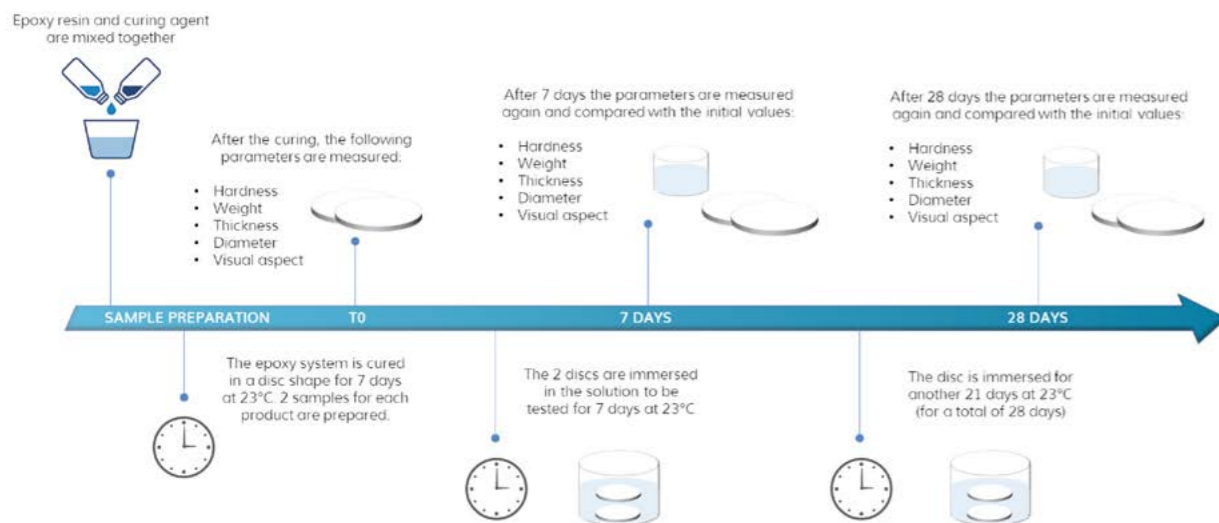
These products are TSCA approved.

EPOXY FLOORING

EVALUATION OF CHEMICAL RESISTANCE

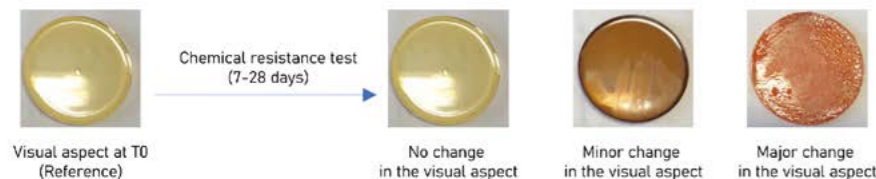
DDCHEM METHOD BASED ON ASTM D543

TEST METHOD DETAILS



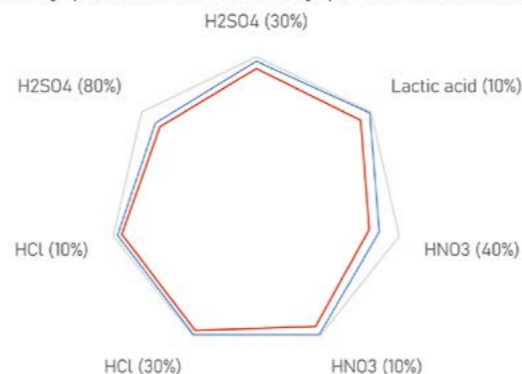
VISUAL ASPECT EVALUATION

The visual aspect changes need to be taken into consideration in order to correctly evaluate the chemical resistance of a product. In fact, the visual aspect can change dramatically even when hardness and weight remain unchanged. At ddchem, we consider a negative change in the visual aspect as a *malus*, and reduce consequently the final score of the test.



HOW THE RESULTS ARE REPORTED

The final results are reported in a 0 to 10 rating scale with 10 being the best score and 0 being the worst score. The final score is obtained taking into consideration specimen variations during the test like weight and dimensions, change in visual aspect and hardness decrease. The data are reported in a radar graph (10 is the outer border of the graph) for better visualization.



Variations of the single parameters during the test (weight, hardness, dimension etc) can be further discussed upon request.

TESTED SOLUTIONS

On standard basis the following solutions are tested during the chemical resistance test:

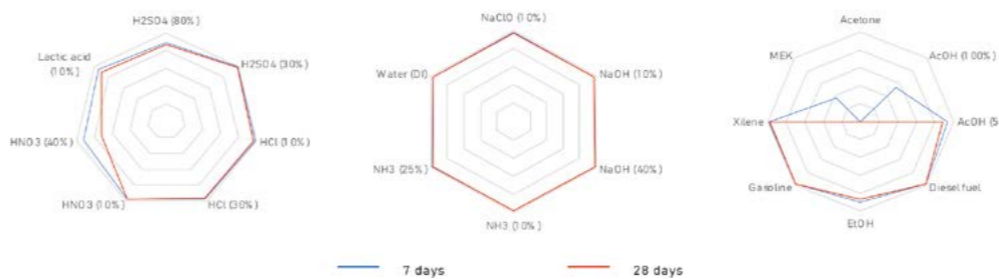
- Water deionized
- AcOH (100%)
- AcOH (5%)
- Gasoline
- Diesel Fuel
- EtOH
- Xylene
- MEK
- H₂SO₄ (80%)
- H₂SO₄ (30%)
- HCl (30%)
- HCl (10%)
- HNO₃ (40%)
- HNO₃ (10%)
- Lactic Acid (10%)
- NaClO (10%)
- NaOH (40%)
- NaOH (10%)
- NH₃ (25%)
- NH₃ (10%)

EPOXY FLOORING

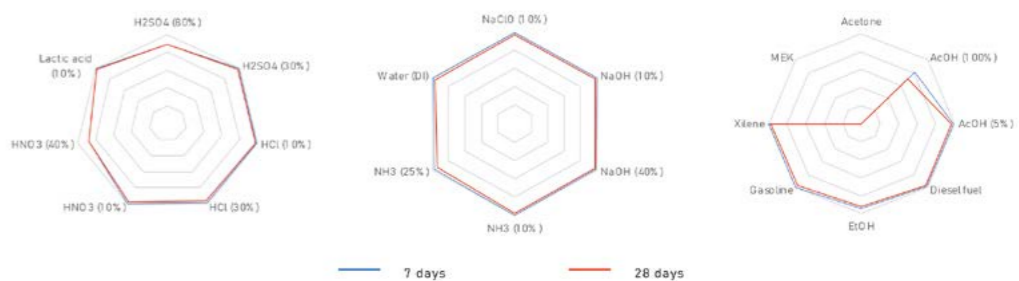
EVALUATION OF CHEMICAL RESISTANCE

DDCHEM METHOD BASED ON ASTM D543

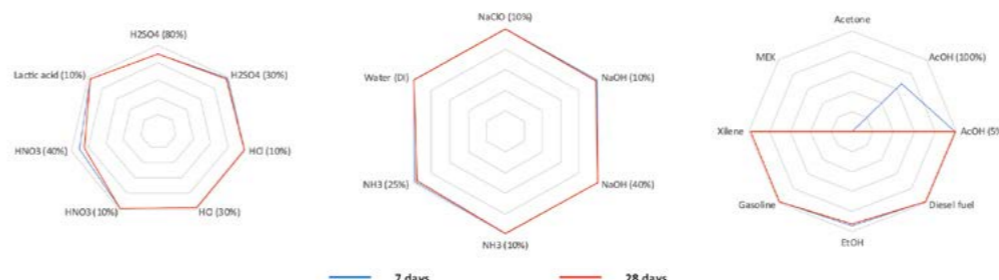
ITAMID FL520/S



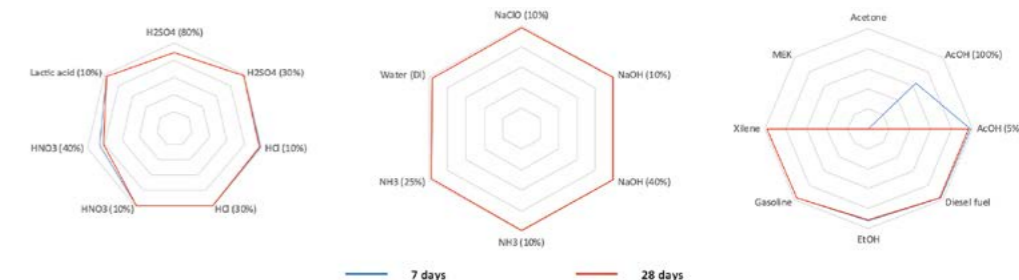
ITAMINE PD CA101_6



ITAMINE CA60



ITAMINE CA125/S



CONSTRUCTION & CIVIL ENGINEERING

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	Gel Time (20°C, 150g of mixture with ITAPOX 50 (EEW=190g/eq))	Labelling	Characteristics
ITAMINE CA30LA	10-30	0,0	57	184	⚠️	Low viscosity transparent curing agent for composite applications and high temperature applications.
ITAMINE CA30LB	15-30	0,0	57	253	⚠️	Lower reactivity version of ITAMINE CA30LA.
ITAMINE CA30LC	5-30	0,0	57	301	⚠️	Lower reactivity version of ITAMINE CA30LB. Benzyl Alcohol free.
ITAMINE CA40/H	5-30	0,1	76	329	⚠️	Low viscosity formulated polyamine with low reactivity. Suitable for highly flexible applications.
ITAMID FL300	500-1000	5,6	106	121	⚠️	Low viscosity polyamidoamine for crack injection applications.
ITAMID FL31	500-1000	5,4	106	148	⚠️	Formulated polyamidoamine with higher viscosity compared to ITAMID FL32.
ITAMID FL32	150-400	5,3	95	148	⚠️	Standard grade low viscosity polyamidoamine
ITAMID FL328	1500-3500	5,9	115	162	⚠️	Formulated polyamidoamine adduct for grouting applications.
ITAMID FL33	400-700	5,5	95	129	⚠️	Low viscosity polyamidoamine for adhesive applications. Higher reactivity compared to ITAMID FL32.
ITAMID FL40	100-500	5,9	95	249	⚠️	Low viscosity polyamidoamine with lower reactivity compared to ITAMID FL32.
ITAMID FL40/S	200-600	7,1	95	309	⚠️	Low viscosity polyamidoamine with lower reactivity compared to ITAMID FL40.
ITAMID FL491	100-500	6,7	61	75	⚠️	Formulated low viscosity polyamidoamine. Excellent application for Epoxy Grouts with good washability.
ITAMID FL492	100-500	7,7	61	72	⚠️	Epoxy Grouts-Bisphenol-A free version of ITAMID FL491.
ITAMID FL540	3000-6000	5,8	190	124	⚠️	Under-water applications.
ITAMID F	2000-4000	5,8	95	125	⚠️	Pure polyamidoamine. General adhesives applications.
ITAMID G	4500-6500	5,7	150	130-170	⚠️	Medium viscosity formulated polyamidoamine. Excellent adhesion on metals, wood, and plastic materials.

These products are TSCA approved.

CONSTRUCTION & CIVIL ENGINEERING

FOCUS ITAMID G

ITAMID G is a formulated polyamidoamine curing agent for epoxy systems designed to be used preferably with liquid epoxy resin but also with solid epoxy resins in solvent.

MAIN APPLICATIONS AND USES

- Anticorrosive coating
- Civil Engineering
- Epoxy adhesives

PHYSICAL AND CHEMICAL PROPERTIES

- Excellent chemical resistance
- Moderate reactivity at ambient temperature
- Excellent adhesion to various types of substrates
- Good hardness development

SPECIAL FEATURES

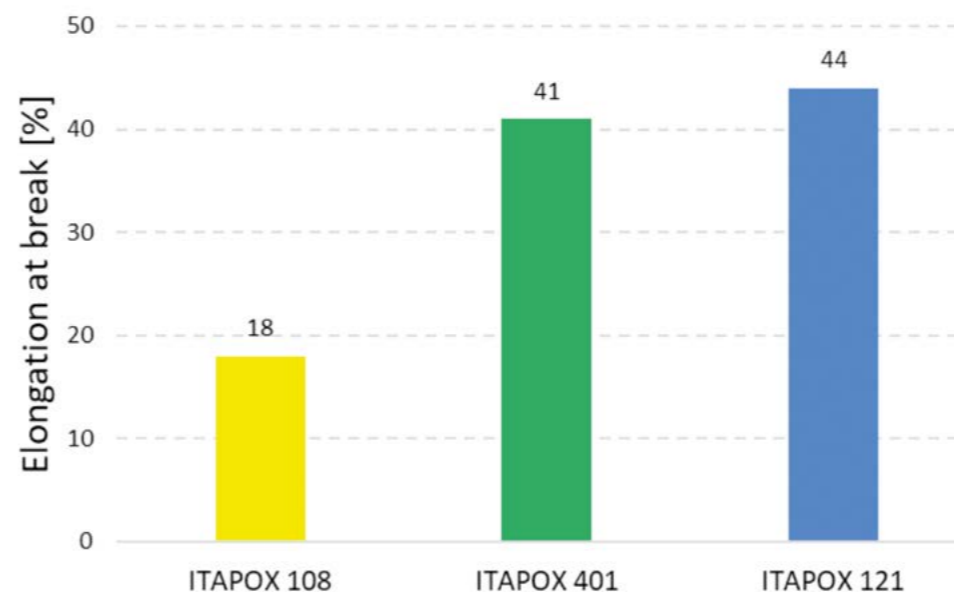
- ✓ Solvent Free
- ✓ Salicylic Acid Free
- ✓ Phenols Free

FLEXIBILITY

The flexibility of an epoxy system is influenced both by the curing agent as well as by the epoxy resin.

The effect of the epoxy resin depends upon the chemistry of the epoxy resin and the curing agent.

We compared the elongation data using 3 different epoxy resins with ITAMID G according to the standard ISO 527-1 and ISO 527-2.



CASTING

EPOXY HARDENERS

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	PHR (Using ratio with 100g of epoxy resin with EEW=190g/eq)	Labelling	Characteristics
ITAMINE CA612	5-25	0,1	57	30		Entry level casting system with Part B with ITAPOX 177
ITAMINE CA870	50-150	0,1	80	42		Diamond casting system with Part B with ITAPOX 970

These products are TSCA approved.

EPOXY RESINS

Product	Viscosity 25°C (mPas)	Density (g/cm³)	EEW equivalent epoxy weight (g/eq)	Labelling	Characteristics
ITAPOX 177	400-700	1,099	190		Entry level casting system with Part A with ITAMINE CA612
ITAPOX 970	1500-4000	1,09	190		Diamond casting system with Part A with ITAMINE CA870

These products are TSCA approved.

CASTING

Casting application: important properties

The improved yellowing resistance is evaluated using a ddchem accelerated laboratory test that reproduces the typical annual solar energy of the Arizona desert.

It takes 2000 hours and reproduces 1 year of the most stressfull climate conditions of Arizona outdoor exposure test. ddchem uses top quality instrument in order to evaluate product yellowing resistance following ASTM E 313-98.

ARIZONA TESTING CLIMATE CONDITIONS

	Summer Maximum	Annual Average
Air temperature	40 °C	21 °C
Humidity	49% RH	35% RH
Sample temperature	50 - 70 °C	40 - 60 °C
Typical Annual Solar Energy	-	334 MJ/m ² _(TUV)

ACCELERATED ddchem LABORATORY TEST

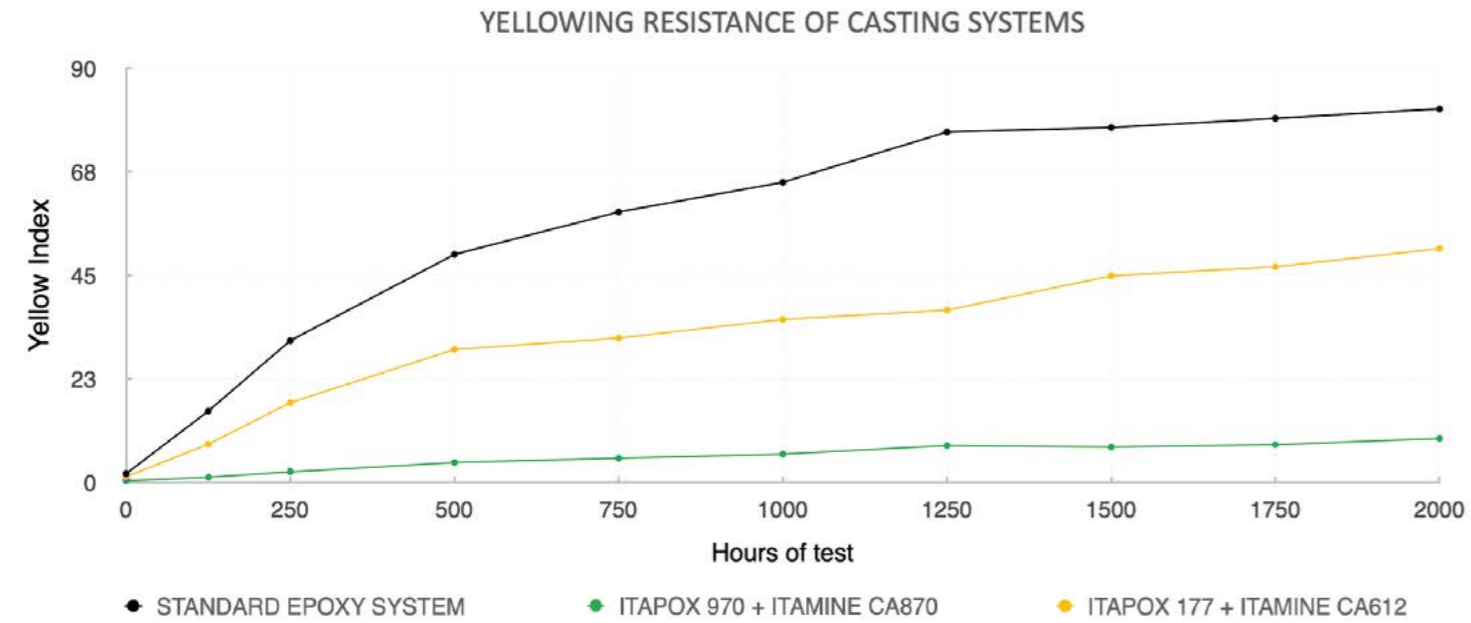
	Test Conditions	Radiant Exposure
Light Cycle (18h)	Air temperature 38 °C	334 MJ/m ² _(TUV) (Calculado para 2000 horas de testes)
	Humidity 50% RH	
Night Cycle (6h)	Sample temperature 65 °C	
	Air temperature 33 °C	
	Humidity 50% RH	
	Sample temperature 30-40 °C	

1 YEAR IN THE ARIZONA DESERT

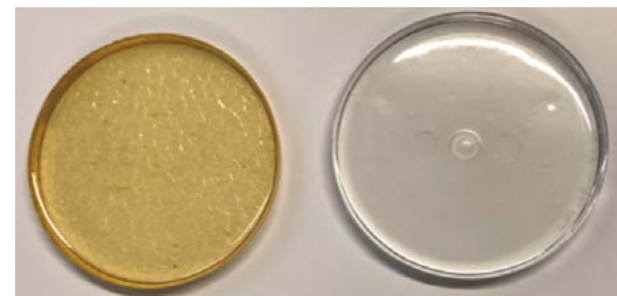
ACCELERATED ddchem TEST (2000 h)

CASTING

Casting application: important properties



STANDARD EPOXY SYSTEM



ITAPOX 177 + ITAMINE CA612



ITAPOX 970 + ITAMINE CA870

CASTING

Casting applications

APPLICATION	PRODUCTS	% SOLID CONTENT	PHR	MAXIMUM LAYER THICKNESS	YELLOWING RESISTANCE	HEAT DEVELOPMENT	SUGGESTED APPLICATIONS
EPOXY CASTING	ITAPOX 177 + ITAMINE CA612	100	30	2 - 3 cm	Good	Low	Pigmented epoxy castings
	ITAPOX 970 + ITAMINE CA870	100	38	4 - 5 cm	Very high	Very low	Clear epoxy castings Pigmented epoxy castings



ACCELERATOR

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	AHEW (g/eq)	Gel Time (20°C, 150g of mixture with ITAPOX 50 (EEW=190g/eq))	Labelling	Characteristics
ITAMINE M150FF/V0	200-500	1,3	95	8-11		Standard grade accelerator with low odour
ITAMINE M153	20-100	0,2	38	18		Polyamine based accelerator with light colour and good labelling. Low odour.
ITAMINE M160	500-800	0,6	95	4-11		Standard grade accelerator with low odour

These products are TSCA approved.

Product	Viscosity 25°C (mPas)	Gardner Colour (typical value)	Density (g/cm³)	Labelling	Characteristics
ITAMINE K230	230	1,5	0,976		Standard tertiary amine with excellent acceleration properties

These products are TSCA approved.

ACCELERATOR

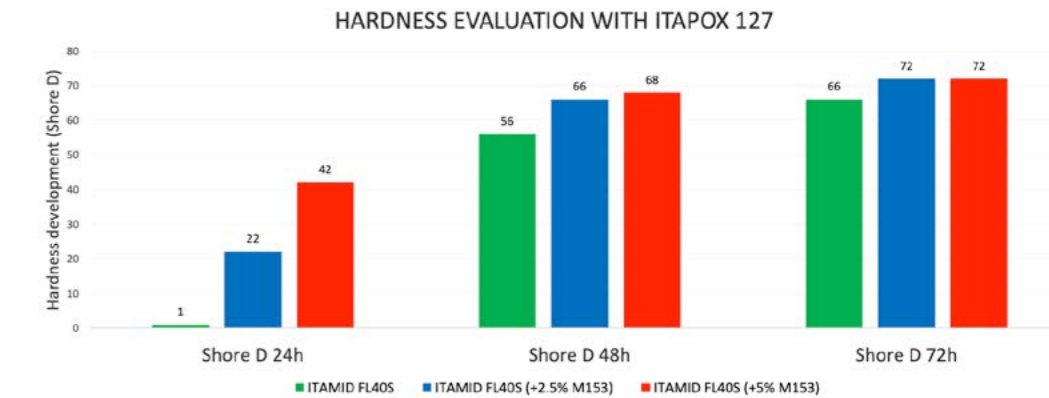
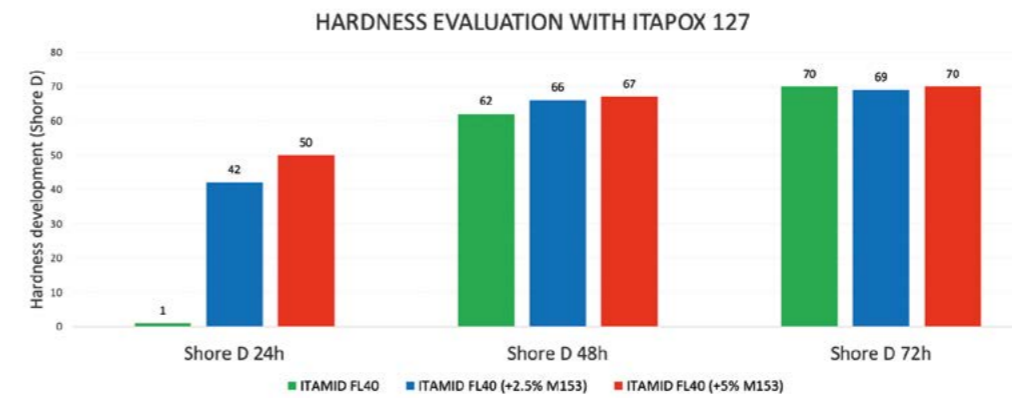
FOCUS ITAMINE M153

ddchem best accelerator with affordable price and with minimum or no yellow colour.

Free Of Everything You Don't Want

- No Bisphenol-A
- No Phenols
- No Aromatic Compounds
- No Benzyl Alcohol

The study shows a faster development of Shore D by mixing ITAMINE M153 with standard products like ITAMID FL40 and ITAMID FL40/S and coupling them using ITAPOX 127.





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