EPOXY RESINS

SIR INDUSTRIALE

INDEX

WHO IS SIR?

With more than **80 years of experience** in the development and manufacturing of **high quality materials**, SIR INDUSTRIALE Spa simply knows how to **find** the best solution for **your specific needs**.

SIR INDUSTRIALE Spa aims at finding the **best solution** for the customers through **cooperation** and **passion** for continuous **improvements**.

Epoxy resins (**EPOSIR®** and **EPONAC®**) represent a class of very **versatile** thermosetting products thanks to their outstanding chemical-physical characteristics.
These properties can be summarized as follows:

- Wide range of viscosity provides excellent application ductility
- High reactivity allows good hardening at low temperatures
- Enhanced mechanical properties
- Good thermal resistance
- Excellent resistance to chemical agents
- High dielectric strength
- Minimum shrinkage of hardened products
- Strong adhesive power on various substrates

As result, epoxy resins **can be used** in the following **application sectors**:

- **BUILDING INDUSTRY**
- **ELECTRONICS/ELECTRO TECHNICS**
- **FOUNDRY**
- **REINFORCED PLASTICS**
- **COMPOSITE MATERIALS**
- **PAINTS**

ADVANCED SERVICE CENTER:
SIR avails itself of a **centralized structure** for **study**, **research**, **design** and **development** activities that are indispensable to guarantee a constant **innovation-oriented** work.

MISSION:
To **create** optimum **value** for **all** customers, shareholders, employees and social partners applying safe, ethical and environmentally practice.

THE COMPANY

WE ARE READY FOR THE CHALLENGES
WHICH THE MARKET PROVIDES

BISPHENOL **A** BASED

EPOSIR	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	DYNAMIC VISCOSITY at 25°C (mPa.s) (2)	COLOUR (3)	APPLICATION
7120	Medium viscosity unmodified standard DGEBA	182-192	5208-5494	10000-13000	≤120 (3)	Standard liquid epoxy resin based on bisphenol A. General purpose application.
7120 BC	Medium viscosity unmodified standard DGEBA. Low hydrolysable chlorine content version	182-189	5291-5494	10000-13000	≤120 (3)	Similar to EPOSIR® 7120 with low hydrolysable chlorine content to meet requirements of electrical and composite materials industry.
7127	DGEBA standard low level viscosity version	182-196	5102-5494	8000-10000	≤150 (3)	Low viscosity version commonly used in civil engineering and industrial coatings.
7120/40	Low viscosity, modified with aliphatic mono-functional reactive diluent	190-210	4762-5263	1300-1600	≤2 (4)	Modified version suitable for coating and civil engineering industry. Good flexibility and colour.
7120/42	Low viscosity, modified with aliphatic mono-functional reactive diluent. Lower viscosity level than EPOSIR® 7120/40	195-215	4651-5128	850-1100	≤2 (4)	Suitable for coating and civil engineering industry and flooring. Main applications include: flooring, grouting, concrete reinforcement, adhesive and coating. The aliphatic diluent increases pot-life, flexibility and acid resistance.
7120/46	Low viscosity, modified with aliphatic mono-functional reactive diluent. Lower viscosity version of EPOSIR® 7120/42	195-215	4651-5128	400-700	≤2 (4)	Lower viscosity than EPOSIR® 7120/42. Suitable for coating and engineering industry. Applications include small casting, adhesive, solventless paint and crack injection. Excellent flexibility.
7120/48	Low viscosity, modified with aliphatic mono-functional reactive diluent	200-230	4347-5000	850-1100	≤2 (4)	Low viscosity. Application in civil engineering industry (adhesives, grouts, mortars, small casting). Good flexibility.
7120/43	Low viscosity, modified with aromatic mono-functional reactive diluent	180-195	5128-5555	400-700	≤2 (4)	Low viscosity. Main application in coating and civil engineering (flooring, adhesives and casting). Thanks to the aromatic reactive diluent it offers very good chemical resistance, improved acid resistance in the formulation. Good crystallization resistance.
7214	Low viscosity, modified with bi-functional aliphatic reactive diluent	175-195	5128-5714	950-1350	≤2 (4)	Modified with a di-functional reactive diluent and improved reactivity and solvent resistance. Recommended for civil engineering, casting, tooling, potting, encapsulation and RTM.
7219	Low viscosity, modified with bi-functional aliphatic reactive diluent. Lower viscosity than EPOSIR® 7214	175-195	5128-5714	700-1000	≤2 (4)	Similar application of EPOSIR® 7214, but also for small casting, injections, flooring and solvent less coating.
7221	Low viscosity, modified with bi-functional aliphatic reactive diluent. Lower viscosity than EPOSIR® 7219	175-195	5128-5714	600-800	≤1.14 (4)	Similar application of EPOSIR® 7214. Suggested when lower viscosity is requested.
7134	Low molecular weight Bisphenol A based epoxy resin. **Semi-solid** product at room temperature.	230–270	3703-4347	400 - 1000 (5)	≤2 (4) (5)	Suitable for formulation of room temperature cured protective paints, high solid and coal-tar epoxy systems.

(1) Test method ISO 3001 - (2) Test method ASTM D 0445 - (3) Pt/co scale test method ASTDM 1209 - (4) Gardner Scale Test Method ASTM D 1544 (5) on 70% m/m solution in diethylenglycol monobutylether solvent

BISPHENOL **A/F** BASED

EPOSIR	CHARACTERISTIC	EPOXY EQUIVALEN WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	DYNAMIC VISCOSITY at 25°C (mPa.s) (2)	COLOUR (4)	APPLICATION
F 556	Medium viscosity unmodified DGEBA/DGEBF blend	170-185	5405-5882	6000-8000	≤2	Low viscosity epoxy resin DGEBA/DGEGF based. Applications include solvent-free coatings, tank- and pipe-linings, concrete reinforcements and also floorings, adhesives, electrical insulation and filament winding. Excellent mechanical and chemical properties.
F 598	Standard Bisphenol F based LER	169 – 179	5263-5714	5586–5917	≤3	To be used alone or in mixture with Bisphenol. High-solid or solvent borne protective coatings for civil engineering and anticorosion.
F 599	Polyfunctional low viscosity epoxy **Novolac** (2,5 functionality)	170 – 185	5405- 5882	8000 -12000	≤4	To be used alone or in mixture with Bisphenol. Protective coatings for civil engineering and anticorrosion. Suggested for higher chemical resistances of cured coatings.
F 602/IM	Medium viscosity unmodified DGEBA/DGEBF blend. Lower viscosity version than F 556	175-190	5263-5714	5000-7000	≤2	Similar to EPOSIR® F 556 but with lower viscosity level. Application in civil engineering with very good mechanical properties.
F 730	Medium viscosity unmodified DGEBA/DGEBF blend	175-185	5405-5714	4000-5000	≤2	Lower viscosity version than EPOSIR® F 602. Higher content of DGEBF. Similar application of EPOSIR® F 556.
F740	Low viscosity, modified with aliphatic mono-funcional reactive diluent	190-210	4761-5263	800-1100	≤2	Very versatile product recommended for building and industries (flooring, adhesives, mortars and grouts), solvent free and high solid coating. Low tendency to crystallization.
F745	Low viscosity, modified with aliphatic bi-funcional reactive diluent	175-190	5263-5714	500-700	≤2	Very low viscosity resin with improved reactivity and solvent resistance. Suitable for civil engineering, casting and tooling, potting and encapsulation applications. Low tendency to crystallization.

(1) Test method ISO 3001 - (2) Test method ASTM D 0445 - (3) Pt/co scale test method ASTDM 1209 - (4) Gardner Scale Test Method ASTM D 1544

EPOXY REACTIVE DILUENTS

EPOSIR	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	DYNAMIC VISCOSITY at 25°C (mPa.s) (2)	COLOUR (3)	PROPERTIES (in combination with liquid DGEBA resins)
7103	Polypropylenglycol diglycidyl ether (Bifunctional aliphatic)	320-450	2222-3125	30-110	≤6	-Moderate reduction of viscosity -**Improved** adhesion to metallic surfaces -Increased flexibility -Reduction in surface hardness and general resistance to chemical agents
7105	o-Cresyl glycidyl ether (Monofunctional aromatic)	170-190	5263-5882	7-10	≤3	- Good cutting power viscosity - Moderate reactivity reduction - Good solvent resistance - **Moderate toxicity level**
7106	C_{12}-C_{14} alkyl glycidyl ether (Monofunctional aliphatic)	300-340	2941-3333	7-15	≤1	-Good flexibility -Excellent cutting power viscosity -Good flow and cutting properties -Reduction in surface hardness and resistance to chemical agents -Low toxicity
7107	1,4-Butanediol diglycidyl-ether (Bifunctional aliphatic)	130-145	6897-7692	15-25	≤2	-Good cutting power viscosity -Good reactivity and processabilities -Surface hardness maintenance -Good **chemical resistance** and mechanical properties
7109	1,6-Hexanediol diglycidyl ether (Bifunctional aliphatic)	150-170	5882-6666	20-30	≤1	- Good cutting power viscosity - Good reactivity - Slight reduction in hardness surface - Good mechanical properties
7110	Polypropylenglycol 2000 diglycidyl ether (Bifunctional aliphatic)	1000-1300	769-1000	150-400	≤5	- **Higher MW version** of EPOSIR® 7103 - Excellent flexibility - Poor cutting power viscosity
8103	Trimethylolpropane triglycidyl ether (Polifunctional aliphatic)	130-150	6666-7693	120-200	≤2	-Slight reduction of viscosity -High reactivity -Good chemical resistance and mechanical properties -Higher cross-linking density
8106	C_{13} - C_{15} alkyl glycidyl ether (Monofunctional aliphatic)	330-370	2702-3030	8-15	≤1	-Good flexibility -Excellent cutting power viscosity -Good flow and cutting properties -Good flexibility -Reduction in surface hardness and **resistance to chemical agents** -**Low toxicity** -**Lower crystallization** tendency and better flexibility

TWO-PACK SYSTEM

EPOSIR	CHARACTERISTIC/APPLICATION	SOLID CONTENT (%)	EPOXY EQUIVALENT WEIGHT (g/eq.) (4)	EPOXY GROUP CONTENT (mmol/kg) (4)	VISCOSITY at 25°C (mPa.s) (5)
F 728	Low viscosity, **BPA/BPF based**, modified with mono-functional reactive diluent. Readily **dispersible in water**. In combination with **aminic hardeners**, suitable for formulation of two - components epoxy paint and enamels for concrete and **anticorrosion.**	100	190-210	4761-5263	1200-1500
WD 733/67	Low molecular weight, **BPA/BPF based**. **Solvent free**. Water dispersion. Suitable for **civil engineering** and **anticorrosion**. **V.O.C. zero**	66-68	185-195	5128-5405	200-3000
WD 711/A	"**Type-1**" Solid resin water dispersion. Suitable for **civil engineering** and **anticorrosion paints**	55-59	550-650	1538-1818	100-1000
WD 741/A	"**Type-4**" Solid resin water dispersion. Suitable for **anticorrosion** paints	55-59	800-900	1111-1250	100-1000
WD 771/A	"**Type-7**" solid resin water dispersion. Suitable for **anticorrosion** paints oven cured	51-53	1600-2100	476-625	200-2000
WD 770/A	**Special** "**Type-7**" water dispersion epoxy resin with enhanced flexibility level. Recommended only as modifier with EPOSIR WD 705 in order to improve flexibility to formulated epoxy resin. Suitable for anticorrosion paint oven cured	39-41	1500-2000	500-666	15-40 (6)

ONE-PACK SYSTEM (Formulated products)

EPOSIR	CHARACTERISTICS/APPLICATION	SOLID CONTENT (%)	SOLVENT	VISCOSITY at 25°C (mPa.s)	SUGGESTED CURE CYCLE
WD 705	High molecular weight formulated epoxy-phenolic pre-condensate. Suitable for oven cured paints for industrial anticorrosion and heavy duty protection	39-41	Butylglycol / Water	15-40 sec. (Ford 04 cup) (6)	30'/180 °C 15'/200 °C 07'/220 °C

(1) Test method ISO 3001 - (2) Test method ASTM D445 - (3) Gardner Scale Test Method ASTM D1544 - (4) Determined on delivery form with reference to solid materials- (5) Brookfield viscosity (ASTM D2393) (6) Ford cup n° 4, seconds (ASTM D1200)

LIQUID HARDENERS (Waterborne epoxy resins)

EPOSIR	CHARACTERISTICS/APPLICATION	SOLID CONTENT (%)	EQUIVALENT WEIGHT FOR ACTIVE H (g/eq.)	AMINE NUMBER mgKOH/g	DYNAMIC VISCOSITY at 25°C (mPa.s)	COLOUR GARDNER
EHW 2834	**Amine based**, formulated for varnishes, primers, enamels and top coat with **higher** chemical resistance. The main fields of **application** are **metal coating anticorrosion** and **civil engineering**	50	-	310	10000 – 30000	≤12
EHW 2852	Water soluble **polyamidic** hardener for waterborne epoxy resins, formulated for varnishes, primers, enamels and top coat with **higher** chemical resistance. The main fields of **application** are **metal coating anticorrosion** and **civil engineering**	74 - 76	71	200 - 240	8000 – 12000	≤12

(1) Test method SIR 10010- (2) Gardner Scale Test Method ASTM D 1544 - (3) Test method ASTM D 2393

BASIC SOLID RESINS (Fusion process)

EPOSIR	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	GARDNER VISCOSITY at 25°C (2)	COLOUR (Pt/CoScale) (2)	APPLICATION
7161 (3)	"**Type-1**" solid epoxy resins	460-520	1923-2174	F-I	≤150	Low MW. Suggested in combination with suitable hardeners for anticorrosive coatings, primers, stoving, enamels. Heavy duty protection.
7165 (3)	**Higher MW** version than EPOSIR 7161	540-620	1612-1851	G-M	≤150	Low MW. Special "**Type-1**" version with **higher melting point** to avoid agglomeration in **summer time**. Suitable for anticorrosion paint and hybrid powder coatings.
7166 PG	Low molecular weight Bisphenol A based solid epoxy resin	570 - 620	1612- 1754	H–M	≤120	For formulation of Hybrid powder coatings in combination with carboxyl-terminated polyester resins.
7167 PG	"**Type-2**" solid epoxy resins	600-660	1515-1667	H-P	≤150	Low MW. Suggested for powder coatings with excellent flow.
7168 PG	"**Type-2,5**" solid epoxy resins	650-720	1389-1538	K-R	≤150	Low MW epoxy resin specially designed for hybrid powder coatings application requiring excellent flow and gloss.
7175 PG	"**Type-3**" solid epoxy resins	710-780	1282-1408	M-U	≤150	Low MW epoxy resins for both pure epoxy and hybrid epoxy-polyester powder coatings with excellent flow and gloss.
7178 PG	"**Type-3,5**" solid epoxy resins	770-840	1190-1298	O-U	≤150	Low MW epoxy resin with higher viscosity than EPOSIR® 7175 PG. Special version designed mainly for pure epoxy powder coatings.
7170 PG	"**Type-4**" solid epoxy resins	800-900	1111-1250	Q-V	≤150	Medium MW epoxy resin suitable for decorative and functional coatings with good flexibility and mechanical properties. Designed for pure epoxy powder coatings and the preparation of epoxy esters.
7179	Bisphenol A based higher MW solid epoxy resin, **special grade**	1100-1250	800-909	V-Z	≤150	**Special grade**. Suitable formulation for coatings and cataphoresis application. In blend with standard epoxy resins for powder coatings to increase adhesion and mechanical properties.

(1) Test method ISO 3001 - (2) Determined on 40% m/m Butyl carbithol solution - (3) The resin might syntherize under hot/humid atmospheric conditions

BASIC SOLID RESINS ('TAFFY' process)

EPONAC	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	GARDNER VISCOSITY at 25°C (2)	COLOUR (Pt/CoScale) (2)	APPLICATION
5007 HMP(3)	"**Type-1**" solid epoxy resin with higher melting point, **better sintering resistance** during storage	500-550	1818-2000	F-J	150 max	Low MW. Suggested in combination with suitable hardeners for anticorrosive coatings, primers, stoving, enamels. Heavy duty protection.
600	"**Type-2**" solid epoxy resins	600-700	1428-1667	H-M	150 max	Low MW. Suggested for powder coatings with excellent flow.
615	"**Type-2,5**" solid epoxy resins	650-720	1389-1538	J-O	150 max	Low MW epoxy resin specially designed for hybrid powder coatings application requiring excellent flow and gloss.
700	"**Type-3**" solid epoxy resins	700-760	1316-1428	L-Q	150 max	Low MW epoxy resins for both pure epoxy and hybrid epoxy-polyester powder coatings with excellent flow and gloss.
825	"**Type-3**" solid epoxy resins	730-830	1204-1370	N-T	150 max	Low MW epoxy resins for both pure epoxy and hybrid epoxy-polyester powder coatings with excellent flow and gloss.
945	"**Type-4**" solid epoxy resins	820-950	1052-1220	Q-V	150 max	Medium MW epoxy resin suitable for decorative and functional coatings with good flexibility and mechanical properties. Designed for pure epoxy powder coatings and the preparation of epoxy esters.
2055	"**Type-6**" solid epoxy resins	1300-1800	556-769	W-Z	150 max	High MW, suitable for oven cured anticorrosion points for can coatings application, coil primers, drums lining and other industrial paints.
2065	"**Type-7**" solid epoxy resins	1500-2000	500-666	X-Z_1	150 max	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.
3075	"**Type-8**" solid epoxy resins	2000-2800	357-500	Z + 1/2 –Z_3	150 max	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings
4085	"**Type-9**" solid epoxy resins	2500-3500	286-400	Z_2-Z_5	150 max	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings. It gives a very high flexibility to the finished product.

SOLID RESINS SPECIAL GRADES

NAME	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	GARDNER VISCOSITY at 25°C (2)	COLOUR (Pt/CoScale)	APPLICATION
EPOSIR® 7168 PGF	"**Type-2,5**" solid epoxy resin containing flow agents	600-730	1369-1666	K-R	150 max	Low MW BPA based solid epoxy containing of flow agents. Especially designed for formulation of decorative **hybrid** and **pure epoxy powder** coatings with **excellent flow and gloss**.
EPOSIR® 7170 PGF 10	BPA based masterbatch epoxy resin **containing** of **flow agents**	780-900	1111-1282	-	-	Low MW BPA based solid epoxy containing of flow agents. Suitable for use in powder coatings formulation. Suggested as **masterbatch** in combination with standard epoxy resins **without flow agents**.
EPONAC® 85	**Novolac** modified low MW solid epoxy resin	600-700	1428-1666	Q-U	200 max	**Novolac** modified solid epoxy resins for formulation powder provide coatings with enhanced anticorrosion properties and excellent chemical resistances. Especially designed in combination with phenolic curing agents such as **SIRION® VP 208 X** series for **pipe coatings** and **internal drums lining**.

(1) Test method ISO 3001 - (2) Determined on 40% m/m Butyl carbitol solution - (3) Test Method ASTM D445 - (4) Gardner Scale Test Method ASTM D1544 - (5) To be combined with EPOSIR 7161 75 XL or EPONAC 5007 75 X - (6) Value refers to solid material - (7) Solvent ratio: Butanol/Toluene 1:1

SOLID EPOXY CURING AGENTS (Phenolic Hardeners)

SIRION	MELTING RANGE	HYDROXYL EQUIVALENT WEIGHT (g/eq.)	GARDNER VISCOSITY at 25°C (2)	REACTIVITY	CHARACTERISTIC/APPLICATION
2080	60-70 °C	250+/-30	H-M	+	Sirion® VP 2080 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coating is totally compatible with Epoxy Resins. Preferred application for good flow decorative, protective and high gloss powder coating. Moderate reactivity.
2081	60-70 °C	250+/-30	H-M	++	Sirion® VP 2081 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coating is totally compatible with Epoxy Resins. Preferred application for good flow decorative, protective and high gloss powder coating. Medium reactivity.
2082	60-70 °C	250+/-30	H-M	+++	Sirion® VP 2082 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coating is totally compatible with Epoxy Resins. Can be formulated into protective or decorative powder coating. Relative high reactivity.
2083	60-70 °C	250+/-30	H-M	++++	Sirion® VP 2083 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coating is totally compatible with Epoxy Resins. Very high reactivity.
2084	60-70 °C	250+/-30	H-M	++	Sirion® VP 2084 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing curing accelerator. Designed for Powder Coating is totally compatible with Epoxy Resins. Can be formulated into protective or decorative powder coating. Medium reactivity.
2085	60-70 °C	250+/-30	H-M		Sirion® VP 2085 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA. Designed for Powder Coating is totally compatible with Epoxy Resins. Can be formulated into protective or decorative powder coating. The product contain no curing accelerator and no flow modifier. It is useful for optimizing the reactivity of powder coating formulation which already contain a curing accelerator.

CYCLOALIPHATIC LIQUID EPOXY RESINS

SIRION	CHARACTERISTIC/APPLICATION	EPOXY EQUIVALENT WEIGHT (g/eq.) (1)	EPOXY GROUP CONTENT (mmol/kg) (1)	DYNAMIC VISCOSITY at 25°C (mPa.s)	COLOUR GARDNER(3)
CE 2304	Cyclohexane-dimethanol diglycidyl ether, modifier for epoxy systems Provides excellent cured state resistance to creep or deformation under stress in epoxy reinforced systems	160-190	5263-6250	60-120	≤2
CE 2308	Hydrogenated BPA resin (HBPADGE), modifier for epoxy systems with very good outdoor exposure resistance. Lower reactivity than DGEBA resins	230-260	3846-4348	4000-8000	≤2
CE 2310	3 , 4 –Epoxy cyclohexyl methyl – 3, 4-epoxy cyclohexyl carboxylate. Suitable for cationic UV cured coatings and overprint varnishes on metal, plastics, wood in combination with polyacid and anhydride for oven cured epoxy systems with excellent electrical properties, high HDT and good weathering highly effective agent co-stabilizer for PVC.	130-150	6666-7692	200-450	≤1

HARDENERS

EPOSIR	CHARACTERISTICS/APPLICATION	EQUIVALENT WEIGHT FOR ACTIVE H (g/eq.)	AMINE NUMBER (mgKOH/g)	DYNAMIC VISCOSITY at 25°C (mPa.s)	COLOUR GARDNER
ID 0170	Aliphatic polyamine suitable, when combined with liquid and modified liquid epoxy resins, as general purpose cold hardner (eg. for adhesives, small castings, floorings, etc.).	24 approx.	1300 approx.	12-25	≤3
ID 3048	Modified liquid cycloaliphatic amine based epoxy hardener. it is suitable for self-levelling flooring, grouts and mortar. Excellent carbamation resistance and good development of properties when cured at ambient and low temperature.	95	320	300 – 500	≤5

(1) Test method ISO 3001 - (2) Determined on 40% m/m Butyl carbitol solution - (3) Test Method ASTM D445 - (4) Gardner Scale Test Method ASTM D1544 - (5) To be combined with EPOSIR 7161 75 XL or EPONAC 5007 75 X - (6) Value refers to solid material - (7) Solvent ratio: Butanol/Toluene 1:1

SOLUTION GRADES

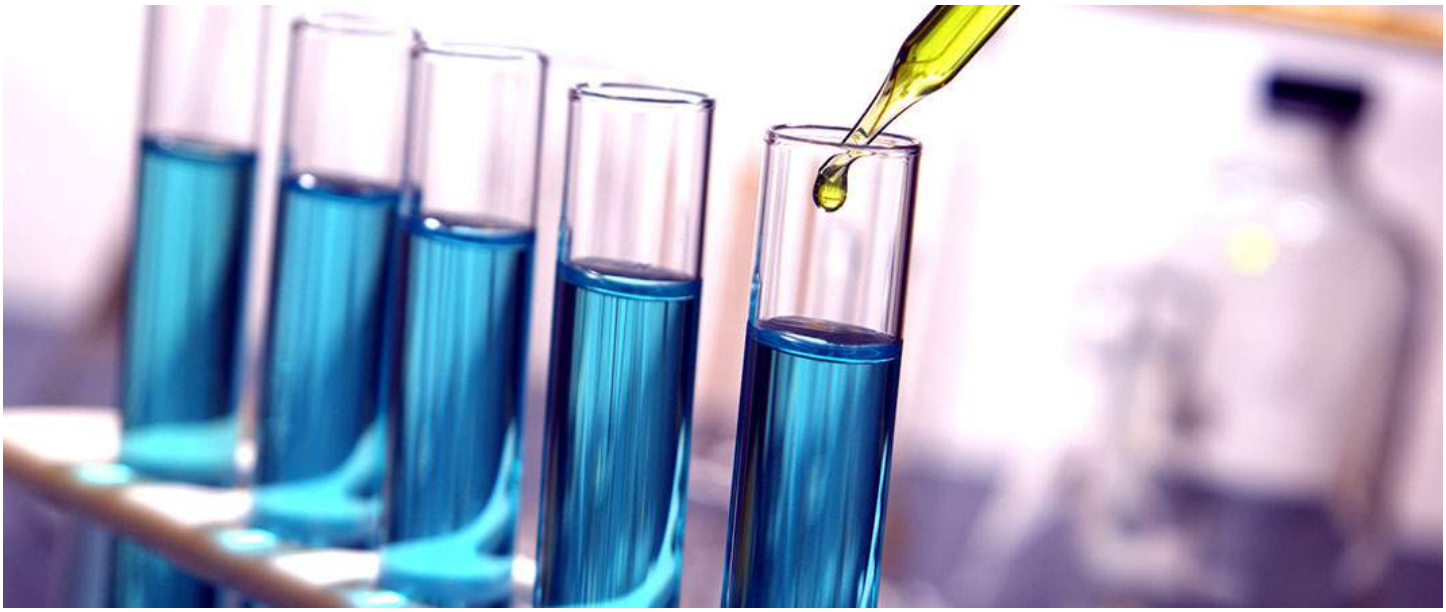
EPOSIR	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (2)	EPOXY GROUP CONTENT (mmol/kg)(2)	SOLID CONTENT (%)	SOLVENT	APPLICATION
7120 BC 90 MK	Standard low MW DGEBA solution in Methyl ethyl ketone	182-192	5208-5495	89-91	Methyl ethyl ketone	Epoxy pre pregs and composite materials.
7134 80 XL	Semisolid low MW BPA epoxy resin solution in Xylene	230-270	2127-4348	79-81	Xylene	Suggested for formulation of adhesives fibre reinforced composite materials such as epoxy pre pregs and laminates. Suitable for formulation of coatings with improved adhesion and impact strengths. General purpose primers.
7136 80 XL	Slightly higher MW and viscosity version of EPOSIR® 7134 80 XL	300-350	2856-3333	79-81	Xylene	Similar to EPOSIR® 7134 80 XL with slightly higher viscosity and better flexibility.
7161 75 XL	EPOSIR® 7161 solution in Xylene	440-470	1538-1686	74-76	Xylene	Suggested in combination with suitable hardeners for formulation of general purpose primers for metallic surfaces and anticorrosion paints with excellent resistance to chemical agents, solvents and water.
7161 75 MP	EPOSIR® 7161 solution in Methoxypropanol	440-500	2000-2272	74-76	Methoxypropanol	Similar application to EPOSIR® 7161 75 XL
7161 75 BK	EPOSIR® 7161 solution in Methyl isobutyl ketone	450-480	2083-2222	74-76	Methyl isobutyl ketone	Suitable also for fibre reinforced **composite materials.**
7161 70 MK	EPOSIR® 7161 solution in Methyl ethyl ketone	460-520	1923-2173	69-71	Methyl ethyl ketone	Designed for formulation of epoxy resins pre pregs and fibre reinforced epoxy laminates for composite materials and electrical applications.
7170 50 BC SA	EPOSIR® 7170 solution in Butyl glycol/Naphtha solvent	800-900	1111-1250	49-51	Butyl glycol/Naphtha solvent	Suitable for formulation of anticorrosion coatings for metallic surfaces and industrial applications. Suggested in blend with EPOSIR® 7161 solution to improve flexibility.
7180 50 DK XL	Standard "**Type-7**" epoxy BPA based solution in Diacetone alcohol/Xylene	1700-2100	476-588	49-51	Diacetone alcohol/Xylene	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.
7180 40 BC SA	Standard "**Type-7**" epoxy BPA based solution in Butyl glycol/Naphtha solvent	1500-2000	500-666	40-42	Butyl glycol/Naphtha solvent	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coating.
7183 45 BC/BGA	Bisphenol A based solid resin, with high epoxy equivalent weight.	1450 -1750	569-689	44 - 46	Butylglycol/Butyl glycol Acetate	For **can coating** stoving lacquers.
7192 40 BC SA	Standard "**Type-9**" epoxy BPA based solution in Butyl glycol/Naphtha solvent	2500-3300	303-400	39-41	Butyl glycol/Naphtha solvent	Higher MW with better flexibility. Suitable for **foodstuffs** and **hygienic materials** contact, like toothpaste and can coatings.
9134 90 XL	Modified BPA based epoxy resin solution in Xylene	230-260	3846- 4347	88-90	Xylene	High-solids solvent borne coatings with low V.O.C. Typical end-uses include anticorrosion coatings for the protection of steel and concrete.

(1) Test method ISO 3001 - (2) Determined on delivery form with reference to solid material

SOLUTION GRADES

EPOSIR	CHARACTERISTIC	EPOXY EQUIVALENT WEIGHT (g/eq.) (2)	EPOXY GROUP CONTENT (mmol/kg)(2)	SOLID CONTENT (%)	SOLVENT	APPLICATION
5007 75 X	EPONAC® 5007 solution in Xylene	450-500	2000-2222	74-76	Xylene	Suggested in combination with suitable hardeners for general purpose primers, metallic surfaces and anticorrosion paints with excellent resistance to chemical agents, solvents and water.
5007 75 T	EPONAC® 5007 solution in Toluene	450-500	2000-2222	74-76	Toluene	Suggested in combination with suitable hardeners for general purpose primers, metallic surfaces and anticorrosion paints with excellent resistance to chemical agents, solvents and water agents.
5007 75 BK	EPONAC® 5007 solution in Methyl isobutyl ketone	450-500	2000-2222	74-76	Methyl isobutyl ketone	Suitable also for fibre reinforced composite materials.
2065 50 XD	EPONAC® 2065 solution in Xylene – diacetone alcohol	1700-2100	476-588	49-51	Xylene-diacetone alcohol	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.
2065 40 BGS	EPONAC® 2065 solution in Butyl glycol/Naphtha solvent	1500-2000	500-666	39-41	Butylglycol/ Naphtalic solvent	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.
2065 50 MX	EPONAC® 2065 solution in Methoxy propylacetate – Xylene	1600-2100	476-625	49-51	Methoxy propylacetate -Xylene	High MW, suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.
4085 40 BGS	EPONAC® 4085 solution in Butyl glycol/Naphtha solvent	2500-3300	303-400	40-42	Butylglycol/Naphta solvent	Higher MW with better flexibility. Suitable for foodstuffs and hygienic materials contact, like toothpaste and can coatings.

(1) Test method ISO 3001 - (2) Determined on delivery form with reference to solid material



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