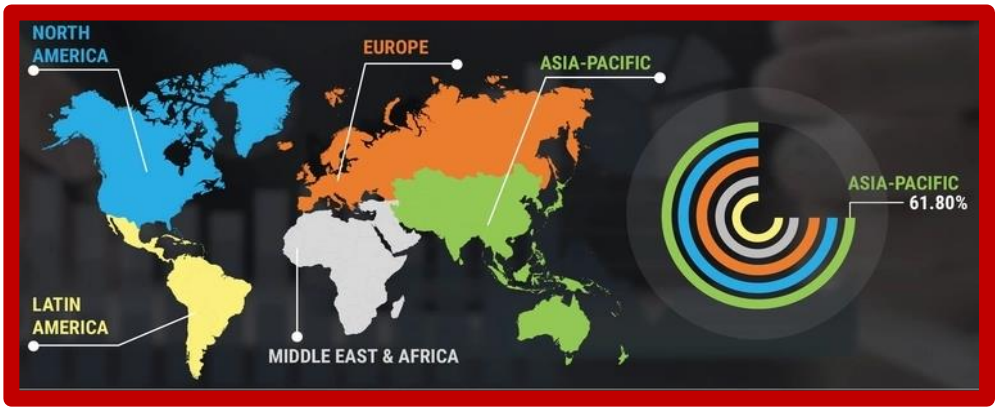
AN CHEMICAL CORPORATION

ANPOX@Epoxy Resin

- Bisphenol A Liquid Epoxy Resin.
- Solid BPA Epoxy Resin
- O-Cresol Formaldehyde Epoxy Resin
- Functional Epoxy Resin
- Waterborne Epoxy Resin
- Hydrogenated bisphenol epoxy resin
- Ornamental potting sealant
- Composite materials epoxy resin
- Phenolic Novolac Epoxy Resin
- **Solvent-type Epoxy Resin**

- Nanoparticles Toughened Epoxy Resin (NTER)
- Diluent
- Curing Agent
- Flexibilizer
- Epichlorohydrin
- 3-Ally Chloride
- Caustic Soda
- Liquid Chlorine
- Hydrochloric Acid

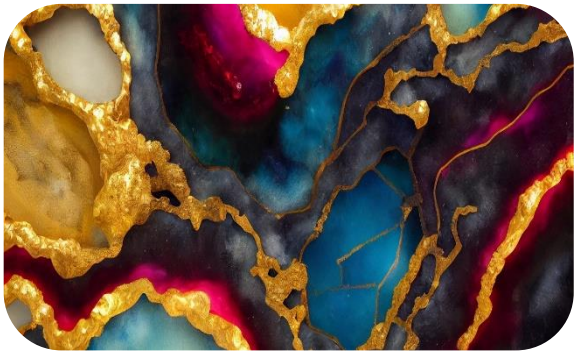
Global Epoxy Resin Market Size



The global epoxy resin market size was valued at USD 11.83 Billion in 2021 and is predicted to reach USD 21.65 billion by 2030, increasing at a CAGR of 6.93% from 2022 to 2030. This is due to the rise in automotive, growing industrialization, and rapid demand for electronic goods. Moreover, the U.S epoxy resin market held the largest share, and the Canadian epoxy resin market was the fastest-growing market in the North American region. Europe epoxy resin market accounts for the significant share due to the availability of highly configured electronic devices, developed industries, and rising demand for electric vehicles. Further, the Germany epoxy resin market held the largest market share, and the UK epoxy resin market was the fastest-growing market in the European region.

EPOXY RESIN APPLICATION INSIGHTS

Epoxy resin-based paints & coatings are widely utilized in architecture, automotive OEMs, automotive refinishing, marine coating, industrial coating, wood coating, coil coating, transportation coating, fiber optics coating, and more. The paint & coating helps are used to coat the interior and exterior surfaces of any object and protect from extreme temperature, UV radiation, cracks, stain, chemicals, and blistering. Epoxy resin-based paints & coatings have low Volatile Organic Compounds (VOCs) content and offer high anti-corrosion resistance and excellent adhesion.



Epoxy resin is a thermosetting polymer widely used in various applications due to its excellent adhesive properties, high tensile, compressive strength, and chemical and thermal stability. Epoxy resin is versatile and indispensable in modern materials, finding applications across various industries. From art and crafts to construction and engineering, epoxy resin has proven its mettle due to its exceptional properties and durability. Let's highlight its significance in the market and its widespread applications. Epoxy resin is a synthetic thermosetting polymer derived from petroleum, characterized by its exceptional strength, adhesion, and resistance to chemicals and environmental factors. The primary constituents of epoxy resin are epoxide monomers, which polymerize when combined with a curing agent or hardener. The resulting chemical reaction forms a strong and durable bond, making epoxy resin a preferred choice in numerous applications.

Type of epoxy resin

Several types of epoxy resin are available in the market, each with unique properties and applications. Some of the most common types of epoxy resin are:

Clear Epoxy Resin: Clear Epoxy Resin is transparent when cured, making it ideal for encapsulating and preserving objects, creating jewelry, and producing glossy coatings on various surfaces.

5-Minute Epoxy: As the name suggests, this quick-setting epoxy resin offers rapid bonding, making it suitable for small repairs, household applications, and DIY projects.

Epoxy Glue for Metal: This resin variant is commonly used in automotive and industrial repairs, offering superior bonding strength on metal surfaces.

Deep Pour Epoxy: Ideal for casting thick layers and creating river tables, deep pour epoxy prevents excessive heat buildup and ensures a smooth, bubble-free finish.

Liquid Glass Epoxy: Liquid glass epoxy is renowned for producing a crystal-clear, high-gloss finish on tabletops, countertops, and wooden surfaces, enhancing visual appeal.

Epoxy Resin for Wood: Specially formulated to penetrate and protect the wood, this type of epoxy resin strengthens and stabilizes wooden structures, preventing decay and enhancing longevity.

Concrete Crack Repair Epoxy: Designed to repair and seal cracks in concrete structures, this resin ensures structural integrity and prevents further damage.

Typical composite resin is composed of a resin-based matrix, such as bisphenol A-glycidyl methacrylate and inorganic filler like silica. The filler gives the composite improved mechanical property, wear resistance, and translucency.

Bisphenol A Liquid Epoxy Resin

It is a type of colorless or yellowish liquid epoxy resin. Due to its special properties, it is mainly used in coating, adhesive, anticorrosion, electric insulation, laminated plates and potting fields. It is also used as the raw material for the production of high-end epoxy resin.

BISPHENOL A LIQUID EPOXY RESIN GENERAL SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Softening point (℃)	Viscosity (mPa.s25℃)	Volatile, wt.%≤	Color Platinum-cobalt ≤	Color Gardner≤
CYD-127	180–190	0.1	—	—	8000–11000	0.200	60	—
CYD-127E	180–186	0.035	—	—	10000–13000	0.200	60	—
CYD-128	184–194	0.1	—	—	11000–14000	0.200	60	—
CYD-128D	186–190	0.035	—	—	12000–16000	0.200	60	—
CYD-128E	184–194	0.02-0.04	—	—	11000–14000	0.200	60	—
CYD-128M	186–190	0.15	—	—	12500–14500	0.050	20	—
CYD-128Y	187–193	0.1	—	—	12000–15000	0.200	40	—
CYD-128YL	185–189	0.03	—	—	10000–16000	0.050	20	—
CYD-128S	205–225	1.8-2.4	—	—	19000–24000	0.200	60	—
CYD-128F	186–190	0.05	—	—	12500–14000	0.200	40	—
CYD-188	187–189	0.028	—	—	12500–14300	0.200	30	—
CYD-134	230–270	0.1	—	21–27	—	0.300	—	1
CYD-115	180–194	0.1	—	—	700–1100	10.000	—	1
CYD-115C	195–215	1.7-2.0	—	—	800–1600	12.000	—	1
E-44	210–240	0.3	0.0180	14–22	—	0.600	—	1
E-44(II)	215–240	0.3	0.0180	15-23	—	0.600	—	1
E-42	230–280	0.3	0.0100	21-27	—	0.600	—	1
E-39D	240–256	0.04	0.0020	24-29	—	0.500	—	1

Note 1: Density, sodium ion content, and total chlorine content indicators shall be agreed upon by both supply and demand parties.
Note 2: The gelation time of E-39D is agreed between the supplier and the buyer.
Note 3: Epoxy equivalent 1g/mol=1g/eq.

BISPHENOL A LIQUID EPOXY RESIN GENERAL APPLICATION

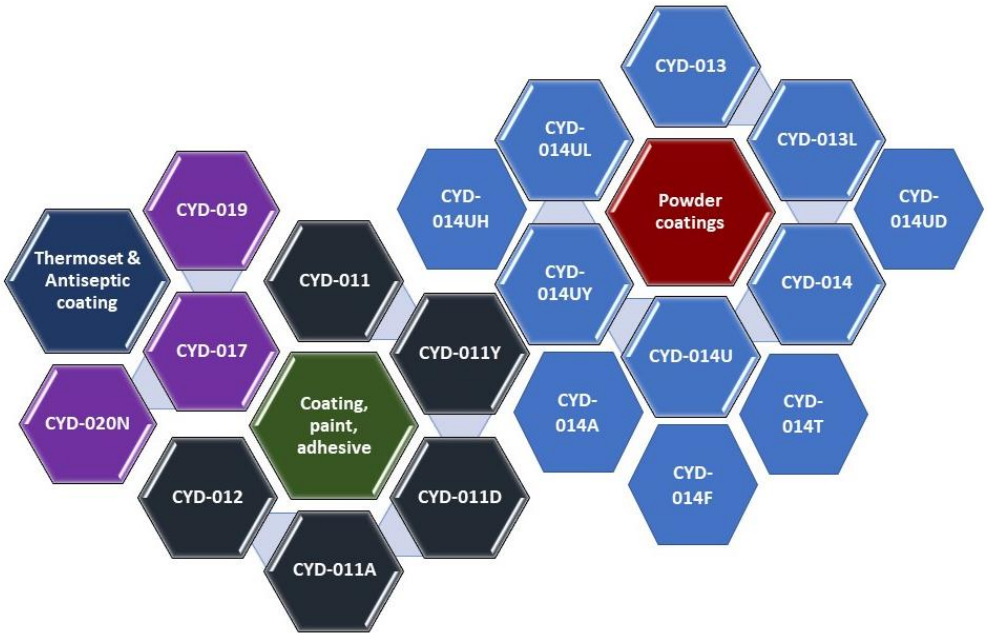
Grade	Applications	Grade	Applications
CYD-127	Electrical Insulated H-class, Laminated paint materials, etc.	CYD-128F	Floor coatings
CYD-127E	Electrical	CYD-188	Special materials for automotive coatings
CYD-128	Base resin, Multiple uses	CYD-134	Spilled paint
CYD-128D	Adhesives	CYD-115	Solvent free paint
CYD-128E	Electrophoretic paint and other special uses	CYD-115C	Solvent free paint
CYD-128M	Sealants	E-44	Bonding, casting, sealing, impregnation, lamination
CYD-128Y	Light-curing paint	E-44(II)	Bonding, casting, sealing, impregnation, lamination
CYD-128YL	Light-curing	E-42	Bonding, casting, sealing, impregnation, lamination
CYD-128S	Multiple uses	E-39D	Electrical appliances, transformers

MEDIUM AND HIGH-MOLECULAR WEIGHT SOLID BPA EPOXY RESIN

It is a type of colorless or yellowish solid epoxy resin, widely used in many fields such as coating, paint and anti- corrosion.

MEDIUM AND HIGH-MOLECULAR WEIGHT SOLID BPA EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Softening point (℃)	Soluble viscosity (℃)	Soluble Viscosity (℃)	Volatile, wt.%≤	Color Platinum-cobalt ≤	Remark
CYD-011	450-500	0.1	60-70	D-F	—	0.600	35	Medium molecular weight
CYD-011Y	450-500	0.1	60-70	D-F	—	0.600	60	
CYD-011D	470-480	0.1	60-70	D-F	—	0.600	35	
CYD-011A	530-570	0.15	65-75	G-J	—	0.600	35	
CYD-012	600-700	0.1	75-85	—	1000-2000	0.600	35	
CYD-013	700-800	0.1500	85-95	—	1500-3000	0.600	30	
CYD-013L	900-1050	0.1	88-97	—	—	0.600	100	
CYD-014	900-1000	0.1	91-102	Q-V	—	0.600	30	
CYD-014U	710-875	0.1	88-96	—	1500-4500	0.600	30	
CYD-014UY	710-875	0.1	88-96	L-Q	—	0.600	60	
CYD-014UL	700-760	0.1	84-90	—	1000-2500	0.600	30	
CYD-014UH	850-900	0.1	91-100	Q-R	—	0.600	30	
CYD-014UD	815-835	0.1	88-92	L-Q	—	0.600	30	
CYD-014A	710-800	0.1	88-92	L-Q	—	0.600	30	
CYD-014T	750-810	0.1	92-100	L-Q	—	0.600	30	
CYD-014F	710-875	0.1	88-105	L-S	—	0.600	30	
CYD-017	1750-2100	0.1	117-127	Y-Z1	—	0.600	60	High molecular weight
CYD-019	2400-3300	0.1	130-145	Z3-Z5	—	0.600	60	
CYD-020N	4000-6000	0.1	135-150	Z5-Z6	—	0.600	200	
Note: Epoxy equivalent 1g/mol=1g/eq.								



MEDIUM AND HIGH-MOLECULAR WEIGHT SOLID BPA EPOXY RESIN APPLICATION

O-Cresol Formaldehyde Epoxy Resin

Due to the multi-epoxy groups existed in the molecules of O-cresol formaldehyde epoxy resin, a large amount of tight cross- bonds are formed after being cured, resulting in excellent thermal stability, mechanical strength, electricity insulation and chemicals resistance. It is mainly used in microelectronic industry. Widely used for the encapsulant of semiconductors and integrated circuits.

O-CRESOL FORMALDEHYDE EPOXY RESIN SPECIFICATION & APPLICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Softening point (℃)	Viscosity (mPa.s25℃)	Volatile, wt.%≤	Color (Gardner)	Application
CYDCN-200	195-210	0.015	0.0005	60-75	370-420	0.100	2	CCL (copper-clad plate) encapsulant, electronic printing ink, laminates
CYDCN-200M	195-210	0.015	0.0005	60-78	420-500	0.100	2	
CYDCN-205	193-208	0.015	0.0005	50-60	—	0.100	2	
CYDCN-205H	193-208	0.015	0.0005	55-63	230-270	0.100	2	
CYDCN-208	200-215	0.015	0.0005	80-90	—	0.150	2	
CYDCN-208H	200-220	0.015	0.0005	90-100	—	0.150	2	

Note 1: Epoxy equivalent 1g/mol=1g/eq.

Functional Epoxy Resin

It is a type of high molecule epoxy resin, with a wide molecular distribution and light-yellow appearance. This product performs excellent impact resistance and flexibility, mainly used in the fields of coating and paint.

FUNCTIONAL EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Softening point (℃)	Soluble viscosity (150 ℃)	Soluble viscosity (25 ℃)	Volatile, wt.%≤	Color Platinum-cobalt≤	Color Gardner ≤
CYD-801	450-500	—	—	65-75	—	D-G	0.500	—	2
CYD-802	600-700	—	—	81-91	—	J-O	0.500	—	2
CYD-803	700-900	—	—	90-104	—	O-U	0.500	—	2
CYD-803U	730-840	—	—	88-98	—	O-S	0.500	—	2
CYD-804	900-1000	—	—	96-107	—	T-X	0.500	—	2
CYD-804L	890-940	0.03	0.0030	95-105	—	—	0.200	—	1
CYD-805	1050-1300	0.0355	0.0035	110-115	—	—	0.600	—	1
CYD-703	750-820	0.1	—	88-105	2000-4500	—	0.600	100	—
CYD-703L	760-840	**0.1**	—	90-107	2000-4500	—	0.600	100	—

Application:

1- Paint, floor anticorrosive coating
2- Powder coating, anticorrosive coating, adhesive
3- Heavy anti-corrosion of pipelines
4- high- grade coating

Note 1: The hydrolysable chlorine indicators of CYD-801, CYD-802, CYD-803, CYD-803U and CYD-804 shall be agreed upon by both parties.
Note 2: Epoxy equivalent 1g/mol=1g/eq.

WATERBORNE EPOXY RESIN

Waterborne epoxy resin has wonderful prospect of application due to its properties. Especially in terms of the application of epoxy resin in combination with cement mortar, the introduction of hydrophilic groups into epoxy resin makes this high performance organic- and-inorganic compound available with the high-performance epoxy resin as a precondition. The outstanding advantage of waterborne epoxy resin lies on that this compound can be cured at atmospheric temperature and humidity with reasonable curing time. It can be mixed with such common cement- based material as cement mortar and concrete to enhance the early strength, tenacity, impact resistance and waterproof ability of above materials with very high crosslinking density. This is incomparable for many other types of waterborne polymers.

WATERBORNE EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Soluble viscosity (25 ℃)	Solid content% (mass fraction)	Centrifugal stability 3000rpm, 20min	Application
CYDW-102W50	400-480	≤800	50±2	Not layered	Glass fiber and carbon fiber impregnation styling agent
CYDW-112W50	1200-1850	500-3000	50±2	Not layered	Anticorrosive coatings, floor coatings, concrete modification, etc.
CYDW-113W50	1200-1850	2000-8000	50±2	Not layered	Floor coatings, concrete modification, anti-corrosion coatings, etc.
CYDW-100	190-210	500-1500	-	-	Epoxy primer, epoxy floor coating, adhesive, environmental protection Oxygen mortar, concrete modification, etc.
CYDW-100P	195-215	500-2000	-	-	
CYDW-100A	175-205	3000-4500	-	-	
CYDW-136	180-200	6000-7000	-	-	Permeable bricks, permeable pavement
CYDW-137	220-240	750-950	-	-	Water-based caulking agent
CYDW-125	200-230	8000-12000	-	-	Water-based caulking agent
YR-909N	210-240	11000-15000	-	-	Water-based caulking agent

Note 1: Epoxy equivalent 1g/mol=1g/eq.

WATERBORNE EPOXY RESIN SPECIFICATION

Grade	Amine value (mg. KOH/g)	Soluble viscosity (25 ℃)	Application
CYDHD-280	260-320	280-400	Adhesives, epoxy mortars, concrete modifications, anti-corrosion coatings, etc.
CYDHD-220	160-200	1000-3000	Epoxy floor coatings, adhesives, epoxy mortars, concrete modifications, etc.
CYDHD-200	220-280	1200-3000	Epoxy floor coatings, adhesives, epoxy mortars, concrete modifications, etc.
CYDHD-236	1000-1350	30-150	Water-based caulking agent, permeable bricks, permeable pavement

HYDROGENATED BISPHENOL AN EPOXY RESIN

Hydrogenated bisphenol an epoxy resin is an epoxy resin without double bonds in the molecule, which has the advantages of good weather resistance, excellent electrical properties, low viscosity, good processing property, etc. In addition to the physical properties of the cured product is similar to that of bisphenol A type epoxy resin, the weather resistance of the cured product is significantly enhanced. Hydrogenated bisphenol A epoxy resin can effectively make up for the disadvantages of bisphenol A type epoxy resin and polycarbonate in non-toxicity, chemical stability, UV resistance, thermal stability and weather resistance, greatly improve the performance of end products, prolong the life of products. It can be widely used in outdoor coatings, metal parts of ship and bridges, fan blade coatings, advanced indoor environmental protection decoration coatings, outdoor castable, electronic packaging (LED), electrical insulation materials, medical equipment parts, composite materials and other fields.

HYDROGENATED BISPHENOL AN EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.%≤	Inorganic chlorine, wt.%≤	Viscosity (mPa.s25℃)	Volatile, wt.%≤	Color Platinum-cobalt ≤
CYDH-300	220-240	0.3	0.002	2000-4500	2.0	100
Note: Epoxy equivalent 1g/mol=1g/eq						

ORNAMENTAL POTTING SEALANT

The ornamental potting sealant is an epoxy resin system specially developed for the bonding of handicraft woodwork, river table, glass painting and surface coating of craft etc. The system is composed of high purity, low viscosity epoxy resin A and amine curing agent B. It does not contain volatile solvent. It is green product. The cured products of the system have the characteristics of high transparency, excellent wear resistance, good yellowing resistance.

ORNAMENTAL POTTING SEALANT SPECIFICATION

Grade	Viscosity (mPa.s25℃)	Color Platinum-cobalt≤	Density	Application
CYDRT-210A	1500-2000	≤10	1.1-1.2	Craft pendants
CYDRT-210B	300-450	≤15	0.95-1.05	For use with CYDRT-210A
CYDRT-310A	1000-2000	≤10	1.1-1.2	Craft wood bonding
CYDRT-310 B	20-100	≤15	0.95-1.05	For use with CYDRT-310A
CYDRT-521A	1000-2000	≤10	1.1-1.2	Craft wood bonding, river tables, large craft pieces
CYDRT-521 B	20-80	≤15	0.95-1.05	For use with CYDRT-521A
CYDTC-110A	2000-3000	≤10	1.1-1.2	process coating
CYDTC-110 B	2000-3000	≤15	1.0-1.1	For use with CYDTC-110A
CYDTC-112A	1500-2000	≤10	1.1-1.2	Process coating
CYDTC-112 B	1500-2200	≤15	0.95-1.05	For use with CYDTC-112A

EPOXY RESIN SYSTEM USED IN COMPOSITE MATERIALS

Epoxy resin system used in composite materials are designed for glass fiber and carbon fiber composites, products with epoxy resin system involved in pultrusion process, vacuum infusion process, winding process, hand lay-up molding process and so on. Pultrusion system can be used for pipe, bar, wind-power blades girder and preparation of reinforcing materials used in construction. Vacuum infusion system can be used in the preparation of hull, wind- power blades and other large parts. The winding system can be used for the preparation of 35MPa composite gas cylinders and high-pressure pipelines. Hand lay-up system can be used for pipeline repair and building reinforcement.

EPOXY RESIN SYSTEM USED IN COMPOSITE MATERIALS SPECIFICATION

Grade	Appearance	Viscosity (mPa.s25℃)	Application
CYDAL-1A	Colorless or slightly yellow liquid	4000-8000	Manufacturing of pultruded insulator core rods, bushings, special-shaped materials for building structures, etc. Tg:150-170℃.
CYDAL-1B	Light yellow transparent liquid	100-300	For use with CYDAL-1A
CYDAL-2A	Slightly yellow liquid	4000-7000	Manufacturing of pultruded insulator core rods, bushings, special-shaped materials for building structures, etc. Tg:180-195℃
CYDAL-2 B	Brown-red transparent liquid	100-300	For use with CYDAL-2A.
CYDAL-3A	Colorless or slightly yellow liquid	5000-8000	Pultrusion process, sheet girders, building structural materials, etc.
CYDAL-3 B	Brown-red transparent liquid	100-300	For use with CYDAL-3A
CYDAD-3A	Colorless or slightly yellow liquid	800-1200	Vacuum infusion process, used for the preparation of large parts such as ship hulls and wind turbine blades
CYDAD-3 B	Light yellow transparent liquid	10-100	For use with CYDAD-3A
CYDAM-1A	Colorless or slightly yellow liquid	1000-2000	Winding process, 35MPa composite gas cylinder and high-pressure pipeline
CYDAM-1 B	Light yellow transparent liquid	20-80	For use with CYDAM-1A.
CYDAH-1A	Colorless or slightly yellow liquid	2000-3000	Hand lay-up process is used for pipeline repair and building reinforcement.
CYDAH-1 B	Light yellow transparent liquid	600-700	For use with CYDAH-1A

PHENOLIC NOVOLAC EPOXY RESIN

Phenolic Novolac Epoxy Resin mainly used in composite material, high temperature resistance adhesive, nti- corrosion coating, industrial paint, chemical resistances coating etc.

PHENOLIC NOVOLAC EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Softening point (℃)	Melting viscosity (mPa.s 80℃)	Volatile, wt.%≤	Color (Gardner) ≤	Total chlorine content, % (Quality score)	Application
CYDPN-048	190-210	0.05	0.001	40-50	370-430	0.500	2	Indicators are agreed upon by both supply and demand parties	sealing, lamination, antiseptic
CYDPN-051	190-210	0.05	0.001	25-40	—	0.500	2		
CYDPN-256	174-181	0.10	—	—	1500± 300	0.500	6		

A) Epoxy equivalent 1g/mol=1g/eq.
B) The measurement conditions of volatile content of CYDPN-256 are 140℃, 3h, 45mm flat-bottomed dish, 5g sample.

SOLVENT-TYPE EPOXY RESIN

It is designated for easy storage, transportation and application for customers. It is widely used in such fields as adhesive, coating and anti-corrosion.

SOLVENT-TYPE EPOXY RESIN SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Viscosity (mPa.s25℃)	Volatile, wt.. %≤	Solid content (175℃) wt.%≤	Color		Application
							Gardner ≤	Platinum-cobalt≤	
CYD-128T75	184-194	0.1	—	—	24.000-26.000	—	0.3	—	Adhesive, Coating
CYD-128T95	184-200	0.2	—	—	4.000-6.000	—	1	—	
CYD-128T97	184-200	0.2	—	—	2.000-4.000	—	1	—	
CYD-134X90	230-280	0.1	—	10000-20000	10.000±1%	—	2	—	Crafts
CYD-011X75	450-500	0.2	—	—	24.000-26.000	—	0.5	—	adhesive, coating
CYD-011AX75	530-570	0.15	—	—	24.000-26.000	—	0.5	—	
CYD-011S60a	470-490	0.1	—	—	39.000-41.000	—	0.5	—	anti-corrosion coatings
CYD-014S60a	900-960	0.1	—	—	39.000-41.000	—	0.5	—	
CYD-801X75	450-500	—	—	—	—	75±1	—	100	coating, paint
E-44T97	210-250	0.50	0.020	—	2.000-4.000	—	2	—	adhesive, sealing, laminating, antiseptics, etc.
E-44T95	210-250	0.50	0.020	—	4.000-6.000	—	2	—	
E-44T90	210-250	0.50	0.020	—	9.000-11.000	—	2	—	

NANOPARTICLES TOUGHENED EPOXY RESIN (NTER)

Compared with ordinary epoxy resin, NTER has high toughness and improved heat resistance is also improved. NTER is widely used in mechanical processing industry, which requires high toughness and heat resistance, such as grinding wheel, hoist crane. NTER is also used to produce heat resistant epoxy adhesives, structural adhesives and high temperature anti- corrosion coatings.

NANOPARTICLES TOUGHENED EPOXY RESIN (NTER) SPECIFICATION

Grade	*Molecular Weight (g/mol)*	*Hydrolysable chlorine, wt.% ≤*	*Inorganic chlorine, wt.%≤*	*Viscosity (mPa.s25℃)*	*Volatile, wt. %≤*	*Application*
CYDN-128	200-220	0.1	0.0050	40000-50000	0.200	Mechanical processing industries, Production of high heat resistance Epoxy Adhesive and construction structural adhesive, High temperature anti-corrosion coating

SPECIFIC PRODUCT

CYD-641 chemical composition: modified BPA epoxy resin, special epoxy resin for electrical casting, mainly used for casting and high-volt electronic insulators, CYD- 625 chemical composition: modified BPA epoxy resin, applied in combination with CYDH-625, mainly used for APG process, various electrical insuators.CYD-615 chemical composition: modified BPA epoxy resin, applied in combination with CYDHD-615, mainly used for winding compound material.

SPECIFIC PRODUCT SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Softening point (℃)	Viscosity (mPa.s25℃)	Volatile, wt. %≤	Color (Gardner) ⩽	Application
CYD-615	180-200	0.2000	—	—	700-1300	—	1	Compressed natural gas bottle
CYD-625	190-200	—	—	—	8500-15000	0.500	1	Special epoxy resin
CYD-641	360-420	0.0500	0.0050	45-55	—	—	—	SF6 Insulation of high-voltage electrical appliances

Note: Epoxy equivalent 1g/mol=1g/eq
Note 2: CYD-615 is used in conjunction with the curing agent CYDHD-615, CYD-625 is used in conjunction with the curing agent CYDHD-625, and CYD-641 is used by the customer.

Grade	Amine value (mg. KOH/g)	Viscosity (mPa.s25℃)	Application
CYDHD-615	⩽ 670	40-100	No obvious mechanical impurities
CYDHD-625	—	250-550	—

DILUENT

CYDPG- 660(butyl glycidol ether), 669(glycol Diglycidyl), harmless with strong durability, suitable for epoxy resin adhesive, casting, coating, non- solvent paint.
CYDPG-300(lauryl alcohol and tetradecanol glycidol ether), a kind of aliphatic glycidol ether with long chains, is characterized by low toxicity, low viscosity and strong dilution capacity. Due to its long flexible chains, it can enhance the flexibility and impact resistance of the cured product without affecting its electrical performance.

DILUENT SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Inorganic chlorine, wt.%≤	Color (Gardner)≤	Application
CYDPG-260	180-210	0.1	0.0050	0.5	Epoxy resin adhesives, can sealing materials, solvent-free paints, anti-corrosion projects
CYDPG-300	285-310	0.1	0.0050	0.5	
CYDPG-300H	300-330	0.6	0.0050	0.5	
CYDPG-660	140-200	0.5	0.0150	0.5	Epoxy resin reactive diluent, modified curing agent raw materials
CYDPG-669	125-143	0.71	0.0036	0.5	

FLEXIBILIZER

PG GE (Polypropylene glycol glycidyl ether) can be used for the preparation of various epoxy resin casting, coating and gel. It is widely used in electronics, electrical, architecture and chemicals.

FLEXIBILIZER SPECIFICATION

Grade	Molecular Weight (g/mol)	Hydrolysable chlorine, wt.% ≤	Viscosity (mPa.s25℃)	Volatile, wt. %≤	Color (Gardner)≤	Application
CYDPG-207	300-350	0.4000	40-70	Indicators are agreed upon by both supply and demand parties	1	Flexibilizer and diluent of EP
CYDPG-217	650-850	0.5000	—		1	
CYDPG-227	1050-1250	0.7000	100-150		1	Flexibilizer of EP
Note: Epoxy equivalent 1g/mol=1g/eq.						

CURING AGENT

The epoxy resin division mainly produces amines and modified curing agents with excellent properties, such as fast curing speed and good chemical corrosion resistance.

CURING AGENT SPECIFICATION

Grade	Amine value (mg. KOH/g)	Acid value (mg. KOH/g)	Viscosity (mPa.s25℃)	Appearance	Application
CYDHD-520	270-310	—	300-360	light color liquid, non- crystallizable	floor coating, wall coating
CYDHD-531（Ⅰ）	400-450	—	≤1500	light brown or red brown transparent liquid, no mechanical impurities	Curing agent for antiseptic coatings
CYDHD-531（Ⅱ）	450-550	—	≤1500		
CYDHD-531（Ⅲ）	550-650	—	≤3000		
CYDHD-531（Ⅴ）	450-550	—	3000-4500		
CYDHD-583	500-600	—	100-200	light color liquid, non- crystallizable	Model casting, adhesive, sealing, anti-septic coating, civil work
CYDHD-593	600-700	—	100-150		
CYDHD-596	500-600	—	≤500	light color liquid, non crystallizable mechanical impurities	be used for room temperature curing
DMP-30	500-600	—	≤500	Brown or transparent liquid	curing accelerator

Grade	Softening point (℃)	Viscosity (mPa.s25℃)	Melt viscosity	Solid content（180℃）	Free phenol content, % (Mass fraction) ≤	Application
CYDHD-256	80-90	—	400-600 (170℃）	—	0.2	supporting the useof phenolicresin
CYDHD-240	105-120	—	700-1100 (175℃）	≥99.5	20	
CYDHD-270	85-115	—	2000-5500 (175℃）	—	—	
CYDHD-271	—	200-500	—	50±1 (MEK solution c)	—	

A) The measurement conditions of solid content are 180℃, 1h, 75mm flat-bottomed dish, 3g sample.
B) The free phenol content is determined by the user upon request.
C) MEK is methyl ethyl ketone solvent.

EPICHLOROHYDRIN

Epichlorohydrin (ECH) is colorless, transparent, flammable, volatile oily liquid under room temperature and pressure. Its vapor is very variant to eye, nose and throat. The maximum allowable concentration of ECH in the air is 1mg / m3(5ppm). ECH is unsolvable in water, but solvable in many organic solvents such as ether, alcohol, CCI4, acetone and benzene. It can dissolve cellulose acetate and rosin resin and be mixed with high molecule polymers, e.g., chlorinated rubber and PVC resin. ECH is a widely used as an organic synthetic material, mainly for synthetic resin, glycerol and epichlorohydrin elastomers. Besides, it also acts as the intermediate of pharmacy and dye, solvent, flexibilizer, stabilizer and surfactant.

EPICHLOROHYDRIN SPECIFICATION

item	Index		
	Superior	First grade	Qualified
Chroma/Hazen Units (Platinum-Diamond Color Number)	10	20	25
wt. %≤	0.020	0.060	0.100
Epichlorohydrin % ≥	99.90	99.80	99.50

3-ALLY CHLORIDE

3-allyl chloride is colorless erosive and irritant flammable liquid. It is a chlorohydrocarbon compound with the nature of both organochlorine and in organochlorine. Due to its active chemical properties, it is used as an important intermediate for pesticide, silane coupler and dyestuff, and applied in the sections of promotive for oil fields, pharmacy, coating, water purifying agent, adhesive, flame retardant and intensifier.

3-ALLY CHLORIDE SPECIFICATION

item	Index		
	High-purity	Superior	First Grade
Purity quotient % ≥	99.2	99.0	99.8
Acidity (calculated as HCl), % ≤	0.005	0.010	0.010
Density(20℃)/(kg/L)	0.934-0.950	0.934-0.950	0.934-0.950
Moisture, Moisture % ≤	0.010	0.030	0.090
Chroma Color/ (Platinum-cobalt color number) % ≤	20	99.80	99.50

CAUSTIC SODA

Caustic soda is an inorganic product of strong alkalinity, very erosive to skin, cornea and fiber. It can be neutralized with all kinds of acids and absorb CI2 and CO2. It is soluble in water releasing heat and in alcohol and glycerol. As a basic chemical material, it has extensive usage in national economy. It is used in huge amount in papermaking, textile, metallurgy, pharmacy, petroleum and chemical industries. Due to its high purity without impurities, ion membrane caustic soda is widely used in paper making, chemical, pharmacy and light industries, especially in synthetic fiber and artificial silk sections.

CAUSTIC SODA SPECIFICATION

CAUSTIC SODA SPECIFICATION	Index -Type I		Index -Type II	
item	Superior	First grade	Superior	First grade
Appearance	Colorless, transparent, thick liquid.		Colorless, transparent, thick liquid.	
Sodium hydroxide (calculated as NaOH), w/% ≥	50.00	50.00	30.00	30.00
Sodium carbonate (calculated as Na2CO3), w/% ≤	0.10	0.20	0.04	0.06
Sodium carbonate (calculated as NaCl), w/% ≤	0.0090	0.0100	0.0040	0.0070
Ferric oxide (calculated as Fe2O3), w/% ≤	0.0009	0.0010	0.0003	0.0005
Sodium chlorate (calculated as NaClO3), w/% ≤	0.0020	0.0030	0.0010	0.0020
Sodium sulfate (calculated as Na2SO4), w/% ≤	0.0020	0.0040	0.0010	0.0020
Silicon dioxide Titanium dioxide (calculated as SiO2), w/% ≤	0.0020	0.0030	0.0015	0.0030
Aluminum oxide (calculated as Al2O3), w/% ≤	0.0010	0.0020	0.0004	0.0006
Calcium oxide Sodium sulfate (calculated as CaO), w/% ≤	0.0003	0.0009	0.0001	0.0005

LIQUID CHLORINE

Liquid chlorine is a kind of light green oily liquid with extreme toxicity. It becomes olivine after being gasified. Itis a strongly irritant toxic gas, 2.5 times heavier than air. Chlorine is a chemically active nonmetal. It can react with metals, nonmetals and their compounds. It also reacts to organic compounds resulting in halogenation and additive reaction.

LIQUID CHLORINE SPECIFICATION

item	Index		
	Superior	First grade	Qualified
Volume content of chlorine, % ≥	99.8	99.6	99.6
Mass fraction of water, % ≤	0.01	0.03	0.04
Mass fraction of NCl3, % ≤	0.002	0.004	0.004
fraction of evaporation residue, % ≤	0.015	0.1	--
Note: Moisture and nitrogen trichloride indicators are mandatory.			

HYDROCHLORIC ACID

HCl solution is light yellow due to a small quantity of impurities such as Fe formed during industrial production. It is a strong acid with irritant odor, volatile, poisonous and erosive, prone to react with many metals, including alkali metals, alkali earth metals many metallic oxide and metallic salts. Itis widely used in the fields of metallurgy, textile, leather and pharmacy industries.

HYDROCHLORIC ACID SPECIFICATION

item	Index		
	Superior	First grade	Qualified
Mass fraction of total acidity (as HCl), % ≥	31.0	31.0	31.0
Mass fraction of Fe (as Fe), % ≤	0.002	0.008	0.01
Mass fraction of ignition residues, % ≤	0.05	0.10	0.15
Mass fraction of free chlorine (as Cl), % ≤	0.004	0.008	0.01
Mass fraction of arsenic, % ≤	0.0001	0.0001	0.0001
Note: Arsenic indicator is mandatory.			

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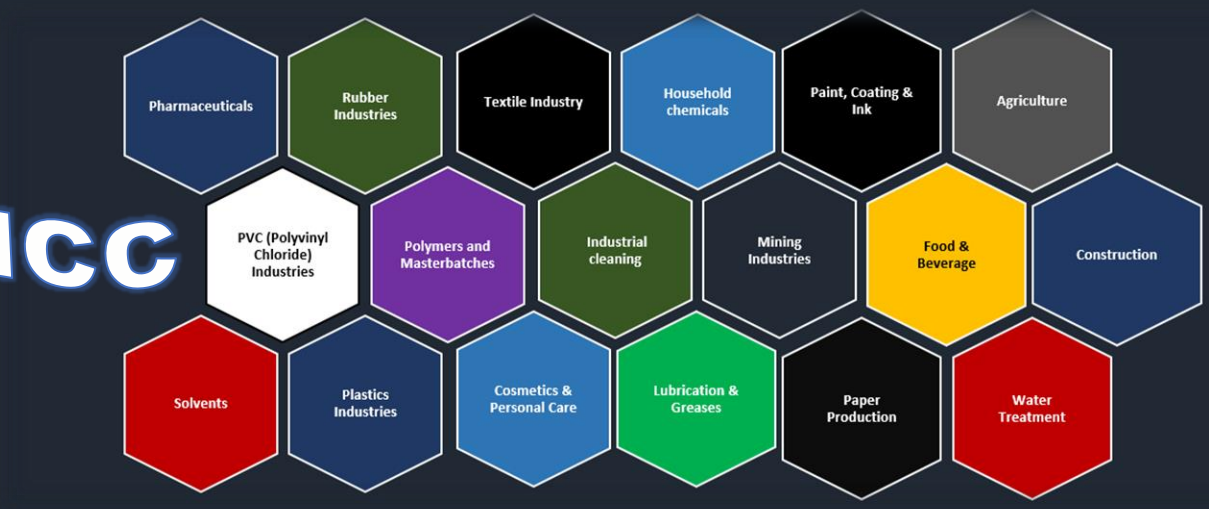

ANCC was founded in 2000 in the heart of Chemicals world. ANCC, a Chemicals supplier and strategic partner to all Process & Non-Process worldwide industries, is the leading supplier of cutting-edge science and technologies. ANCC is an important unit of the customer's organization, to be ensured products quality are not only in line with worldwide standards but also stockholder's interests would be assuring in all of financially, socially, healthy, happiness, and environmental aspects.

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www.ancc-369.com ancccom@ancc-369.com anchemicalcorp@gmail.com