



Resins

1850-01

Description

Epoxa us 1850-01 epoxy resin is a transparent low viscosity formulated liquid for applications requiring excellent electrical, mechanical and chemical properties. It is derived from a family of low viscosity resins that possess transparency and reacts with a variety of selected hardeners.

Resin 1850-01 can be mixed with other liquid or solid epoxy resins to achieved the desired product characteristics and viscosities. Liquid modifiers, diluents, flexibilizers can be added to reach optimum properties and because of its low viscosity, high loads of fillers can be used in systems using this compound.

Epoxa us 1850-01 epoxy resin formulation can be stored for long periods and used in systems intended in the fabrication of parts, molds and laminates with fiberglass, carbon or wire mesh as a composite matrix. This product can be cross-linked or cured with several curing agents to attain desired properties.

Key Features and Benefits

- High chemical resistance
- Composite parts with various reinforcements
- High resistance to abrasion
- Flooring applications
- Chemical and abrasive resistant coatings on metal structures, wood and other materials
- Variable mixing ratios depending on curing agent used
- Low cost volume filler with sand, metal object or diverse inexpensive aggregates
- Excellent bonding agent
- Controlled flexibility
- Easy pouring due to low viscosity
- Inexpensive alternative to more expensive systems

Sales Specification

PROPERTIES:	Units	Value	Test Method
Color	Gardner	1 maximum	ASTM D1544
Viscosity 77f / 25c	Cpoise	85-98	ASTM D445
Weight per epoxide	G/EQ	198- 201	ASTM D 1652

Typical Properties

PROPERTIES:	Units	Value	Test Method
Viscosity at 25c 77f 1850-01	CPoise	CPoise	ASTM D445
20-01 (20c)	CPoise	27-39	ASTM D445
21-01	CPoise	150-300	ASTM D1475
31-01	CPoise	100-200	ASTM D1475
68-01	CPoise	2500-4000	ASTM D1475

Curing Agents

Epoxa us 1850-01 resin can be cross-linked or cured mainly with four types of curing agents. The properties of the final product will depend on the hardener selected. These four curing agents are epoxa us 20-01, epoxa us 21-0, epoxa us 31-01 and epoxa us 68-01. Some information about these curing agents and their recommended concentrations, typical gel times, density and viscosity data are shown in Table 1.

Table 1 Curing Agents for epoxa us 1850-01

Curing Agent	Type	phr (1850-01)	Gel Time/min/25c/77f	Density/lbs/gal	Viscosity/77f/25c/cP	Color/Gardner
epoxa us 20-01	Liquid	13	38	.99-1.01	20-60	2
epoxa us 21-01	Liquid	20	27	1.05-1.07	150-300	2
epoxa us 31-01	Liquid	17	38	1.10-1.15	100-200	15
epoxa us 68-01	Liquid	25	29	1.12-1.15	2500-4000	3
epoxa us 20-01	Maximum hardness an excellent mechanical properties, low viscosity, room temperature cure.					
epoxa us 21-01	Gives greater flexibility and impact resistance to the compound. Fast cure at room temperature.					
epoxa us 31-01	Highest general properties and excellent thermal resistance. Complete curing through heat.Performance up to (150c 302f).					
epoxa us 68-01	General applications, fast cure at room temperature. Excellent mechanical properties in fiber glass or carbon laminates.					

Performance Properties

Adhesion Properties

Epoxa us 1850-01 creates strong adhesions specially with curing agent epoxa us 21-01. This curing agent also gives flexibility to the system. Applications using any of the four curing agents will exhibit low shrinkage during cure and superb mechanical properties.

Electrical Properties

Epoxa us 1850-01 cured systems have excellent dielectric and insulating properties. Systems with excellent volume resistivities, high dielectric constants and excellent dissipation factors can be obtained at ambient temperatures with epoxa us 20-01 and 21-01 and with heat curing using epoxa us 31-01.

Chemicals Resistance

Epoxa us 1850-01 cured systems have great chemical resistance to a wide range of chemicals like caustic, acids, solvents and petroleum derivatives. Chemical resistant systems with different properties can be formulated using epoxa us 1850-01 resin system.

Mechanical Properties

High strenght with high performance materials can be obtained using epoxa us 1850-01 resin with various hardeners. Tensile values greater than 7000 psi with modulus greater than 300 000 psi with unfilled systems are possible. This compounds are usually hard unless high percentage elongation is desired. Curing agent epoxa us 68-01 delivers the best properties specially with fiber glass or carbon laminates.

Curing

For additional information covering the use of epoxa us 1850-01 resin with our variety of curing agents and the formulations resulting from them please contact epoxa us by phone, e-mail or letter and our team will work with you to recommend and achieve the system solution for your project or application.

Epoxy curing agents when mixed with epoxy resin cure faster with high temperature and slower with low temperature, the mixture reaction will generate heat so a thin film of resin and hardener will take longer to cure than a thick mixture or mass of resin and hardener. This is true to the great majority of epoxy systems.

Exact cure time will depend on temperature, sample mass or thickness and most importantly curing agent used. Since cure times decrease with mass or volume, special consideration and testing should be conducted when mixing larger amounts of material to achieve desired goals in working times and the overall application of a given system.

Packaging and Dispensing

Epoxa us 1850-01 resin is available in 500 lbs drums, 5 gallon pails and individual gallons. It can be stored at 100-120 f (38-49c) for ease of handling.

Viscosity will change 10-15 poise for each degree in temperature the product varies from 25c the higher temperature less viscous and lower temperature more viscous.

Always dispense the resin at the lower temperature that works for your application because it is always better to handle low temperature material than otherwise even though epoxa us 1850-01 can be dispensed at 100-120f (38-49c) safely.

Accidental Spills

Small Spill

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

Large Spill

Persons not wearing protective equipment should not participate until clean up has been completed. Stop spill at source, dike area of spill to stop spreading of the product, pump liquid to salvage tank and remaining liquid can be taken on sand, clay, or other absorbent material and put into containers.

Dispose of in accordance with all applicable local, state and federal regulations.

Note: If this material becomes a waste, it would not be a hazardous waste by RCRA criteria (40CFR 261).

Place in an appropriate disposal facility in compliance with local and federal regulations

Any clothes affected by the spill should be disposed of to avoid further contamination.

These products are sold and manufactured for industrial use only, Material Data Sheets are available upon request from epoxa us and its affiliates. Epoxa us recommends reading the MSDS completely prior to using the product.

Transportation

DOT Description

NON-REGULATED BY D.O.T.

DOT information - 49 CFR 172.101

CFR_ROAD NOT REGULATED FOR TRANSPORT

IATA_C NOT REGULATED FOR TRANSPORT

IMDG NOT REGULATED FOR TRANSPORT

CFR_RAIL NOT REGULATED FOR TRANSPORT

Requests made to epoxa us about our products shall be handled by a representative. **For product storage and handling procedures to maintain product quality within our stated specifications, please review Certificates of Analysis, which are available.** Use of other materials in conjunction with epoxa us products may require additional procedures and precautions. Please review and follow the safety information provided by the manufacturer of other materials.

Limitations

Customers must evaluate epoxa us products and make their own determination as to fitness of use in their particular applications, projects and methods.

From automotive to mining, from electronics to construction, products from epoxa us incorporated lead the way and have become standard products in their respective industries. We have a strong presence in epoxy systems and advanced materials with a 40+ year heritage of innovation and with applications that improve everyday operations. By knowing our customers needs and creating custom technology for them, we provide science based solutions to help customers increase performance, solve product development issues and engineer better manufacturing processes.

Contact Information

For product prices, availability, or order placement, contact our customer service by visiting www.epoxaus.com
For literature and technical assistance, visit our website or call us with your questions.

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