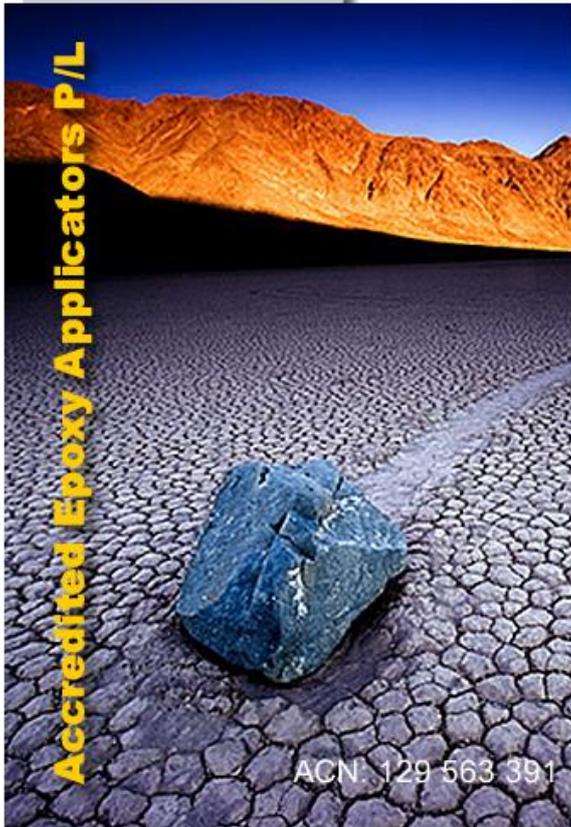


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About Epoxy Resin

Ref: wikipedia.org

Epoxy or polyepoxide is a thermosetting epoxide polymer that cures (polymerizes and crosslinks) when mixed with a catalyzing agent or "hardener". Most common epoxy resins are produced from a reaction between epichlorohydrin and bisphenol-A. Credit for the first synthesis of bisphenol-A based epoxy resins is shared by Dr. Pierre Castan of Switzerland and Dr. S.O. Greenlee in the United States in 1936. Dr. Castan's work was licensed by Ciba, Ltd. of Switzerland and Ciba went on to become one of the 3 major epoxy resin producers worldwide. The epoxy business of Ciba was spun-off and later sold in the late 1990s and is now the advanced materials business unit of Huntsman Corporation of the United States. Dr. Greenlee's work was for the firm of Devoe-Reynolds of the United States. Devoe-Reynolds was a player in the early days of the epoxy resin industry, later selling its business to Shell Chemical.



The applications for epoxy based materials are extensive and include coatings, adhesives and composite materials such as those using carbon fiber and fiberglass reinforcements. The chemistry of epoxies and the range of commercially available variations allows cure polymers to be produced with a very broad range of properties. In general, epoxies are known for their excellent adhesion, chemical and heat resistance, good to excellent mechanical properties and very good electrical insulating properties, but almost any property can be modified (for example silver-filled epoxies with good electrical



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conductivity are available, although epoxies are typically electrically insulating).

Epoxy adhesives are a major part of the class of adhesives called "structural adhesives" or "engineering adhesives" (which also includes polyurethane, acrylic, cyanoacrylate, and other chemistries.) These high performance adhesives are used in the construction of aircraft, automobiles, bicycles, golf clubs, skis, snow boards, and other applications where high strength bonds are required. Epoxy adhesives can be developed that meet almost any application. They are exceptional adhesives for wood, metal, glass, stone, and some plastics. They can be made flexible or rigid, transparent or opaque/colored, fast setting or extremely slow. Epoxy adhesives are almost unmatched in heat and chemical resistance among common adhesives. In general, epoxy adhesives cured with heat will be more heat- and chemical-resistant than when cured at room temperature. Epoxies are sold in hardware stores, typically as two component kits.

