

Araldite[®] GY 282

An Unmodified Bisphenol F Epoxy Resin

General

Araldite GY 282, alone or blended with epoxy resins based on bisphenol A or bisphenol A/F in combination with polyamine hardeners, is recommended for solvent-free coatings, impregnation's, floorings and trowelling compounds applied to steel and concrete substrates. Also, when combined with aromatic diamines, GY 282 is suitable for advanced composite applications manufactured through RTM filament winding.

The reactivity of formulations of Araldite GY 282 corresponds roughly to that of unmodified bisphenol A epoxy resins.

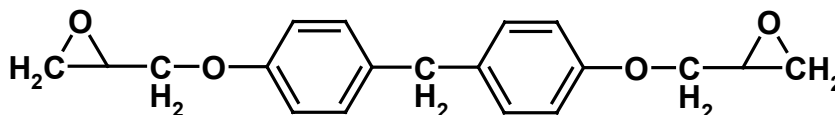
The chemical resistance of systems based on Araldite GY 282 is similar to that of liquid bisphenol A epoxy resins, and considerably better than that of resins modified with reactive diluents.

Under adverse storage conditions, Araldite GY 282 may crystallize. The crystallization can be reversed by heating the resin to 40°C while stirring. Araldite GY 282 is miscible in all proportions with other epoxy resins. Addition of at least 25% of bisphenol A epoxy resin or of epoxy phenol novolac will practically eliminate the tendency to crystallize. Araldite GY 282 is sanctioned by FDA 175.300 CFR for contact with food.

Chemical Description

Araldite GY 282 is a diglycidylether of bisphenol F.

Chemical Structure



Applications

Advanced composite structures
Adhesives
Resin transfer molding
Filament winding

Advantages	Low viscosity Higher functionality than bisphenol A epoxy resins Excellent chemical resistance Outstanding resistance to solvents Excellent mechanical properties Good flexibility
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Typical Properties*	Visual Appearance Color, Gardner, max Epoxy Equivalent, g/eq. Viscosity @ 25°C (77°F), mPa s (cPs) Density @ 25°C (77°F), g/cm ³ (lb/gal.) Flash Point, Closed Cup, °C (°F)	Clear, no contamination 0 - 5 166 - 176 3,000 - 4,000 1.18 (9.8) >93 (>200)
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* Typical properties are based on Huntsman's test methods. Copies are available upon request.

Formulations	Mix Ratios for Coating Applications	
	Components	Parts by weight
Araldite GY 282	100	100
Aradur™ 837	40	-
Aradur 2963	-	50
Viscosity @ 25°C (DIN 53015), cPs	3700	500
Gel time (TECAM®, 100mL, 20°C), min	25	40

All data for GY 282 / Aradur 5200 system described below are based on 100 / 26 pbw resin / hardener ratio. The system's properties can be tailored for specific applications by using a formulation approach.

Neat Resin Processing Characteristics

The GY 282 / Aradur 5200 mixture is a low viscosity liquid at room temperature. The viscosity of this system is less than 2500 centipoise at 25 °C. At this temperature, the low viscosity will be maintained for 24 hours. The mixture will advance slowly on heating. The gel time and viscosity curves of the system presented as a function of time and temperature in Table 1 and Figures 1, 2, 3 and 4 can be used to choose the appropriate processing and curing conditions.

Table 1

GY 282 / Aradur 5200
Gel Time at Various Temperatures

Temperature (°C)	100	120	140	160	177
Gel Time* (min.)	200	89	41	18	12

* Measured on hot plate

Figure 1

GEL TIME vs. TEMPERATURE

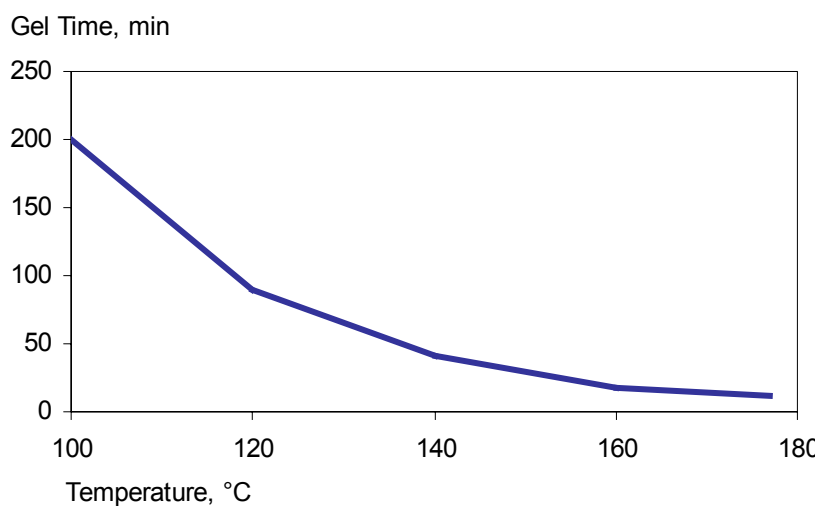


Figure 2

VISCOSITY PROFILE

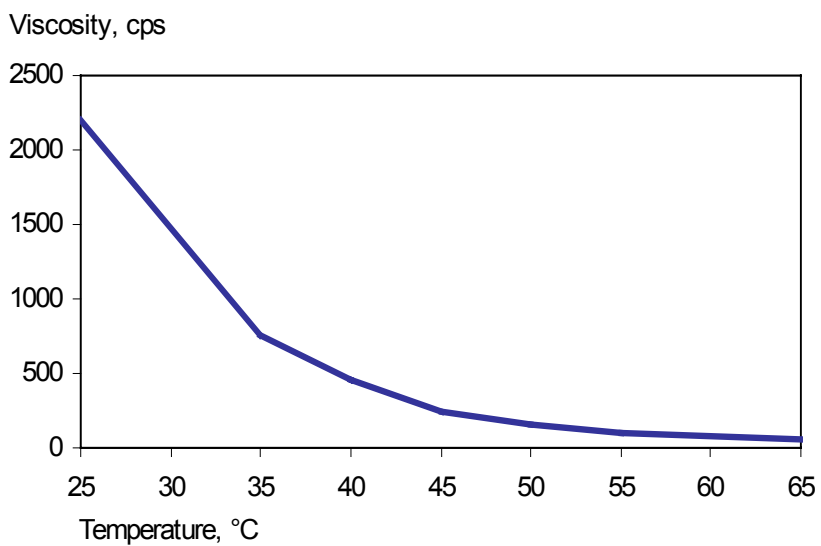


Figure 3

POT LIFE AT TEMPERATURE

Viscosity, cps

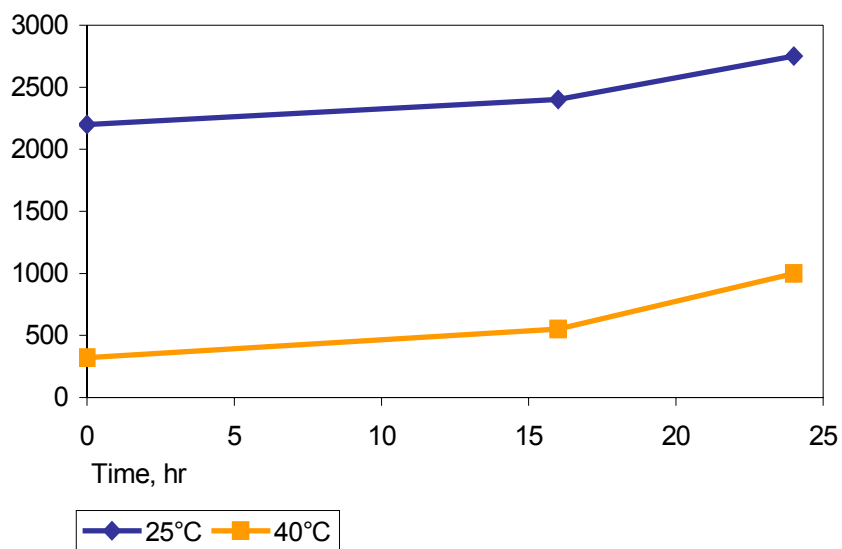
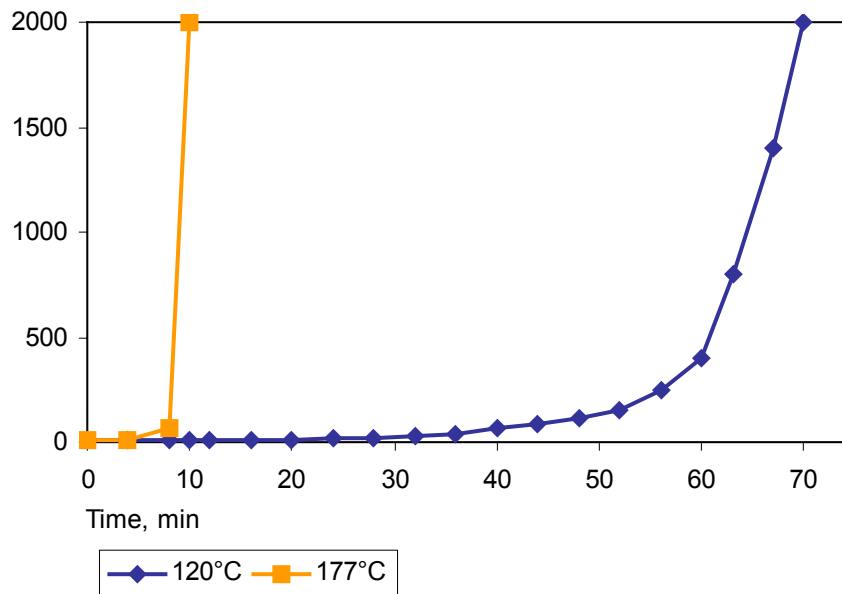


Figure 4

PROCESSING WINDOW AT TEMPERATURE

Viscosity, cps



**Formulations
(continued)****Cured Neat Resin Properties**

Curing Schedule, time / °C 1hr / 120 + 3hr / 177

Glass Transition Temperature

DMA DRY, °C 147

DMA WET,* °C 133

Testing Conditions 25°C 80°C**Tensile test**

Tensile Strength, ksi (MPa) 12.1 (83.5) 6.9 (47.6)

Tensile Modulus, ksi (GPa) 430 (3.0) 322 (2.2)

Elongation, % 7.5 4.7

Flexural Test

Flexural Strength, ksi (MPa) 15.8 (109) 11.1 (76.6)

Flexural Modulus, ksi (GPa) 360 (2.5) 293 (2.0)

* The sample was immersed in boiling water for 2 days.

FDA Status

Araldite GY 282 is included in Section 175.300 of the Code of Federal Regulations (21 CFR 175.300).

Packaging & Storage

Araldite GY 282 is available in 484 pound steel drums. This material should be stored at room temperature in the original sealed containers (actual expiration date appears on the label).

**Handling/Safety
Precautions****Warning! Causes irritation. May cause allergic skin reaction.**

Avoid contact with eyes, skin or clothing.

Avoid breathing vapor, mist or spray.

Use with good ventilation.

Wash after handling.

Store in cool, dry area in closed containers.

**Read Material Safety Data Sheet Before Using.
For Industrial Use Only.**

First Aid**In case of contact:****Eyes:** Immediately flush with water for at least 15 minutes.**Skin:** Promptly wash thoroughly with mild soap and water.**Inhalation:** Remove to fresh air. Give oxygen if breathing is difficult.**Ingestion:** If conscious, give plenty of water and get immediate medical attention.

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Note

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