

## Araldite® CY 8043 Resin

### Product Description

Araldite® CY 8043 is a brominated epoxy resin that can produce a flame-retardant casting for electrical and electronic engineering applications.

### Applications

- Filament winding
- Casting/encapsulation
- Wet lay-up laminate
- Adhesives

### Features

- Low viscosity
- High bromine
- Flame retardant
- Good mechanical and electrical properties
- High filler loading

### Typical Properties\*

Property	Value
Appearance	Yellow to light brown
Color, Gardner, max	5
Viscosity @ 25°C, cP	3000 - 4000
Bromine content, eq./100g, %	23.0 – 26.0
Epoxy content, eq./100g, %	0.42 – 0.46
Flash point, closed cup, °C (°F)	>185 (366)
Epoxy equivalent weight, g/eq.	222 - 239

\*Properties are based on Huntsman test methods. Copies are available upon request

### Processing

In working with Araldite® CY 8043, the use of aliphatic polyamine hardeners (e.g. HY 956) would be avoided, due to high exothermic reaction which can liberate poisonous and corrosive gases.

Araldite® CY 8043 tends to crystallize. In order to work with the resin in a satisfactory manner, it should first be heated to 60°C and any crystals present should be dissolved by stirring. Work may commence directly after this operation or also after cooling to room temperature.

In working with Araldite® CY 8043, the use of aliphatic polyamine hardeners is not recommended, since even in relatively small amounts an unusual heat of reaction is liberated which causes poisonous and corrosive gases. The most commonly used hardeners for Araldite® CY 8043 are amines and anhydrides but other hardeners are suitable.

In order to obtain the optimum mechanical and electrical properties, a short cure period at 50 - 60°C is recommended.

The addition of fillers can limit the exothermic heat of reaction, even with large moldings. Small quantities can be processed at 50 - 60°C, respectively, poured into pre-heated molds and gelled. This method results in more efficient mold utilization.

When working with Araldite® CY 8043 and Hardener HY 905, it is necessary, for most applications, to add the Accelerator DY 062 (0.5 - 2.0 pbw). It is possible to achieve hardening at lower temperatures with less shrinkage. The amount of accelerator depends on the desired pot life, processing requirements and conditions, such as available mold time.

First, mix thoroughly Araldite® CY 8043 and Accelerator DY 062. Subsequently, the hardener as well as other possible components, such as fillers, are added and mixed thoroughly. This sequence must be adhered to in order to avoid failures.

The addition of mineral fillers such as quartz powder, microdol, powdered chalk, etc., have proven advantageous. The following are the advantages of using fillers:

- Less shrinkage and less exothermic reaction during hardening
- Low thermal coefficient of expansion
- High thermal conductivity
- High modulus of elasticity but lower breaking tension
- Lowest casting compounds

### Mix Ratio

Product	System 1, pbw	System 2, pbw
Araldite® CY 8043	100	100
Hardener Lancast A	35	-
Hardener HY 905	-	80
Accelerator DY 062	-	1

### Processing Data

Parameter	System 1	System 2
Typical cure cycle		
@ 25°C	24 - 36 h	-
@ 40°C	10 - 12 h	-
@ 60°C	2 - 6 h	-
@ 80°C	-	4 h
@ 120°C	-	10 h
Starting Viscosity, cP,		
@ 25°C	1000 - 2000	600 - 900
@ 40°C	400 - 600	-
@ 60°C	-	50 - 100
@ 80°C	-	30 - 60
Pot life, min		
@ 25°C	127	-
@ 40°C	61	1
@ 60°C	-	3.5 - 4.5
@ 80°C	-	0.75 - 1.25
Maximum exotherm of 100 g mixture from 25°C	50°C	-

NOTE: The minimum or optimum conditions for curing are best determined by running tests with the actual object, whereby the heat-up time for each batch of compound must be noted. In order to avoid internal stresses (dependent upon the accelerator amount), first reach 100°C, then cure completely at higher temperatures.

### Typical Physical and Electrical Properties

Unless otherwise stated, the data were determined with typical production batches using standard test methods. They are typical values only, and do not constitute a product specification.

Property	System 1	System 2
Tensile strength @ 25°C (max) N/mm <sup>2</sup>	35 - 45	40 - 80
Tensile strength @ 25°C (fail) N/mm <sup>2</sup>	70 - 75	85 - 90
Dissipation factor, tan, 50 Hz		
@ 23°C	1.5 - 1.7%	0.3 - 0.5%
@ 40°C	6 - 7%	0.3 - 0.5%
@ 50°C	11 - 13%	0.3 - 0.5%
@ 60°C	-	-
@ 80°C	-	1.0 - 1.2%
@ 100°C	-	6 - 8%
Dielectric constant, 50 Hz		
@ 23°C	3.6 - 3.8	3.3 - 3.5
@ 40°C	4.2 - 4.4	3.3 - 3.5
@ 50°C	5.0 - 5.2	3.4 - 3.6
@ 60°C	5.9 - 6.1	-
@ 80°C	-	3.5 - 3.7
@ 100°C	-	3.8 - 4.0

### Storage

**Araldite® CY 8043** is supplied in 55 pound steel drums, and should be stored in a dry place in its original sealed container at room temperature. Under these storage conditions, the product has a shelf life of **1 year** (from date of manufacture). The product should not be exposed to direct sunlight.

### Precautionary Statement

Huntsman Advanced Materials Americas LLC maintains up-to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

#### **First Aid!**

Refer to SDS as mentioned above.

**KEEP OUT OF REACH OF CHILDREN**

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