

# Araldite<sup>®</sup> GY 281 Resin

## Product Description

Araldite<sup>®</sup> GY 281 is an unmodified, low viscosity bisphenol F epoxy resin. Due to its higher functionality of 2.1, Araldite<sup>®</sup> GY 281, combined with an appropriate hardener, can be formulated in high performance, corrosion and chemical resistant systems.

## Applications

- Storage tanks
- Chemical manufacturing and Food processing plants
- Pipes
- Industrial flooring
- Adhesives
- Electrical
- Petroleum refineries
- Pollution control equipment
- Offshore drilling rigs
- Waste disposal
- Ships and barges
- Pulp and paper mills
- Composites

## Features

- Low viscosity
- Higher functionality than bisphenol A epoxy resins
- Excellent chemical resistance
- Outstanding resistance to solvents
- Excellent mechanical properties
- Good flexibility

### Typical Properties\*

Property	Value
Appearance	Clear, no contamination
Color, Gardner, max	4
Hydrolyzable chlorine, ppm max	1000
Epoxy equivalent, g/eq	159 - 172
Viscosity @ 25°C, cP	5000 - 7000
Density @ 25°C, g/cm <sup>3</sup>	1.2 (10.0)
Flash point, closed cup, °C (°F)	>93 (>200)
Volatile content, %, max	0.3

\*Typical properties are based on Huntsman's test methods. Copies are available upon request.

### Processing

#### Mix Ratios

Product	Formulation 1	Formulation 2	Formulation 3
Araldite® GY 281 Resin, pbw	100	100	100
Aradur® 837 Hardener, pbw	38	-	-
Aradur® 943 Hardener, pbw	-	23	-
Aradur® 2964 Hardener, pbw	-	-	57

#### Processing Data

Product	1	2	3
Mix viscosity @ 25°C, cP	3230	4450	460
Gel time, 100 mL, 20°C, min	15	11	23

### Typical Physical 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.

Unless different specifications are given, the film properties shown below were determined on a substrate of pickled steel sheet @ 20°C, 65% R.H., with film thickness of 8 mils.

Property	1	2	3
Dust-dry time (Landolt), h	*	*	4
Full-cure time (Landolt), h	4	5	8
Surface flow	Good	Good	Good
Film surface after curing	Isolated Craters**	Smooth	Isolated craters**
Exudation	Slightly Tacky	Tacky	None
Persoz hardness, sec after			
1 day 20°C, 65% R.H	330	85	240
7 days 20°C, 65% R.H	360	220	315
28 days 20°C, 65% R.H	360	280	330
1 day 5°C, 50% R.H	140	75	15
7 days 5°C, 50% R.H	275	95	170
28 days 5°C, 50% R.H	220	75	245
Erichsen distensibility (DIN 53156), mm after			
4 weeks 20°C, 65% R.H	2 - 4	1 - 3	4 - 7
4 weeks 60°C, 65% R.H.	4 - 5	3 - 5	5 - 7
Mandrel bend test (15mm Mandrel), after 4 weeks 20°C, 65% R.H	Moderate	Poor	Good
Adhesion <sup>†</sup>	Good	Good	Moderate
Boiling water test, <sup>†</sup> 6 h @ 96°C, film thickness 16 mils	Good	Loss of gloss	Affected
Kesternich test, <sup>†</sup> (DIN 50018) 200 h	Good	Loss of gloss	Good
Salt spray test, <sup>†</sup> (ASTM B 117-64) 1000 h	Good	Loss of gloss	Good

\*Time could not be measured accurately as film exhibited slight surface tackiness

\*\*Cratering of film surface can be prevented by adding a suitable flow agent or pigment

<sup>†</sup>Performed on sandblasted steel and cured for 7 days @ 20°C, 65% R.H.

### Chemical Resistance\*

Test Duration, months	¼	½	1	2	3	4	5	6	7	8	9	10	11	12
<b>Formulation 1</b>														
Sulfuric acid, 50%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sulfuric acid, 70%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hydrochloric acid, conc.	+	+	+	A	A	A	A	A	A	A	A	A	A	A
Acetic acid, 50%	D													
Caustic soda, 30%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ammonia, conc.	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Methanol	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethanol, 50%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ethanol, 96%	A	A	D											
Xylene	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<b>Formulation 2</b>														
Sulfuric acid, 70%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hydrochloric acid, conc.	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Methanol	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ethanol, 96%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<b>Formulation 3</b>														
Sulfuric acid, 50%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sulfuric acid, 70%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hydrochloric acid, conc.	+	+	+	A	A	A	A	D						
Acetic acid, 50%	D													
Caustic soda, 30%	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ammonia, conc.	+	+	+	A	A	A	D							
Methanol	D													
Ethanol, 50%	+	+	+	D										
Ethanol, 96%	A	A	D											
Xylene	+	+	+	+	+	+	+	+	+	+	+	+	+	+

\*Immersion at 20°C; Substrate: Steel, sandblasted; Film thickness: 16 mils; Cure prior to testing: 7 days @ 20°C/65% RH.

+ = resistant, A = attacked, D = destroyed

### FDA Status

Araldite® GY 281 is included in Section 175.300 of the Code of Federal Regulations (21 CFR 175.300).

### Storage

**Araldite® GY 281 Resin** is supplied in 484 pound steel drums. It should be stored in a dry place, in the sealed original container, at temperatures between 18°C and 40°C (64°F and 104°F). Under these storage conditions the shelf life is **6 years** (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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