

# Starting Formulation

## SF 8024

### Resin System for Closed Molding EPON™ Resin 828 / EPIKURE™ Curing Agent 9552

**Introduction** EPIKURE Curing Agent 9552 is a fast, room-temperature curing, low viscosity liquid, aliphatic amine. Resins cured with EPIKURE Curing Agent 9552 produce outstanding toughness characteristics.

- Suggested Uses**
- Composites
  - Coatings
  - Structural Adhesives
  - Tooling
  - Civil Engineering

- Features**
- Low viscosity
  - Good chemical resistance
  - Low color
  - Excellent toughness
  - Good mechanical properties

Formula	Material	Supplier	Pounds	Gallons
	EPON Resin 828	Hexion	100	10.3
	EPIKURE Curing Agent 9552	Hexion	<u>26</u>	<u>3.2</u>
		Total	126	13.5

**Typical Formulation** Table 1 / Typical Formulation Properties Properties

	Method	Units	Value
<b>EPON Resin 828</b>			
Epoxy Equivalent Weight	D-1652	eq/g	185-192
Viscosity @ 25 °C	D-445	P	110-150
Color	D-1544	Gardner	1 max.
<b>EPIKURE Curing Agent 9552</b>			
Amine hydrogen equivalent weight, AHEW			48
Viscosity @ 25 °C	D-2196	cP	120-280
Color	D-1544	Gardner	1 max.
Density		lbs/gal	8.175
Mix ratio, parts by wt/100 parts resin			25.7

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The physical characteristics of the resin/curing agent system are provided in Table 1. The high reactivity of this curing agent provides fast cure cycles in a variety of end-use applications. EPIKURE 9552 can also be used as an accelerator with slower amine curing agents.

Typical Handling Properties Table 2 / Curing Agent/Resin System Physical Characteristics

	<u>Units</u>	<u>Value</u>
EPON Resin 828	pbw	100
EPIKURE Curing Agent 9552	pbw	25.7
Viscosity at 25°C	cP	4,200
Pot Life @ 25 °C, 200 gm	min.	12
Gel Time @ 180 °F, Hot plate, 5 cc.	sec.	130

Typical Cured State Properties The physical properties of neat resin castings made with EPIKURE Curing Agent 9552 are provided in Table 2. Physical properties vary according to curing agent/resin ratio. By varying the mix ratio, the properties can be tailored to suit the application requirements. In general, curing agent levels less than 100% of the theoretical stoichiometry resulted in higher thermal properties; levels greater than theoretical stoichiometry improved fracture toughness values.

Typical Cured State Properties Table 3 / Neat Resin Casting Properties of EPON Resin 828 Cured with EPIKURE Curing Agent 9552 (Cured 24 hrs. @ RT + 2 hrs. @ 121°C)

	<u>Units</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
% of theoretical stoichiometry		85	92.5	104	117
Parts by wt./100 parts resin		21.6	23.6	26.8	30.2
Mix ratio by wt., (Resin:CA)		4.63 : 1	4.24 : 1	3.73 : 1	3.31 : 1
Mix ratio by vol., (Resin:CA)		3.9 : 1	3.56 : 1	3.14 : 1	2.79 : 1
Tg by Rheometric	°C	119	119	102	94
HDT	°C	103	101	93	84
Tensile Strength, at break	psi	9,400	10,000	9,100	9,100
Tensile Elongation	%	9.9	9.1	8.7	8.7
Tensile Modulus	ksi	376	405	457	457
Fracture Toughness, Kq	psi-in <sup>1/2</sup>	1133	1154	1585	1585

Composite Mixing – A standard mixer is or agitator may be used to mix this system. Thorough mixing is important. The high reactivity of this system at room temperature requires short mixing times and discourages the use of heat to lower the viscosity.

Storage Recommendations regarding storage conditions can be obtained by visiting our web site at [www.hexion.com](http://www.hexion.com)

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