



connora

Recyclamine® R3101 Curing Agent

**RECYCLAMINE® R3101 HPRTM Curing Agent
(FOR USE WITH STANDARD LIQUID EPOXY RESINS)**

Product Overview

RECYCLAMINE® 3101 HPRTM is a low-viscosity recyclable amine curing agent for use with Connora's E2930 epoxy resin, or any liquid epoxy resins suitable for high pressure resin transfer molding processes. Resulting formulations have excellent wetting and adhesion to glass and carbon fiber.

Benefits include low viscosity during infusion (2min <100 cps @ 100 oC), short cure cycles, and fast demolding (e.g. 2 min @ 140 oC).

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WHY CHOOSE Recyclamine®

Zero-Landfill Manufacturing:

Composite manufacturing waste can be recycled, and re-integrated back into the composites supply chain. Reduce landfill costs, and improve product margins.

Create Downstream Value:

Connora Recycling uses a low energy, solution-based process that allows both the resin and fiber reinforcements to be reclaimed in a high quality, virgin-like state, preserving performance and value.

Cradle-To-Cradle Solution:

Composite products made with Recyclamine® are fully recyclable through Connora Technologies.

Recommended HP-RTM Mold Temperature/Demold Time*

Mold Temperature	Demold Time
140 °C	2.5 min
125 °C	5 min
100 °C	12 min

* Resin temperature = 60 °C; Curing agent temperature = 30 °C; Injection time = 20 sec

Key Properties in an HP-RTM Tool

Recyclamine® R3101 Curing Agent with standard DGEBPA Epoxy Resin (ie, Epon 828)

Mix Ratio (parts by weight)		
Epon 828 Liquid Epoxy Resin		100
Recyclamine R1101		21.5
Mixed Viscosity		
2 min @ 100 °C		<100 cps
Gel time @ 140 °C Mold Temperature @ 2.2 mm thickness		
Resin/Curing Agent Temp = 60°C / 30 °C		35 sec
Resin/Curing Agent Temp = 80°C / 40 °C		26 sec
Mechanical Properties – U.D. 2.2 mm*, Carbon Fiber Laminate		
Demold Time**		2.5 min
Carbon Fiber Volume Content		46.6%
Demold Tg	DSC	88 °C
90° Tensile Strength, psi (MPa)	DIN EN 2561	61.1 MPa
90° Tensile Modulus, psi (GPa)	DIN EN 2561	8.1 GPa
0° Tensile Strength, psi (MPa)	DIN EN 2597	1493.4 MPa
0° Tensile Modulus, psi (GPa)	DIN EN 2597	117.8 GPa
0° Compression Strength	DIN EN 14126	786.5 MPa
0° Compression Modulus	DIN EN 14126	101.8 GPa
0° Flexural Strength	DIN EN ISO 14125	1115.4 MPa
0° Flexural Modulus	DIN EN ISO 14125	102.0 GPa
90° Flexural Strength	DIN EN ISO 14125	94.8 MPa
90° Flexural Modulus	DIN EN ISO 14125	8.8 GPa

*300 GSM SGL Fabric **Mold Temp = 140°C, Resin temperature = 60°C; Curing agent temperature = 30°C; injection time = 20 sec



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TDS Version:
TDS_R3101_170320.05
JUNE 2017

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Recommended Cure Cycles

The suggested curing temperature range for Recyclamine® R3101 is between 20-120 °C.

Safety and Handling

Recyclamine® hardeners are amine derived curing agents, as such they to be treated as a corrosive and an inhalation hazard. All persons who use, store, or transport these materials should properly understand the handling precautions and recommendations as stated in the MSDS.

Industrial Recycling

Recycling is performed using a low energy, solution-based process. Process can be performed by end user in specialized equipment. Outputs of the recycling process are: an epoxy thermoplastic and all constituent components in a near virgin state including reinforcements.

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