

Starting Formulation

SF 4014 Epoxy Adhesive 828 61 3125 Epoxy Adhesive for Polyolefin, Polyester and Thermoplastic

EPON™ Resin 828 / HELOXY™ Modifier 61 / EPIKURE™ Curing Agent 3125

Introduction This solventless epoxy adhesive develops high peel strength to many difficult-to-bond substrates such as polyethylene, thermoplastic rubber and polyester films like Mylar and Celanar. Effective cure temperatures range from normal room temperature to 150 °C. A convenient 1:2 by volume combining ratio is provided.

Suggested Uses

- Improved bonding to non polar thermoplastics such as polyolefins (flame or corona surface treatment recommended for best results), Thermoplastic Elastomers and Thermoplastic Polyesters. Adhesion is also good with metals, ceramics, glass, wood and polar thermoplastics such as polystyrene, ABS and polycarbonate.

Features

- Enhanced adhesion to olefins, TPE's and thermoplastic polyester such as PET and PBT
- Convenient 1:2 mix ratio by volume
- Large cure temperature range: Room Temperature to 150°C

Formula	<u>Material</u>	<u>Supplier</u>	<u>Pounds</u>	<u>Gallons</u>
Part A				
	EPON Resin 828	Hexion	80.0	8.25
	HELOXY Modifier 61	Hexion	20.0	2.58
	Silquest® A-172	OSI Specialties	<u>3.0</u>	<u>0.35</u>
	Total A		103.0	11.18
Part B				
	EPIKURE Curing Agent 3125	Hexion	<u>180.0</u>	<u>22.36</u>
	Total B		180.0	22.36
	Total Part A & B		283.0	33.54

Typical Handling Table 1 / Handling Properties Properties

	<u>Units</u>	<u>Value</u>
Resin : Curing Agent mix ratio	by weight	4 : 7
	by volume	1 : 2
Expected Working Life @ 25°C, 1 quart mass	hrs	3

Generated: October 19, 2021
 Issue Date:
 Revision:

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Form / Viscosity		
Part A @ 25°C	cP	200
Part B @ 40°C	cP	10,000
Blend @ 25°C	cP	6,900

Application Instructions For optimum adhesion, polyester surfaces should be solvent wiped with a clean cloth prior to bonding. Apply the adhesive by brush, roll coating or knife coating. Polyolefin surfaces should be flame treated.

Cure Schedule Room Temperature: 2-3 days @ 77°F. Handling strength is achieved overnight. Or Elevated Temperature: Adhesive can be heat cured to shorten cure time. Maximum cure temperature should not exceed 300°F.

Typical Cured State Properties Table 2 / Adhesive Properties – Various Substrates ¹

Test Property	Substrate	ASTM	Units	Value
T-Peel Strength @ 25°C, width		D-1876		
Cured 20 minutes @ 93°C	Polyethylene to Aluminum		lb/inch	23 -24
Cured 20 minutes @ 93°C	Polyethylene to Thermoplastic Rubber		lb/inch	8.8
Cured 16 hours @ 25°C	Polypropylene to Aluminum		lb/inch	12
90° Peel Strength @ 25°C, width				
Cured 20 minutes @ 93°C	Polyester to Aluminum		lb/inch	9.1
Cured 20 minutes @ 150°C	Polyester to Aluminum		lb/inch	8.9

¹ Polyethylene and polypropylene adherends were 0.06 inch thick and flame treated. Thermoplastic rubber

adherends were

0.125 inch thick and bonded as supplied. Aluminum adherends were acid etched 0.02 inch thick 2024-T alloy.

Polyester

adherends were acetone wiped 0.01 inch thick Celanar film.

Storage Recommendations regarding storage conditions can be obtained by visiting our web site at www.hexion.com

General Information

These are starting formulations and are not proven in the user's particular application but are simply meant to demonstrate the efficacy of the products and to assist in the development of the user's own formulation. It is the user's responsibility to fully-test and qualify the formulation, along with the ingredients, methods, applications or equipment identified herein ("Information"), by the user's knowledgeable formulator or scientist, and to determine the appropriate use conditions and legal restrictions, prior to use of any Information.

Safety, Storage & Handling

Please refer to the MSDS for the most current Safety and Handling information.

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these materials should be used, stored, or transported until the handling precautions and recommendations as stated in the Material Safety Data Sheet (MSDS) for these and all other products being used are understood by all persons who will work with them. Questions and requests for information on Hexion Inc. ("Hexion") products should be directed to your Hexion sales representative, or the nearest Hexion sales office. Information and MSDSs on non-Hexion products should be obtained from the respective manufacturer.

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