Starting Formulation

SF 4029 One-Package Temperature Adhesive 828 One-Package High Temperature Adhesive

EPON™ Resin 828

Introduction This one-package adhesive, properly formulated, can yield a pot life of approximately one year at 25 °C. It exhibits high tensile shear strength at temperatures from -57° to 149 °C. Test data projects compliance with the requirements of military specification MIL-A-8623, Type III Adhesive.

Suggested Uses Primarily applications which require retention of adhesive properties at elevated temperatures up to 149 °C (300 °F), especially with metals, ceramics and high performance composite materials.

Features

- Long shell life, approximately one year at 25 °C
- High tensile shear strengths over a wide temperature range, -7 to 149 °C
- Properly formulated, should meet requirements for military specification MIL-A-8623, Type III Adhesive

Formula

Material	Supplier	Pounds	Gallons
Formulation			
EPON Resin 828	Hexion	100.00	10.31
Dicyandiamide	SKW Corp.	10.00	0.86
Bentone 27	Rheox, Inc.	5.00	0.35
Methanol	Hoechst Celanese Corp.	1.67	0.25
Aluminum Powder #120	Reynolds Metals Co.	50.00	2.22
	Total	166.67	13.99

Mixing Instructions Prewet Bentone 27 with methanol. Combine all materials and pass three times over a three roll mill.

Typical Handling Properties Table 1 / Handling Properties

	Units	Value
Initial Viscosity		Thixotropic Paste
Density	lbs/gal	11.91
Expected Pot Life at 25 °C	yrs	1
Cure Schedule		1 hr @ 149°C

Application Instructions Surfaces to be bonded should be free of dirt, oil, grease, and other contaminants. The best cleaning procedures for metals are sandblasting and acid etching. For many applications vapor degreasing is the only practical method. Coat surfaces to be bonded

and press together lightly; contact pressure is sufficient to develop maximum bond strength. Cure the adhesive for a minimum of one hour at 149 °C. Shorter cure periods at temperatures of up to 204 °C can also be employed.

Typical Adhesive Properties

Table 2 / Adhesive Properties [1]

Test Temperature	Type Break	Tensile Shear Strength
-57 °C	Cohesive	2,600
25 °C	Cohesive	2,900
82 °C	Cohesive	3,340
149 °C	Cohesive/Adhesive	1,050

[1] Values were obtained using acid-etched aluminum coupons and a cure schedule of one hour at 149°. Higher strengths would be expected on a cure schedule of one hour at 177 °C. The data meets the requirements for a Type III Adhesive under Military Specification MIL-A-8623. Tensile shear specimens heat aged 200 hours at 149 °C exhibit no significant loss of bond strength.

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.

Contact Information

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