



GR9810-1PF

September 2011

PRODUCT DESCRIPTION

GR9810-1PF provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Cure	Heat cure
Product Benefits	<ul style="list-style-type: none"> • Green product • Advanced warpage control • Long spiral flow • Excellent room temperature working life • Low shrinkage • High Tg • Excellent dimensional stability
Filler Weight, %	86
Filler Type	Spherical
Typical Package Application	POP and SCSP
Application	Molding compound
Flammability	94 V-0

GR9810-1PF is a state of the art epoxy molding compound developed to meet the stringent encapsulation requirements of package on package (POP and SCSP). It significantly increased beyond that of standard green compound chemistry. GR9810-1PF meets UL 94 V-0 Flammability at 6.35mm thickness.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Gel Time @ 177 °C, seconds	40
Spiral Flow, @ 177°C, cm	170
Shelf Life:	
@ 5°C, months	12
Particle Size, µm, maximum	45

TYPICAL PROCESS DATA

Handling

Preheat Temperature :	
Automold, seconds	0 to 3
Molding Temperature, °C	175
Molding Pressure, Kg/cm ²	90
Transfer Time:	
Conventional mold, seconds	15 to 20
Automold, seconds	4 to 12
Curing Time, 3 mm section:	
Conventional mold:	
@ 175°C, seconds	70 to 90
Automold:	
@ 175°C, seconds	50 to 70
Post Cure @ 175°C, hours	4

GR9810-1PF has been formulated to provide the best possible moldability and as wide a molding latitude as possible. Although molding and curing conditions will vary from situation to situation, recommended starting ranges are shown above.

TYPICAL PROPERTIES OF CURED MATERIAL

All measurements taken at 25 °C unless otherwise noted. All physical, electrical and analytical measurements taken on specimens cured for 2 minutes @ 175°C with post cure of 6 hours at 175 °C, unless otherwise specified.

Physical Properties:

Coefficient of Thermal Expansion, cm/°C :	
Below Tg	11×10 ⁻⁶
Above Tg	40×10 ⁻⁶
Glass Transition Temperature (Tg) by TMA, °C	184
Specific Gravity	1.95
Molded shrinkage, as molded, %	0.15
Flexural Strength Kg/mm² :	
@ Room Temperature	12.1
@ 240 °C	2
Flexural Modulus Kg/mm² :	
@ Room Temperature	2,100
@ 220 °C	230

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Powder Storage - Powder or preforms should be stored at 5°C or below, in closed containers. After removal from cold storage, the material MUST be allowed to come to room temperature, in the sealed container, to avoid moisture contamination. The suggested waiting time for a standard 22 Kg pail is 24 hours.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.



Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation and its affiliates ("Henkel") specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel products. Henkel specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

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