

RUF 1250

Reworkable Epoxy Underfill

Typical Properties			
Property	Unit	Value	Test Method
Color of Component		Green	Visual
Density	Gram /cc	1.5	ASTM D792
Viscosity at 25°C	cP.s	2,000 to 4,000	ASTM D2196
Property as Cured			
Color		Green	Visual
Young's modulus	GPa	5.0	DMA
Dielectric Constant	@1000Hz	3.5	ASTM D150
Dielectric Strength	Volt/mil AC	> 500	ASTM D149
Volume Resistivity	Ohm-cm	> 10E+14	ASTM D257
Coefficient of Thermal Expansion	ppm/C	98 (@ > Tg) 45 (@ < Tg)	IPC-TM-650
Adhesion (Al/Al lap shear)	Psi	1500	ASTM D1002
Rework Temperature	°C	210 to 220	UATM*
Tg	°C	115	DMA
Temperature Usage	°C	-80 to 150	TGA
Cure Profile			
Cure at 115°C	Minute	50	Durometer
Cure at 125°C	Minute	25	Durometer
Cure at 150°C	Minute	15	Durometer
Pot / Work Life at 25°C (after warmed up)	Hour	24	Viscosity double

These figures are only intended as a guide and should not be used in preparing specifications.
 *UATM – United Adhesives' Internal Test method

Characteristics

RUF 1250 is a reworkable epoxy underfill for electronic applications, such as under filling or encapsulating of chip-on-board, bare die, BGA, flip-chip, CSP, and other electronic components. It is a one-part, capillary flow formulation that cures at elevated temperature to provide strong bonding to silicon, flip chip, BGA, ceramics, FR4, LTCC, aluminum, copper, stainless steel, etc. For underfilling, it is recommended to warm the applied surface to ~ 105°C to promote faster capillary flow. The cured RUF 1250 underfill is reworkable by simply applying heat at local component to ~210 °C.

Special Features and Benefits

- Reworkable
- Capillary flow and fast flow
- High thermal stability
- High structural bonding strength
- 100% solid, no volatile, low bleeding,
- Low ionic content

Typical Applications

- Aerospace electronics
- Automotive electronics
- Semiconductor and Telecommunications
- Bonding of die to LTCC, Al, Cu
- Underfilling of BGA, Bare die, flip-chip, CSP
- Chip-on-board bonding / encapsulating

Rework Instruction

The substrate is first heated to ~125°C. The component (chip, die, BGA, etc) that is underfilled is then spot-heated to ~210°C to 220°C for 10 seconds. The component is mechanically removed away from the substrate by gently gripping, twisting, or shearing. Any residual solder and underfill are cleaned off the substrate by scratching, brushing, wiping, and/or air-blowing at hot. A solvent clean on the spot may be applied when the substrate is cooled down. Once the cleanup of the spot is complete, a new component can be aligned, bonded, reflowed, and underfilled. Some trials may be needed in order to optimize the conditions.

Storage

RUF 1250 has a shelf life of at least 6 months when stored in freezer (-40°C) in the originally sealed container. The 'Best use before end' date of each batch appears on the product label. Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons. In order to keep longer usage life, please always store the original or left material in freezer (- 40°C).

Safety information

General hygiene regulations should be observed. Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from United Adhesives, Inc.

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose. For technical, quality, or product safety questions, please contact directly to United Adhesives Inc.