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Provisional Data Sheet

Advanced Materials

RD 2007-516 Resin

Aradur® HW 8573 Hardener

SMALL MODULE EPOXY ENCAPSULATION SYSTEM

Description

Experimental product RD 2007-516 epoxy resin with Aradur® HW 8573 hardener is a two-part encapsulating system designed specifically for the potting of small modules and sensors.

Applications

Experimental product RD 2007-516 epoxy resin with Aradur® HW 8573 hardener has proven performance
in under-hood applications for the automotive industry .The system is also excellent for encapsulation of pressure-sensitive compounds. Main applications include:

Capacitors
Sealants
Modules

Features

Flexible epoxy
Excellent thermal cycling performance (-40ºC to 125ºC/-40ºF to 257ºF)
Convenient mix ratio
Low viscosity
Short cure cycle

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Typical Properties

	Test Values
RD 2007-516 Resin	
Appearance	Black paste
Viscosity, @ 25ºC (77ºF), cPs	
Spindle #5 @ 2 RPM	50,000 – 75,000
Specific gravity	1.40 – 1.50
Shelf life, months	12
Aradur® HW 8573 Hardener	
Appearance	Clear liquid
Viscosity, @ 25ºC (77ºF), cPs	
Spindle #5 @ 2 RPM	115 – 165
Specific gravity	0.95 – 1.05
Shelf life, months	12
Mixed	
Gel time @ 100ºC (212ºF), min.	20 – 35
Hardener, Shore A	65 – 75

Packaging & Storage Information

Because both products contain accelerating additives, avoid storing them for extended periods at elevated temperatures. Incorrect handling of the components can result in undesirable viscosity increase, change in reactivity, and substandard cured-state properties.

Store the components at 18-25°C (64-77ºF) in dry, if possible in a tightly sealed original container. Partly emptied containers should be closed tightly immediately after use. Contact Customer Service for packaging information.

System Preparation

Mix using meter-mix dispensing equipment or manually as follows:

Weigh the desired amount of resin into mixing container whose weight has been tared. If material has been heated, allow to cool to 25±5°C or 77±9°F before continuing. The pot life of mixed material will be shortened considerably if warm material is used.

Weigh the desired amount of hardener into mixing container with resin. Mix thoroughly by means of mechanical mixer for manual stirring. Check for uniform color as a sign of completed mixing.

Vacuum de-airing is recommended to remove any entrapped air from the mixing procedure. To de-air most of the product, 1-2 minutes under full vacuum is recommended for each quart of volume of mixed material. Quickly dispense potting material into cavity or channel to be sealed; be certain not to trap in air bubbles as viscosity builds.

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System Preparation continued

To reduce the cure time, the casting is often allowed to gel at room temperature and then post-cured 2-6 hours at 60-80°C (140-176ºF). Small castings can be processed and directly cured at slightly higher temperatures (40-60°C/104-140ºF). In case of humid environments (>75% relative humidity) it is advisable to effect a full cure in an oven at 40-60°C (104-140ºF) in order to prevent water absorption, leading to streaks on the surface of the castings.

Mix Ratios

	Parts by weight	Parts by volume
RD 2007-516 Resin	100	100
Aradur® HW 8573 Hardener	66	96

Processing Data

(Average Values)

	Test Values
Pot Life @ 25ºC (77ºF), time to double viscosity, hrs.	5 – 6
Initial viscosity @ 25ºC (77ºF), cPs	1,500 – 2,500
Recommended cure time @ 100ºC (212ºF), hrs.	1.5

Typical Physical Properties

Property	Test Values
Hardness, Shore A	
After 1 week heat aging @ 100ºC (212ºF)	70
After 1 week heat aging @ 125ºC (257ºF)	76
After 1 week heat aging @ 150ºC (302ºF)	76
Tg by TMA, ºC (ºF)	-16 (3.2)
Tensile strength at break, psi	650 – 750
After 1 week heat aging @ 100ºC (212ºF)	650 – 750
Elongation at break, %	110 – 120
After 1 week heat aging @ 100ºC (212ºF)	104
Tear strength, initial, psi	32
After 1 week heat aging @ 100ºC (212ºF)	38
Coefficient of thermal expansion, ppm/ºC	
Alpha 1	60 – 70
Alpha 2	100 – 120
Water absorption by weight, %	
After 24 hours at 25ºC (100ºF)	0.69
Thermal conductivity, W/m-k	0.29

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Typical Electrical Properties

Property	Test Values
Surface Resistivity, Ω	3.9×10^{13}
Volume Resistivity, Ω-cm	1.5×10^{12}
Dielectric Strength, V/mil	467
Dielectric Constant , 60 Hz	7.9
Dissipation Factor, 60Hz	0.075

Safety/Handling Precautions

Do not use or handle these products until the Material Safety Data Sheets have been read and understood.

RD 2007-516 Resin

WARNING! Can cause eye and skin irritation. May cause allergic skin reaction. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

Aradur® HW 8573 Hardener

DANGER! Corrosive - causes skin and eye burns. Harmful if swallowed, or if absorbed through skin. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Caution:

Huntsman Advanced Materials Americas Inc. maintains up–to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material. Copies of the latest MSDS may be requested by calling our customer service group at 888-564-9318 or emailing your request to electronics@huntsman.com.

FIRST AID!

Eyes and skin: Flush eyes with water for 15 minutes. Contact a physician if irritation persists. Wash skin thoroughly with soap and water. Remove and wash contaminated clothing before reuse. Destroy contaminated shoes.
Ingestion: If conscious, give plenty of water to drink. Do not induce vomiting. Call a physician.
Inhalation: Remove subject to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.
Other: Referral to a physician is recommended irf there is any question about the seriousness of any injury.

KEEP OUT OF REACH OF CHILDREN

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