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ISO 9001:2000

TECHNICAL INFORMATION

KALEX® 16324
Urethane Encapsulation System

PRODUCT DESCRIPTION

KALEX 16324 is a two–component, room temperature cure urethane system for potting and encapsulating applications. It's low viscosity, excellent thermal shock and electrical properties combined with excellent hydrolytic stability make it ideal for potting electronic power packs and other components used in outboard motors and other automotive or marine applications.

HOW TO USE

To obtain the best cured properties, accurate proportioning and thorough mixing are essential.

MIXING AND CURING SCHEDULE

The production of the desired polyurethane requires accurate measurement of the two components and adequate mixing. In general, hand-mixing small production runs is easily accomplished by weighing the two components. Machine mixing utilizes the volumetric ratio. Most machines are calibrated by weighing the components and adjusting the volume ratio. Larger volume hand mixing is easily controlled by filling pre-measured buckets to the indicated heights. The mix ratios are shown below.

Ratio	Part A	Part B
Parts by weight	100	170
Parts by volume	100	200

The cure schedule is dependent upon the temperature. The recommended cure schedule will vary with the desired properties. The recommended schedule to achieve the typical properties is shown below:

7 days at 25 °C (77 °F) OR
18 to 24 hours at 25 °C PLUS 2 hours at 80 °C (176 °F)

TYPICAL UNCURED PROPERTIES

	Part A	Part B	Mixed
Color	Dark Blue	Lt. Yellow	Green
Viscosity @ 25 °C, cps	2,800	700	1,500
Weight per Gallon, lbs.	9.5	8	8.5
Specific Gravity @ 25 °C	1.14	0.96	1.02
Gel time, minutes, 220 gm mass @ 25 °C	– – –	– – –	120
Filler Type	None	None	None
Shelf Life (in separate sealed containers), months	6	12	– – –

TYPICAL CURED PROPERTIES
(Tested at 25 °C unless otherwise indicated)

Test	Result
Hardness, Shore A	55
Tensile Strength, psi	300
Tensile Modulus @ 100%, psi	273
Elongation, %	105
Tear Strength, pli	29
Linear Shrinkage, in./in.	0.0069
Water Absorption, % Weight Gain After:	
24 hours Immersion	0.21
7 days immersion	0.42

TYPICAL THERMAL PROPERTIES

Test	Result
Heat Distortion Temperature, °C	< 25
Coefficient of Linear Thermal Expansion, in./in./ °C (+30 to 90 °C)	188×10^{-6}
Thermal Conductivity, cal. x cm./sec. x cm² x °C	3.6×10^{-4}
Recommended Service Temperature	90 °C

TYPICAL ELECTRICAL PROPERTIES

Dielectric Constant

Test Temperature, °C	100 Hz	1000 Hz	100 kHz
25	6.19	4.74	3.2
100	5.46	5.09	4.8

Dissipation Factor

Test Temperature, °C	100 Hz	1000 Hz	100 kHz
25	0.144	0.18	0.073
100	3.87	0.46	0.039

Volume Resistivity, ohm–cm

Test Temperature, °C	
25	8.30×10^{11}
105	2.70×10^{9}

Dielectric Strength, Volts/mil 380

STORAGE AND HANDLING

These materials should be stored in a dry environment within a moderate temperature range. Extended exposure to temperatures above 35°C begins to degrade the Part A. Avoid exposing either component to moisture.

Moisture reacts with the A-side to create minor levels of by products. Low levels will not degrade the final polyurethane. Moisture contamination of the B-side will cause some gas

bubbles in the cured product. Purge the container with dry air before closing to maintain the storage life.

When using meter-mixed dispense equipment (MMD), blanket the reservoir with nitrogen or dry air to avoid moisture and other contamination.

Avoid contamination with oxidized metals (such as copper, brass, or mild steel), and rust or other metal oxides. The stability of the product is greatly reduced by materials such as strong acids or bases, sulfur compounds, amines, or reducing agents of any type.

SAFETY

These materials are intended for industrial use only and the practices of good housekeeping, safety and cleanliness should be followed before, during and after use.

Although the system contains low volatility materials, care should be taken in handling. Use adequate ventilation in the work area.

These materials may cause dermatitis in susceptible individuals. Keep off skin and out of eyes. In case of accidental skin contact, wash thoroughly with soap and water. In case of eye contact, flush eyes thoroughly with water and consult a physician immediately. Refer to Material Safety Data Sheets for additional information.

ADDITIONAL INFORMATION

Visit our web site at:
www.royaladhesives.com

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