



TECHNICAL INFORMATION

KALEX® 25111 Urethane Encapsulation System

PRODUCT DESCRIPTION

KALEX 25111 is a two-component, room temperature cure polyurethane system. This system is recommended for potting and encapsulating medium and low voltage applications such as time delay relays, connectors and other electrical or electronic devices.

The KALEX 25111 polyurethane system can be used in components that must pass Bellcore testing. It is flame retardant and meets UL flammability test requirements.

UL recognized at 94 V-0 at 0.25".

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.

<u>Ratio</u>	<u>Part A</u>	<u>Part B</u>
By weight	16	100
By volume	19.8	100

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:

18 hours @ 25 °C (77 °F) **plus** 2 hours @ 80 °C (176 °F)

TYPICAL UNCURED PROPERTIES

	<u>Part A</u>	<u>Part B</u>	<u>Mixed</u>
Color	Dk. Brown	White	Off-White
Viscosity @ 25 °C, cps	75	10,000	10,000
Weight per Gallon, lbs.	10.3	12.8	12.4
Specific Gravity @ 25 °C	1.24	1.53	1.48
Gel time, minutes			
100 gm mass @ 25 °C	---	---	20
Filler Type	None	Non-Abrasive	Non-Abrasive
Shelf Life (in separate sealed containers), months	6	6	---

TYPICAL CURED PROPERTIES

(Tested at 25 °C unless otherwise indicated)

<u>Test</u>	<u>Result</u>
Hardness, Shore D	50

TYPICAL THERMAL PROPERTIES

<u>Test</u>	<u>Result</u>
UL Flame Retardancy Test	
UL 94-VO @ 0.250"	Passes
UL 94-V-2 @ 0.125"	Passes

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. Adequate ventilation of work place and ovens is essential. 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 Sheet for additional information.

ADDITIONAL INFORMATION

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NOTE

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