



# CUMING MICROWAVE

Technical Bulletin 210-8

## C-FOAM PK RIGID FOAM-IN-PLACE LIQUID POLYURETHANE

RoHS  
Compliant

C-FOAM PK is a two-part liquid resin kit, which is mixed together to expand into a rigid polyurethane plastic foam with good structural and electrical properties. There are two grades: PK-2, which expands to approximately 2.5-3 PCF (.04-.05 g/cm<sup>3</sup>), and PK-5, which expands to approximately 5-6 PCF (.08-.10 g/cm<sup>3</sup>). C-FOAM PK is intended for filling cavities of electronic and microwave devices such as waveguides, instrument housings, and radomes.

C-FOAM PK is a polyol-blown urethane with minimal health and flammability hazards. The material can be shipped via regular transportation means without any hazard warnings, however gloves and normal safety procedures should be followed as with any chemical. The liquid material is sensitive to moisture and should be shipped and stored in sealed containers purged with nitrogen.

### INSTRUCTIONS FOR USE

Mix parts A and B are together in an equal weight ratio (Part A has a slightly higher density than B), and use agitation such as a mixing propeller. The mixture begins to foam and rise within 30 seconds at room temperature, and should be poured into the cavity without delay. It foams fully within 2-3 minutes and hardens after several minutes. The reaction is exothermic and generates a lot of heat.

If filling a closed cavity, calculate the volume and the amount of foam carefully; one can foam to a slightly higher density in a closed cavity, but if there is not enough volume, the expanding foam and CO<sub>2</sub> gas can warp or break the mold. C-FOAM PK generates considerable expansion pressure, so closed molds must be sturdy and have vent holes.

The final density of the foam must be determined by experiment; many factors such as ambient temperature and humidity, size of

the mixture, and mixing conditions can cause variations in the final expanded density.

### TYPICAL PROPERTIES OF CURED FOAM

	<u>PK-2</u>	<u>PK-5</u>
Dielectric constant, 10 GHz:	1.04	1.06
Dissipation factor, 10 GHz:	0.001	0.001
Compressive strength, psi:	30	50
Compressive modulus, psi:	500	800
Thermal conductivity, BTU-in/hr-ft <sup>2</sup> -°F:	0.012	0.018
Water absorption, 24hr.:	3.0% max.	
Service Temp, °C (°F):	-40 to +100 (-40 to +210)	

### AVAILABILITY

C-FOAM PK is available as a 16 pound kit, 8 lbs. of part A, and 8 lbs. of part B, each in a gallon can. It is also available as a 4 pound kit, 2 lbs. Part A and 2 lbs. part B, each in a quart can. The material is sold by weight, not volume, so the containers will not be completely filled.

When ordering, specify grade and size, for example:

C-FOAM PK-2 16lb. KIT  
C-FOAM PK-5 4lb. KIT

This material presents no known health hazard if used with reasonable precaution. See the Material Safety Data Sheet for details. The information given above is believed to be correct, but is not to be taken as a warranty for which Cuming Microwave assumes any legal responsibility. All data is offered for verification by the user, who must make the final judgment of suitability for any application.

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