



TECHNICAL
PRODUCTS

TRACERLAB

DIVISION OF INTERNATIONAL CHEMICAL AND NUCLEAR CORP.

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2646

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894-6600

November 13, 1969

Mr. James C. Malaro
Isotopes Branch
Division of Materials Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Malaro:

This is in reply to your letter of October 29, 1969 in which you request additional information about our model X-1 and X-2 sealed sources. Following are the answers to your questions:

- a. All plugs are sealed into the capsule body by heliarc welding. The plug of the X-2 capsule will be trimmed to fit.
- b. In the case of the X-1 capsule, the pellet or foil containing the radioactive deposit is placed against the window. In the case of the X-2 capsule, a lip is provided to keep the inner X-1 capsule (if required) away from the window. The filler material used in back of the radioactive foil or pellet is made of tin and its primary function is to serve as an x-ray shield. The quantity of filler used will vary with shielding requirements.
- c. Leak detection work on the empty capsules is performed for us by the Acton Laboratories. This test is made to insure a positive seal of the front window to the source body. They use a Mass Leak Spectrometer, T.E. model # M-60 which is calibrated with a standard leak. They can determine leakage rates up to 10^{-8} cc/sec. In their method a vacuum is pulled on the empty capsule and helium passed over all outside surfaces.

The finished capsules as indicated in my letter of September 10, 1969 are subjected to the standard vacuum test (USASI B2.4) and immersion test (USASE B2.2).

Please let me know if you need any additional information.

Yours truly,

William Karp

William Karp
Manager
Sources & Accessories Dept.

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PDR RC *
SSD PDR

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SENT TO COMPLIANCE

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ECCOBOND 276

High Temperature Thixotropic Epoxide Adhesive

Eccobond 276 is an epoxide adhesive and sealant capable of 500°F use. Being thixotropic, this virtually insures freedom from sag or run on vertical or overhead surfaces when applied to loose fitting parts during cure.

Eccobond 276, when cured, produces a rigid, high temperature bond to most materials including metals, glass, ceramics, and most plastics. Being 100% solids, it performs equally well on porous or non-porous surfaces.

Eccobond 276 has low shrinkage during cure, high thermal conductivity and a coefficient of thermal expansion well matched to brass, copper and aluminum.

Typical Properties:

Flexural Strength, psi	17,000
Thermal Conductivity, BTU/ft ² /hr/°F/in	9.3
Coefficient of Thermal Expansion, °F	15×10^{-6}
Volume Resistivity, ohm-cm	10^{16}

Instructions for Use:

1. To 100 parts of Eccobond 276 by weight, add 10 parts of Catalyst 17. Blend thoroughly to a uniform consistency. At 75°F the pot life is at least 24 hours.
2. Clean surfaces to be bonded. Abrade with emery cloth. A final cleaning with methyl ethyl ketone (MEK) or toluene is desirable.
3. Apply the blended Eccobond 276 to both surfaces to be bonded -- bring them together, and squeeze out the excess. No pressure is needed. However, surfaces should be maintained in intimate contact.
4. Cure at any one of the following schedules:
 - 8 hours at 250°F
 - 6 hours at 300°F
 - 3 hours at 350°F - 180°C
 - 2 hours at 400°F - 207°C

9-13-66

Printed in U. S.

Harold B. Carter
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Waltham, Mass

used in x-ray
source sealing

Sealed Source Files