

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO: MA-0116-S-801-S
(Supercedes NR-420-S-153-U)

DATE: January 18, 2001

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SEALED SOURCE TYPE: Beta Gauge Source

MODEL: S-70

DISTRIBUTOR/MANUFACTURER: Eurotherm Gauging Systems Incorporated
The Middlesex Technology Center
900 Middlesex Turnpike
Billerica, MA 01821

ISOTOPE: Krypton-85
MAXIMUM ACTIVITY 1200 millicuries (44.4 GBq)

LEAK TEST FREQUENCY: Not Required for Kr-85

PRINCIPAL USE: (E) Beta Gauge

CUSTOM DEVICE: YES ___ NO X

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DESCRIPTION:

The Model S-70 Krypton-85 source consists of a monel metal capsule 2 inches in diameter x 7/8 inch high having a thin window. Krypton-85 is introduced through a 0.059 inch inside diameter copper tube by standard filling techniques. Each capsule is supported by means of holes at 120° on the capsule flange.

LABELING:

The capsule, which is designed for use in Tracerlab and LFE beta gauges, is inscribed with the serial number and isotope identity.

DIAGRAM: No diagrams were incorporated into the original registration certificate, NR-420-S-153-U dated May 10, 1963.

CONDITIONS OF NORMAL USE:

The source is designed to be used in industrial gauging applications, and is expected to be able to withstand normal conditions of use when mounted in its source holder. EGS has indicated that the source has been in use since 1963 with no reported failures resulting in a radiation hazard.

PROTOTYPE TESTING: No prototype test results are available.

The source was registered prior to the ANSI N5.10 -1968 standard.

EXTERNAL RADIATION LEVELS: Dose rates for the S-70 source are unavailable.

Dose rates from a similarly designed NER-8121 source (Ref. SS&D Sheet #MA-0476-S-197-S) containing 1200 millicuries are as follows:

<u>Distance</u>	<u>Beta plus Gamma Dose Rate</u>	<u>Gamma Dose Rate</u>
5 cm.	> 100 R / hr	600 mR / hr
30 cm.	> 100 R / hr	400 mR / hr
100 cm.	1.8 R / hr	15 mR / hr

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QUALITY ASSURANCE AND CONTROL: The source is no longer manufactured.

LIMITATIONS AND/OR CONSIDERATION OF USE:

- The source shall be distributed to persons specifically licensed by the NRC or an Agreement State.
- Handling, storage, use, transfer, and disposal: to be determined by the licensing authority.
- This registration certificate and the information contained within the references shall not be changed or transferred without the written consent of the Commonwealth of Massachusetts, Radiation Control Program.

SAFETY ANALYSIS SUMMARY:

Eurotherm Gauging Systems has committed to accepting S-70 and S-70A sources or sources in devices for disposal and / or replacement. EGS no longer manufactures or distributes the S-70 or S-70A sources. Approximately 1115 sources were distributed with an estimated 585 still in use. There have been no design changes to S-70 or S-70A sources since September 9, 1965.

REFERENCES:

The following supporting documents for the model S-70 sealed source are hereby incorporated by reference and are made part of this registry document.

- EGS Incorporated letter dated August 1, 2000, with enclosures thereto.
- EGS Incorporated letter dated October 9, 2000, with enclosures thereto.

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SEALED SOURCE TYPE: Beta Gauge Source

ISSUING AGENCY: Massachusetts Department of Public Health, Radiation Control Program

Date 01/18/01

Reviewer Robert Walker
Robert Walker

Date 01/18/01

Concurrence Kenath A. Traegde
Kenath Traegde