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'84 FEB 24 P2:48

February 22, 1984

John W. N. Hickey
Section Leader
Industrial Section
Material Licensing Branch
Division of Fuel Cycle and
Material Safety
Nuclear Regulatory Commission
Washington, DC 20555

"OFFICIAL RECORD COPY"

RE: Fischer Technology, Inc.

Dear Mr. Hickey:

Enclosed herein please find two copies of Fischer Technology, Inc.'s Application for Byproduct Material License together with their check in the amount of $950.00.

Very truly yours,

Edward F. Rosenthal

EFR:lml

Enclosures

Date 3/5/84
Log March 3 I
By Brown
Orig. To
Action Compl. 3/22/84

Applicant
Check No. 1262 $950 (3G) +
Application
3/5/84
Brown

Applicant
Check No. 1422
Amount Fee $110
Type of Fee 3A amend
Date Check 3/21/84
Received By Brown

U. S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE (INDUSTRIAL)

PREPARED AND SUBMITTED BY FISCHER TECHNOLOGY, INC.

The attached is prepared and submitted for the general purpose of permitting the applicant to sell and distribute (and do other things more specifically set forth in the application), its thickness measuring guages (the Fischerscope Beta Backscatter) to general and specific licensees. In accordance with the suggestion of John W. N. Hickey of the United States Nuclear Regulatory Commission, the Application makes reference to two "devices": The first is a "removable source holder" in which is encased and mounted a sealed source. This removable source holder provides mechanical protection from damage to the sealed source during use and is described in the attached publication known as International Standard ISO 2919, Sealed Radioactive Sources - Classification in Sections 3.14 and 3.15, which publication is attached hereto for reference. The second device is that into which this removable source holder is installed. It consists of a table or probe upon which the object to be measured is placed, and a "Fischerscope" or software programmed digital readout box which displays the thickness measurement. The only byproduct material in the entire system is a sealed source contained in the removable source holder. When the system is not in use, the removable source holder is stored in radiation proof containers. Mr. Hickey has suggested that the devices together would constitute a "system" for which only one application need be made. In response to Mr. Hickey's inquiry, the Applicant represents that similar systems are currently licensed for transfer to general licensees. These systems are distributed by the following companys: 1) UPA Technologies, Inc.; 2) MAGNA FLUX Sigma Laboratories; 3) Twin City International, Inc. Your cooperation in permitting the filing of this Application in the above described format is greatly appreciated.

02241 17010

International Standard 2919

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Sealed radioactive sources — Classification

Sources radioactives scellées — Classification

First edition — 1980-05-01

UDC 539.163 : 621.039.8

Ref. No. ISO 2919-1980 (E)

Descriptors : radiation sources, sealed sources, definitions, classification, tests, thermal tests, impact tests, pressure tests, vibration tests, puncture tests, radioactivity

3.6 **model** : Descriptive term or number to identify a specific sealed source design.

3.7 **non-leachable** : Term used to convey that the radioactive material in the form contained in the source is virtually insoluble in water and is not convertible into dispersible products.

3.8 **prototype source** : Original of a model of a sealed source which serves as a pattern for the manufacture of all sealed sources identified by the same model designation.

3.9 **prototype testing** : Performance testing of a new radioactive sealed source before sealed sources of such design are put into actual use.

3.10 **quality control** : Such tests and procedures as are necessary to establish the ability of the sealed sources to comply with the performance characteristics for that sealed source designed as defined in table 2 of this International Standard.

3.11 **radiotoxicity** : Of a radionuclide; the ability of a nuclide to produce injury by virtue of its emitted radiations, when incorporated in the human body.

3.12 **sealed source** : Radioactive source sealed in a capsule or having a bonded cover, the capsule or cover being strong enough to prevent contact with and dispersion of the radioactive material under the conditions of use and wear for which it was designed[1].

3.13 **simulated source** : Facsimile of a radioactive sealed source the capsule of which has the same construction and is made with exactly the same materials as those of the sealed source that it represents but containing, in place of the radioactive material, a substance with mechanical, physical and chemical properties as close as possible to those of the radioactive material and containing radioactive material of tracer quantity only. The tracer is in a form soluble in a solvent which does not attack the capsule and has the maximum activity compatible with its use in a glove box[2].

3.14 **source holder** : Mechanical support for the sealed source.

The following two terms apply to industrial radiography and gamma gauges and irradiation sources :

3.15 **source in device** : Sealed source which remains in a device giving mechanical protection from damage during use.

3.16 **unprotected source** : Sealed source which, for use, is removed from a device that would give mechanical protection from damage.

4 Classification designation

The classification of a sealed source shall be designated by the code ISO/ followed by a letter and five digits.

The letter shall be either C or E. C designates that the activity level of the sealed source does not exceed the limit established in annex B. E designates that the activity level of the sealed source exceeds the limit established in annex B.

The first digit shall be the Class number which describes the performance for temperature.

The second digit shall be the Class number which describes the performance for external pressure.

The third digit shall be the Class number which describes the performance for impact.

The fourth digit shall be the Class number which describes the performance for vibration.

The fifth digit shall be the Class number which describes the performance for puncture.

Example : a typical industrial radiography source designed for use unprotected would be designated ISO/C43515 (values are taken from annex C).

5 General considerations

5.1 Explanation of annexes and table 2

5.1.1 Classification of radionuclides according to radiotoxicity (annex A)

This annex, based on ICRP Publication 5, classifies radionuclides into four Groups according to relative radiotoxicity.

5.1.2 Activity level (annex B)

This annex establishes a maximum activity of sealed sources, for each of the four radiotoxicity Groups in annex A, below which a separate evaluation of the specific usage and design is not required.

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1) This definition conforms with ISO 921, *Nuclear energy glossary*, term No. 548, except that the word "container", which is a general term, is replaced for the purpose of this International Standard by the word "capsule" (see 3.1).

2) The following activity levels are acceptable :

^{90}Sr + ^{90}Y as soluble salt : 2 MBq

^{60}Co as soluble salt : 1 MBq

(1 Ci = $3{,}7 \times 10^{10}$ Bq)