

MALLINCKRODT CHEMICAL WORKS

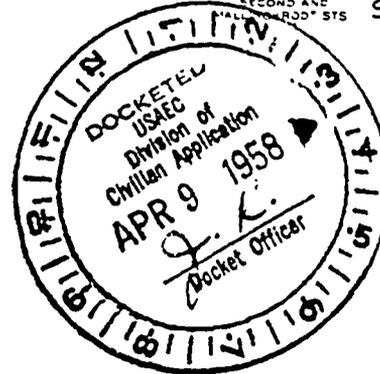
MANUFACTURERS OF
FINE CHEMICALS FOR MEDICINAL, PHOTOGRAPHIC
ANALYTICAL AND INDUSTRIAL PURPOSES

CABLE ADDRESSES
MALLINCKRODT ST. LOUIS
DESABR. CODE NEW YORK
CODES
A B C FIFTH ED IMP
A B C SIXTH ED
BENTLEY'S COMPLETE PH-RASE
BENTLEY'S SECOND PH-RASE

FACTORIES, ST. LOUIS, JERSEY CITY, MONTREAL
SALES OFFICES: ST. LOUIS, NEW YORK, CHICAGO, CINCINNATI, CLEVELAND
DETROIT, LOS ANGELES, PHILADELPHIA, SAN FRANCISCO, MONTREAL, TORONTO

SECOND AND
MALLINCKRODT STS ST. LOUIS, 7. MO.

7 April 1958



Mallinckrodt
FINE CHEMICALS
Standard Since 1867

Mr. Lyall Johnson
Licensing Division
U. S. Atomic Energy Commission
Washington, D.C.

SUBJECT: Source Material License C-2734

Dear Mr. Johnson:

The increasing interest in the use of thorium for breeder reactor applications has indicated the desirability for Mallinckrodt Chemical Works to expand their commercial atomic energy program to include thorium and its compounds. We are, therefore, applying for modification of our Source Material License C-2734 to include the use of natural thorium and its compounds in our development and pilot plant activities.

Specifically, we are proposing to receive, process, and deliver thorium, thorium compounds, and mixtures of thorium and natural uranium from our research and development facilities. Because of the current uncertainty of the nature of the health aspects involved in the use of thorium, we propose to carry out all operations involving thorium or mixtures of thorium and uranium exclusively in the hooded sections of our laboratory and pilot plant operations. Until additional information is available concerning the use of natural thorium and the associated radiological problems, we propose to treat thorium in the same manner as natural uranium especially from the standpoint of air-borne dust in accordance with 10 CFR, Part 20.

Some of the operations which we contemplate being called upon to do development work in connection with thorium and its compounds are:

1. Purification of crude thorium to produce reactor grade thorium compounds
2. Preparation of ThO₂-UO₂ pellets of varying compositions
3. Separation of Th-U mixtures and the recovery of reactor grade thorium and uranium compounds therefrom.

Although we expect the greater portion of our work to lie in these areas, we would prefer not to have our license limited to such activities foreseeing the possibility that we may be requested at some future date to prepare research quantities of special thorium and/or thorium-uranium compound mixtures.

A-22

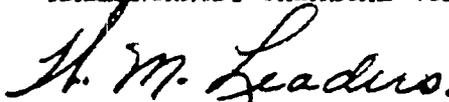
All of the operations in our research and development division are under the direction and continual supervision of trained technicians, personnel with wide experience in this field to insure that the health and safety procedures as established are carried out.

In summary, we are requesting modification of our Source Material License S-2734 to permit us to receive, process and deliver possession of and/or title to natural thorium, and/or its compounds as such, or in mixture with natural uranium and/or its compounds in our research and development facilities in accordance with the process descriptions above.

Since we have been repeatedly requested to undertake such activities, we are requesting that you review this application at your earliest convenience, and if additional information is required concerning our mode of operation, that you call us, collect, so that we may expedite the issuance of this license amendment.

Very truly yours,

MALLINCKRODT CHEMICAL WORKS



W. M. Leaders
Technical Director
Special Metals Division

WHL:dj