

DOCKET NO. 40-17

FORM AEC-2
(2-61)
Previous editions
are obsolete.

FORM APPROVED
BUREAU OF BUDGET NO. 38-R002.8.

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

STB-527

1. (Check one) <input type="checkbox"/> (a) New license <input type="checkbox"/> (b) Amendment to License No. _____ <input checked="" type="checkbox"/> (c) Renewal of License No. <u>STB-527</u> <input type="checkbox"/> (d) Previous License No. _____		2. NAME OF APPLICANT The Dow Chemical Company	
		3. PRINCIPAL BUSINESS ADDRESS Midland, Michigan	
4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED Midland & Bay City, Michigan; Madison, Illinois			
5. BUSINESS OR OCCUPATION Chemical & Magnesium Prod'n		6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP	(b) AGE
7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED Manufacture of magnesium base-thorium alloys. Typical nominal thorium concentration is 3% in alloys prepared for structural purposes.			
8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE			
(a) TYPE	(b) CHEMICAL FORM	(c) PHYSICAL FORM (Including % U or Th.)	(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)
NORMAL URANIUM			
URANIUM DEPLETED IN THE U-235 ISOTOPE			
THORIUM	Metal Oxide or fluoride	97% as pure pellets 3% as Mg alloy	100,000 lbs. (metal) 2,000 lbs. (compound)
(e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (in pounds) 100,000 pounds			
9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL HAZARDS ASSOCIATED WITH EACH STEP OF THOSE OPERATIONS. Alloying in molten metal form of magnesium and thorium limited to a few hundred pounds of thorium per batch. As solid magnesium-thorium alloy, processing includes extrusion and rolling at temperatures well below the solidus. Standard metal working shop procedures followed in fabricating assemblies.			
10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL). Chemists and chemical engineers. Radiation safety program under the direction of H. R. Hoyle, Chemist, with 18 years' experience in safety, industrial hygiene and health physics.			
11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air-monitoring and other survey equipment as appropriate. The description of radiation detection instruments should include the type of radiation detected and the range(s) of each instrument.) Health physics program includes use of film badges, survey instruments both ionization chamber and geiger tube, air sampling equipment and proportional counter. Equipment used to check working conditions insuring compliance with 10 CFR 20 and our own regulations.			
(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE (for film badges, specify method of calibrating and processing, or name supplier.) Survey meters are calibrated with a radium source each six months. Film badge service is from Health Physics Services.			

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