

NRC FORM 7 (8-2010) 10 CFR 110	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0027 EXPIRES: 08/31/2012 Estimated burden per response to comply with this mandatory collection request: 2.4 hours. This submittal is reviewed to ensure that the applicable statutory, regulatory, and policy considerations are satisfied. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0027), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.
APPLICATION FOR NRC EXPORT OR IMPORT LICENSE, AMENDMENT, OR RENEWAL (See Instructions on Pages 4 and 5)		

PART A. FOR NRC USE ONLY	<input checked="" type="checkbox"/> PUBLIC OR <input type="checkbox"/> NON-PUBLIC	DATE RECEIVED JUL 06 2011 <i>Rec'd Jc</i>
LICENSE NUMBER XCOM 1233	DOCKET NUMBER 11005953	ADAMS ACCESSION NUMBER

PART B. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, OR RENEWALS
(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

1. NAME AND ADDRESS OF APPLICANT/LICENSEE Mirion Technologies (IST) Corporation 200/300 IST Center 315 Daniel Zenker Drive Horseheads, NY 14845	1a. NAME OF APPLICANT'S CONTACT David M. Stewart	1b. APPLICANT'S REFERENCE NUMBER DMS0008	1c. PHONE NUMBER (607) 562-4345	1d. FAX NUMBER (607) 562-4392
1e. E-MAIL ADDRESS dstewart@mirion.com				

2. TYPE OF ACTION REQUESTED (Check One)

EXPORT (Parts B, C, E)
 IMPORT (Parts B, D, E)
 AMENDMENT/RENEWAL (Existing License Number: _____)

3. CONTRACT NUMBER(S) C83-MH76DWI	4. FIRST SHIPMENT DATE 09/15/2011	5. LAST SHIPMENT DATE 09/15/2012	6. PROPOSED EXPIRATION DATE 12/01/2012
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PART C. TO BE COMPLETED FOR EXPORT LICENSES, AMENDMENTS, OR RENEWALS
(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

7. NAME(S) / ADDRESS(ES) OF SUPPLIERS AND/OR OTHER PARTIES TO THE EXPORT Windhover Industries 1068 Woodlyn Farm Way Lancaster, PA 17601 USA	8. NAME(S) / ADDRESS(ES) OF INTERMEDIATE FOREIGN CONSIGNEE(S) Windhover Industries EOR 2nd Floor, Onoda Building Suginami-Ku, 166-0003 Tokyo JAPAN	9. NAME(S) / ADDRESS(ES) OF ULTIMATE FOREIGN CONSIGNEE(S) Japan Atomic Energy Agency (JAEA) Tokai Research & Development Center Shirakata, Shirane 2-4 Tokai-Mura, Naka-Gun Ibaraki-Ken, 319-1195 JAPAN <i>Japan Research Reactor #3</i>
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7a. FUNCTION(S) PERFORMED/SERVICE(S) PROVIDED Sales Support	8a. INTERMEDIATE USE(S) Freight Forwarder	9a. ULTIMATE END USE(S) Research Reactor #3 Monitor <i>Per David Stewart 7/5/11</i>
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10. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES, EQUIPMENT, OR COMPONENTS: FOR NUCLEAR EQUIPMENT INCLUDE TOTAL DOLLAR VALUE OF EQUIPMENT FOR EXPORT Quantity 6 gamma compensated ion chambers with mineral-insulated cables for monitoring thermal neutrons below the operating limit of 1x10 ¹¹ nv; used for monitoring Research Reactor #3.	10a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq) does not contain SNM	10b. MAX ENRICHMENT OR WGT % does not contain SNM	10c. MAX ISOTOPE WGT (KG) does not contain SNM
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11. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME)

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NRC FORM 7
(8-2010)
10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR NRC EXPORT OR IMPORT
LICENSE, AMENDMENT, OR RENEWAL (Continued)

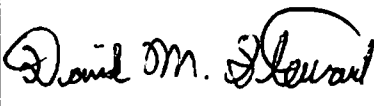
LICENSE NUMBER XCOM 1233	DOCKET NUMBER 11005953	ADAMS ACCESSION NUMBER	<input checked="" type="checkbox"/> PUBLIC OR <input type="checkbox"/> NON-PUBLIC
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PART D. TO BE COMPLETED FOR IMPORT LICENSES, AMENDMENTS, OR RENEWALS

(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

12. NAME(S) / ADDRESS(ES) OF FOREIGN SUPPLIERS AND/OR OTHER PARTIES TO IMPORT	13. NAME(S) / ADDRESS(ES) OF INTERMEDIATE CONSIGNEE(S)	14. NAME(S) / ADDRESS(ES) OF ULTIMATE U. S. CONSIGNEE(S)	
12a. NRC EXPORT LICENSE NUMBER(S) (if applicable)	13a. LICENSE NUMBER(S) / EXPIRATION DATE(S)	14a. LICENSE NUMBER(S) / EXPIRATION DATE(S)	
	13b. INTERMEDIATE USE(S)	14b. ULTIMATE END USE(S)	
15. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES	15a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq)	15b. MAX ENRICHMENT OR WGT %	15c. MAX ISOTOPE WGT (KG)
16. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME)			

PART E. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, OR RENEWALS

17. ADDITIONAL INFORMATION PROVIDED ON PAGES 3, 4, AND/OR ON SEPARATE SHEETS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	17a. COPIES OF RECIPIENTS' AUTHORIZATIONS PROVIDED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
18. CERTIFICATION: I, the applicant's authorized official, hereby certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, and that all information provided is correct to the best of my knowledge.		
18a. PRINT NAME AND TITLE OF AUTHORIZED OFFICIAL David M. Stewart President, Mirion Technologies (IST) Corporation	18b. SIGNATURE -- AUTHORIZED OFFICIAL 	18c. DATE 06/15/2011

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**MIRION
TECHNOLOGIES**

Sensing Systems Division

**Compensated Ion Chamber
Integral Cable Gamma**

Page 1 of 2

Date: October 11, 2007

Type Number: WL-24370

The WL-24370 is a gamma compensated ionization chamber with mineral-insulated coaxial cables that are permanently joined to the top cap of the chamber. The chamber is designed to detect thermal neutrons and has a maximum operating limit of 1×10^{11} nv. The chamber has a nominal neutron sensitivity of 2.6×10^{-14} amperes/nv and an uncompensated gamma response of 6.4×10^{-12} amperes/r/hr.

The WL-24370 is equipped with variable gamma compensation to reduce the effective gamma radiation response to less than 6.4×10^{-13} amperes/r/hr. The lower limit of the operating range is determined by the level of gamma radiation incident on the chamber. A 10 to 1 neutron to gamma signal ratio is considered to be the lowest acceptable ratio for most applications. The detection of 50 nv with 10% gamma compensation and a 10 to 1 neutron to gamma signal ratio would require a gamma background no greater than 0.2 r/hr. Activated isotopes within the chamber structure will nominally produce sufficient chamber current to interfere with signal currents that are less than 8×10^{-12} amperes if the chamber has been exposed to fluxes greater than 5×10^9 nv for more than 30 minutes. If the chamber is exposed for longer periods or at higher fluxes, sufficient time must elapse after the chamber has been removed from the neutron flux to allow the background currents to decay to levels which do not interfere with the neutron signal.

The WL-24370 chamber utilizes ceramic insulation which allows operation at temperatures up to 200°C with gamma radiation levels of 10^7 r/hr and a thermal neutron flux of 1×10^{11} nv.

The integral cables attached to the chamber top cap are .125 inch (3.2 mm) diameter coaxial cables with 304 stainless steel conductors and compacted aluminum oxide insulation. The cable connectors are type HN with cross-lined polystyrene insulation. The cable connectors are intended to operate out of the high radiation zone and are limited to neutron fluxes less than 1×10^9 nv and gamma fluxes below 10^6 r/hr.

Mechanical

Cable Length:

Cables are staggered: Comp 137.8 in., HV 129.9 in., Sig 122.0 in., ± 6 inches

Connectors not to overlap, overall dimens. cable assy. length 137.8 + 6 inches

Outer Diameter nominal.....	2 inches
Housing Length (includes Cable Support) nominal.....	14.00 inches
Sensitive Length (nominal).....	8.25 inches
Weight	6 lbs. max.

Material

Outer Housing	Aluminum
Electrodes	Magnesium
Insulation	Alumina Ceramic
Neutron Sensitive Material	Boron enriched in B-10 Isotope
Fill Gas	95% Nitrogen + 5% Helium

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Tube Type: WL-24370
Page: 2
Date: October 11, 2007

Electrical

Resistance (minimum):

Signal (Center Pin to Shield)..... 2×10^{13} ohm x feet
H.V. (Center Pin to Shield)..... 2×10^{13} ohm x feet
Compensation (Center Pin to Shield) 2×10^{13} ohm x feet

Capacitance (Other Connector Center Pins grounded to Cable Shield)

Signal (Center Pin to Shield) (Nominal)..... 738 pF
H.V. (Center Pin to Shield) (Nominal)..... 813 pF
Compensation (Center Pin to Shield) (Nominal) 832 pF

Maximum Ratings:

Voltage between Electrodes..... +1500 Vdc
Temperature..... 200°C
External Pressure 180 psia
Thermal Neutron Flux 2.5×10^{11} nv
Gamma Flux 5×10^7 r/hr

Typical Operation

Operating Voltage + 200 to 1 200 Volts d.c.
Compensating Voltage (depends upon gamma levels - 5 to -200 Volts d.c.

Thermal Neutron Flux Range:

Lower Limit (Depends upon gamma level and system)
Upper Limit 1×10^{11} nv
Thermal Neutron Sensitivity 2.6×10^{-14} amperes/nv
Gamma Sensitivity (Uncompensated)..... 6.4×10^{-12} amperes/r/hr
Gamma Compensation..... (Adjustable by varying Compensation Voltage)

Retyped 7/21/09

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