

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

This licence is effective as at the issue date and supersedes any prior licence(s) with the same licence number.

CUST. PROF. NO.: 6567

LICENCE NO	: IR1/2023/00259	ISSUE DATE	: 21 OCT 2024
START DATE	: 20 FEB 2023	ANNIVERSARY DATE	: 01 JAN

THE LICENCE IS ISSUED TO **GAUGING & AUTOMATION PTE LTD (UEN: 198901622C)** TO MANUFACTURE, POSSESS FOR SALE OR DEAL IN IONISING IRRADIATING APPARATUS AND / OR RADIOACTIVE MATERIAL

PARTICULARS OF IONISING IRRADIATING APPARATUS AND / OR RADIOACTIVE MATERIAL AUTHORISED UNDER THIS LICENCE

Please see attached Annex A. Please note that manufacture of radioactive material is not allowed unless stipulated accordingly in Annex A.

QUALIFIED PERSON(S) AND RADIATION SAFETY OFFICER(S)

Please see attached Annex B.

LICENCE CONDITIONS

Please see attached Annex C.



TAN KWEE CHAI
AUTHORISED OFFICER
NATIONAL ENVIRONMENT AGENCY

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

LICENCE NO : IR1/2023/00259

ANNEX A

PARTICULARS OF IRRADIATING APPARATUS CONTAINING RADIOACTIVE MATERIAL

ITEM 2.1

TYPE : LEVEL/FLOW GAUGE
MANUFACTURER : BERTHOLD TECHNOLOGIES GMBH CO KG
APPARATUS MODEL : LB 414, LB 470, LB 471, LB 474, LB 480, LB 490
PRODUCT CODE : 15BERTCS1370001
STORAGE LOCATION : 60 KAKI BUKIT PLACE EUNOS TECHPARK II
SINGAPORE 415979
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137
FORM / NATURE OF SUBSTANCE : SEALED SOURCE

ITEM 2.2

TYPE : NUCLEAR MOISTURE/DENSITY GAUGE
MANUFACTURER : BERTHOLD TECHNOLOGIES GMBH CO KG
APPARATUS MODEL : LB 356, LB 350 MOISTURE ANALYZER
PRODUCT CODE : 34BERTCS1370002
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137
FORM / NATURE OF SUBSTANCE : SEALED SOURCE

ITEM 2.3

TYPE : NUCLEAR MOISTURE/DENSITY GAUGE
MANUFACTURER : BERTHOLD TECHNOLOGIES GMBH CO KG
APPARATUS MODEL : LB 356, LB 350 MOISTURE ANALYZER
PRODUCT CODE : 34BERTAM2410003
STORAGE LOCATION : 60 KAKI BUKIT PLACE EUNOS TECHPARK II
SINGAPORE 415979
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Am-241/Be-9
FORM / NATURE OF SUBSTANCE : SEALED SOURCE

ITEM 2.4

TYPE : LEVEL/FLOW GAUGE
MANUFACTURER : BERTHOLD TECHHNOLOGIES GMBH KG CO.
COUNTRY/REGION OF MANUFACTURER : GERMANY
APPARATUS MODEL : LB379
PRODUCT CODE : 15BERTAM2410004
IMPORT / EXPORT : ALL
STORAGE LOCATION : 60 KAKI BUKIT PLACE EUNOS TECHPARK II
SINGAPORE 415979

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Am-241
FORM / NATURE OF SUBSTANCE : SEALED SOURCE
TOTAL MAX ACTIVITY : 100 mCi

ITEM 2.5

TYPE : LEVEL/FLOW GAUGE
MANUFACTURER : BERTHOLD TECHNOLOGIES GMBH KG, CO
COUNTRY/REGION OF MANUFACTURER : GERMANY
APPARATUS MODEL : LB470, LB490, LB480, LB414, LB474, LB472, LB460
PRODUCT CODE : 15BERTCO600005
IMPORT / EXPORT : ALL
STORAGE LOCATION : 60 KAKI BUKIT PLACE EUNOS TECHPARK II
SINGAPORE 415979
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Co-60
FORM / NATURE OF SUBSTANCE : SEALED SOURCE
TOTAL MAX ACTIVITY : 6000 mCi

ITEM 2.6

TYPE : LEVEL/FLOW GAUGE
MANUFACTURER : BERTHOLD TECHNOLOGIES GMBH KG. CO
COUNTRY/REGION OF MANUFACTURER : GERMANY
APPARATUS MODEL : LB470, LB474, LB472, LB480, LB490, LB491, LB414,
LB460
PRODUCT CODE : 15BERTCS1370006
IMPORT / EXPORT : ALL
STORAGE LOCATION : 60 KAKI BUKIT PLACE EUNOS TECHPARK II
SINGAPORE 415979
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137
FORM / NATURE OF SUBSTANCE : SEALED SOURCE
TOTAL MAX ACTIVITY : 5000 mCi

ITEM 2.7

TYPE : NUCLEAR MOISTURE/DENSITY GAUGE
PURPOSE : PRODUCT/MATERIAL
INSPECTION/TESTING/ANALYSIS
MANUFACTURER : VEGA AMERICAS, INC.
COUNTRY/REGION OF MANUFACTURER : UNITED STATES
APPARATUS MODEL : SH-F
PRODUCT CODE : 34VEGACS1370020
IMPORT / EXPORT : EXPORT
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

FORM / NATURE OF SUBSTANCE : SEALED SOURCE (SOLID)
TOTAL MAX ACTIVITY : 10.5 mCi
SOURCE MAX ACTIVITY : 5.3 mCi
SOURCE QUANTITY : 2
SOURCE SERIAL NUMBER : MODEL: CS7.P13

ITEM 2.8

TYPE : NUCLEAR MOISTURE/DENSITY GAUGE
PURPOSE : PRODUCT/MATERIAL
INSPECTION/TESTING/ANALYSIS
MANUFACTURER : DANDONG DONGFANG MEASUREMENT ¼†
CONTROL TECHNOLOGY CO., LTD.
COUNTRY/REGION OF MANUFACTURER : CHINA
APPARATUS MODEL : SCT100D
PRODUCT CODE : 34DANDCS1370021
IMPORT / EXPORT : EXPORT
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137
FORM / NATURE OF SUBSTANCE : SEALED SOURCE (SOLID)
TOTAL MAX ACTIVITY : 3.92 GBq
SOURCE MAX ACTIVITY : 1.97 GBq
SOURCE QUANTITY : 2
SOURCE SERIAL NUMBER : MODEL: CS7.P03

ITEM 2.9

TYPE : NUCLEAR MOISTURE/DENSITY GAUGE
PURPOSE : PRODUCT/MATERIAL
INSPECTION/TESTING/ANALYSIS
MANUFACTURER : ENDRESS+HAUSER GMBH+CO.
COUNTRY/REGION OF MANUFACTURER : GERMANY
APPARATUS MODEL : QG020
PRODUCT CODE : 34ENDRCS1370022
IMPORT / EXPORT : EXPORT
MANUFACTURE ALLOWED : NO

DETAILS OF SOURCE

RADIONUCLIDE : Cs-137
FORM / NATURE OF SUBSTANCE : SEALED SOURCE (SOLID)
TOTAL MAX ACTIVITY : 740 MBq
SOURCE QUANTITY : 1
SOURCE SERIAL NUMBER : MODEL: CDC7910

PARTICULARS OF RADIOACTIVE MATERIAL

ITEM 3.1

RADIONUCLIDE : H-3
FORM / NATURE OF SUBSTANCE : SEALED SOURCE
MANUFACTURER : MBDA, UK
PRODUCT CODE : 00MBDAH30007
IMPORT / EXPORT : EXPORT

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

STORAGE LOCATION : GAUGING & AUTOMATION PTE LTD
60 KAKI BUKIT PLACE , #03-10 EUNOS TECHPARK
II
SINGAPORE 415979

MANUFACTURE ALLOWED : NO

ITEM 3.2

RADIONUCLIDE : Am-241
FORM / NATURE OF SUBSTANCE : SEALED SOURCE
TOTAL MAX ACTIVITY : 100 mCi
MANUFACTURER : AMERSHAM (UK)
SOURCE MODEL : AMC36
SOURCE QUANTITY : 1
SOURCE SERIAL NUMBER : 6180LX
PRODUCT CODE : 00AMERAM2410008
IMPORT / EXPORT : EXPORT
STORAGE LOCATION : GAUGING & AUTOMATION PTE LTD
60 KAKI BUKIT PLACE , #03-10 EUNOS TECHPARK
II
SINGAPORE 415979

MANUFACTURE ALLOWED : NO

ITEM 3.3

TYPE : SOURCE FOR RIA/ANALYTICAL USE
RADIONUCLIDE : Am-241
TOTAL MAX ACTIVITY : 60 µCi
MANUFACTURER : SPECTRO
COUNTRY/REGION OF MANUFACTURER : UNITED STATES
SOURCE MODEL : 600L
PRODUCT CODE : 44SPECAM2410009
IMPORT / EXPORT : EXPORT
STORAGE LOCATION : EXXONMOBIL REFINERY
100 JURONG ISLAND HIGHWAY
SINGAPORE 627867

MANUFACTURE ALLOWED : NO

ITEM 3.4

TYPE : SOURCE FOR RIA/ANALYTICAL USE
RADIONUCLIDE : Cm-244
TOTAL MAX ACTIVITY : 200 mCi
MANUFACTURER : SPECTRO
COUNTRY/REGION OF MANUFACTURER : UNITED STATES
SOURCE MODEL : 600L
PRODUCT CODE : 44SPECCEM2440010
IMPORT / EXPORT : EXPORT
STORAGE LOCATION : EXXONMOBIL REFINERY
100 JURONG ISLAND HIGHWAY
SINGAPORE 627867

MANUFACTURE ALLOWED : NO

ITEM 3.5

TYPE : SELF ILLUMINATION SIGNS
RADIONUCLIDE : H-3
TOTAL MAX ACTIVITY : 2500 Ci

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

MANUFACTURER : BETALIGHT
COUNTRY/REGION OF MANUFACTURER : UNITED KINGDOM
SOURCE MODEL : SED6
PRODUCT CODE : 41BETAH30011
IMPORT / EXPORT : EXPORT
STORAGE LOCATION : PETROCHEMICAL COMPLEX SINGAPORE
100 AYER MERBAU ROAD
SINGAPORE 628277
MANUFACTURE ALLOWED : NO

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

LICENCE NO : IR1/2023/00259

ANNEX B

PARTICULARS OF QUALIFIED PERSON(S)

S/N	NAME OF QUALIFIED PERSON(S)	DESIGNATION
1	TONG SIN SANG	ENGINEER
2	DE LEON MARVIN OQUIALDA	ENGINEER
3	HU ZHAOJIE	ENGINEER

IR1 LICENCE ISSUED UNDER THE RADIATION PROTECTION ACT

LICENCE NO : IR1/2023/00259

ANNEX C

LICENCE CONDITION(S)

1. Notice of every transaction involving any irradiating apparatus or radioactive material must be submitted to the National Environment Agency's Radiation Protection and Nuclear Science Group in the form and manner specified by the National Environment Agency.
2. The disposal of unwanted, defective or decayed sources is the responsibility of the licensee who must follow an approved method of disposal. Return to the manufacturer is considered an approved method of disposal.
3. In the event of any occurrence of a radiation accident or loss of radioactive material, licensee must make a preliminary oral report to the National Environment Agency via the Radiation Protection and Nuclear Science Group's emergency number at 9163 8842 within the timeframe required under the Radiation Protection (Ionising Radiation) Regulations.
4. Licensee must ensure that any carrier engaged for the transportation of Category 1 radioactive sources holds a valid IR3 licence.
5. Licensee must notify the National Environment Agency's Radiation Protection and Nuclear Science Group of any intent to transport any Category 1 radioactive sources under this licence, and obtain written approval from the Radiation Protection and Nuclear Science Group before transporting the source.
6. Licensee must comply with any requirements imposed by the National Environment Agency's Radiation Protection and Nuclear Science Group as part of the approval to transport a Category 1 radioactive source. Licensee must cooperate with any carrier engaged by the licensee to handle the transportation to ensure compliance with the requirements.
7. Licensee must ensure that any sealed source supplied has a valid certificate (not older than 12 months from the date of testing at the time the source is supplied) to show each sealed source has been tested for leakage of radioactive material and has been found free of such leakage, and provide such a certificate to the person to whom the sealed source is supplied to.
8. Licensee must notify in writing of any intentions to modify or remove any security measures put in place to secure radioactive materials, and obtain written approval from the National Environment Agency's Radiation Protection and Nuclear Science Group before implementing any changes.
9. The licensee must ensure that any individual carrying out installation, demonstration, servicing, operation or maintenance of any irradiating apparatus authorised under this licence has been appropriately trained to do so.
10. Licensee must ensure that any individual handling any radioactive material authorised under this licence must be suitably trained to do so.
11. Irradiating apparatus authorised for re-export are not allowed to be supplied for local use or used for demonstration.
12. Irradiating apparatus and radioactive materials authorised under this licence must not be sold for irradiation of human beings unless authorised to be used for medical or dental purposes.
13. Radioactive materials must be stored or kept in such a manner as —
 - (a) not to create outside the defined area where the radioactive materials are stored or kept at any location accessible to any individual other than a radiation worker a radiation level exceeding 0.5 µSv per hour; and
 - (b) not to suffer any individual other than a radiation worker to receive a radiation dose in excess of 20 µSv in a period of any 7 consecutive days.
14. The vault or room wherein any radioactive material is stored, kept, used or handled and from which any

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radionuclide in gaseous, vapour or aerosol form is or may be emitted must be suitably ventilated in such a manner that the radionuclide does not constitute a radiation hazard.

15. When radioactive materials are stored temporarily, or when not being used are kept, in a workroom, laboratory or any other place where any individual is regularly or frequently present, these radioactive materials must be enclosed in adequate containers or otherwise shielded so that —
 - (a) the average radiation level at 5 cm from the surface of each container or shield does not exceed 40 μSv per hour and the maximum radiation level does not exceed 200 μSv per hour; and
 - (b) the average radiation level at one metre from the centre of each source does not exceed 4 μSv per hour and the maximum radiation level does not exceed 20 μSv per hour.
16. Licensee is not authorised to store radioactive materials authorised for export only. Notification must be given to the National Environment Agency's Radiation Protection and Nuclear Science Group for every intended export prior to applying for export licence.