Purchase of a source by a call-off

State Atomic Energy Corporation "Rosatom"

Radium Institute named after V.G.Khlopin JSC

2nd Michurinskiy Ave, 28,
St. Petersburg 194021 Russi
Tel.: +7 (812)297-56-41;
Fax: +7 (812) 297-57-81 (administration).
+7 (812) 297-57-00 (administrative office)

CAUTION! RADIOACTIVITY!

SEALED BETA-EMITTING SOURCE

CERTIFICATE

2016

1. GENERAL INFORMATION ABOUT THE SOURCE

1.1. Certificate No. 1409/40
for beta-emitting source type BNi3.S (OKP code 701681)
based on radionuclide Nickel-63
Serial No. 70.16
Manufacturer: Radium Institute named after V.G. Khlopin JSC,
St. Petersburg, 2nd Michurinsky Ave, 28.
Date of manufacture: 20.06.2016
GOST 25926 class: C33221

1.2. The source is a plate of metallic nickel 0.1 mm thick with the radionuclide Nickel-63 is applied by electrolysis on the working surface. The radionuclide Nickel-63 is covered by a sealing layer of stable nickel.

1.3. The category of potential radiation hazard in accordance with RB-042-07: 5.

2. BASIC SPECIFICATIONS

2.1. Dimensions, mm: length – 55.5
width – 1.9 ± 0.5

2.2. Nominal activity level, not more than, MBq: 50,0

2.3. Ionization current generated by the external radiation of the source, not less than, nA: 1.0

2.4. Relative error of the ionization current at a confidence probability of 0.95, %: ± 15

2.5. **The external surface of the source has no radioactive contamination above the permissible level.**

The activity of radioactive substances taken from the surface of the source when determining the level of source radioactive contamination by the smear method is no more than: ~ 5 nCi (200 Bq)

2.6. The source is stable when used in an inert gas or vacuum environment at temperatures up to 450°C, with a designated service life of 5 years.

3. SERVICE LIFE AND MANUFACTURER WARRANTY

3.1. The specified service life of the source is 5 (five) years. The specified service life starts at the date of the source manufacture and is valid if the customer complies with the requirements set forth in RI 47.K8.04.000 TU.

3.2. The manufacturer guarantees compliance of source (excepting change in radiation and physical characteristics due to the radioactive decay of the radionuclide) to the requirements of RI 47.K8.04.000 TU during the assigned service life subject to the conditions of operation, transportation and storage.

3.3. Warranty period: 5 (five) years from the date of manufacture of the source subject to the conditions of operation, transportation and storage.

4. PACKAGE CONTENTS

4.1. The package contents includes:

The source	1 pcs.
The source certificate	1 pcs.

5. PACKING CERTIFICATE

5.1. The beta-emitting source BNi3.S, serial number 70.16, is packed in the packing kit UKT 1A-1-2RI at the manufacturer site according to the requirements of RI 47. K8.04.000 TU.

Process engineer, 2nd cat.	*/signature/*	O.V. Arbuzova
position	signature	print full name

Date of packing: 21.06.2016

6. ACCEPTANCE CERTIFICATE

6.1. The beta-emitting source BNi3.S, serial number 70.16, is manufactured according to RI 47.K8.04.000 TU and is considered usable for its intended use.
QCD stamp (QCD 021): stamp: /QCD 021/ Date of acceptance (manufacture): 20.06.2016

Executor: */signature/*

7. TRANSPORTATION AND STORAGE CONDITIONS

7.1. Transport the source in a package and by any transportation mode except for the public transportation without the restriction of speed or distance. Transport by air without speed, distance or altitude restrictions.
7.2. Keep the source in the package no longer than the specified service life in the warehouse at a temperature of -50°C to +50°C and a relative humidity of not more than 98% at a temperature of +40° C.
7.3. Do not break the seals and do not open the package during transportation and storage of the source.
7.4. Do not store the source in rooms with a closed ventilation system, or together with flammable, explosive, self-igniting from water material or material causing shell corrosion or destruction.

8. OPERATION GUIDELINES

7.5. When operating the source, comply with the requirements of the SP 6.6.1.2612-10 "Basic Sanitary Regulations for the Provision of Radiation Safety (OSPORB-99)" required for work with closed sources of ionizing radiation.
8.2 Permissible operating conditions. The source retains its parameters during operation within:
196 Temperature – (2) -50 to +50°C.
197 Humidity – (2) 95 to 98 % at the temperature of up to + 40°C
198 Pressure – (2) 25 to 105 kPa
199 Impact – (1) duration of impact up to 100 ms, max. acceleration 50 m/s^2
200 Vibration - (1) frequency 5 to 50 Hz with acceleration 5 to 200 $m \cdot s^{-2}$.

9. RECOMMENDATIONS FOR RECYCLING

9.1. After the expiration of the specified service life of the source (5 [five] years) or when there is no need for its operation before the expiration of the specified service life, as well as in case of its accidental destruction, the source must be buried in accordance with the requirements of the SP 2.6.1.2612-10 "Basic Sanitary Rules for Ensuring Radiation Safety (OSPORB-99/20Yu)" and SP 2.6.6.1168-02 "Sanitary Rules for the Management of Radioactive Waste (SPORO-2002)" or sent to the manufacturer (with his consent) for the regeneration of radioactive material. It is allowed to use other possibilities for further use of the source.