

**THE FEDERAL ATOMIC ENERGY AGENCY**

**CERTIFICATE OF APPROVAL**

for design of UKT1A-RI type transportation packaging sets  
used for transportation of radioactive materials

**RUS/6187/A-96T**

The Federal Atomic Energy Agency, being State Competent Authority of the Russian Federation in issues regarding nuclear and radiation safety during transportation of nuclear and radioactive materials and their products, based on Expert's Report AE 474, hereby certifies that design of UKT1A-RI type transportation packaging sets and transportation of radioactive materials in them are in compliance with requirements of GOST 16327-88 "Transportation Packaging Sets for Radioactive Materials. General Technical Conditions", "Safety Regulations for the Radioactive Materials Transportation" (NP-053-04), "Sanitary Regulations for Radiation Safety of Personnel and Population during Transportation of Radioactive Materials (Substances)", SanPin 2.6.1.1281-03, of "Regulations for the Safe Transport of Radioactive Materials", 1996 ed. (revised), TS-R-1 (ST-1, revised), IAEA, 2000):

Certificate of approval is issued for RITVERC GmbH and FSUE "V. G. Khlopin Radium Institute" SPA.

The present certificate of approval is valid since October 31, 2007 until October 31, 2012.

Distinctive mark assigned  
by competent authority

Deputy Head  
of the Federal Atomic Energy Agency

**RUS/6187/A-96T**

I. M. Kamenskikh  
October 31, 2007

**The Federal Atomic  
Energy Agency  
PSRN 1047795276725**

## **1 Main Purpose**

UKT1A-RI type transportation packaging sets manufactured in accordance with Technical Conditions TU 95 2696-98, are intended for transportation and storage of radioactive materials in the form of sealed radionuclide sources and solid and liquid radionuclide preparations in primary packaging.

## **2 Allowed Radioactive Content**

UKT1A-RI type transportation packaging sets are allowed to be used for transportation and storage of radioactive materials based on radionuclides, in accordance with list given in Table 1, moreover radioactive materials in primary packaging in compliance with requirements for Special Form Radioactive Substance (SFRS) shall have correspondent valid certificates of approval.

## **3 Description of UKT1A-RI Type Transportation Packaging Sets Design**

UKT1A-RI type transportation packaging sets comply with requirements for type A packagings and have 9 versions with similar construction; difference lies mostly in size of structural components and protective container type.

In general, UKT1A-RI type transportation packaging sets include:

primary packaging, containing radioactive substance;

protective container;

airtight metal can;

shielding container (cardboard box with distance-keeping elements).

As primary packaging, glass capsule, or flasks with a ground stopper, or a metal capsule is used, complying with requirements for SFRS.













The primary packaging is placed into aluminium or Carbolite holder with airtight screw cap and rubber or fluoroplastic gasket. The holder is placed into protective container as well.

Seven versions (namely, UKT1A-3-2RI, UKT1A-5-2RI, UKT1A-10-2RI, UKT1A-15-2RI, UKT1A-20-2RI, UKT1A-40-2RI, UKT1A-3-1RI) use lead protective containers (see Figure 1), UKT1A-1-2RI version uses steel container, and UKT1A-2-3RI version (see Figure 2) uses aluminium or acrylic plastic holder instead of protective container.

In some packaging sets protective container is also placed in tin can sealed with rubber gasket spring caps.

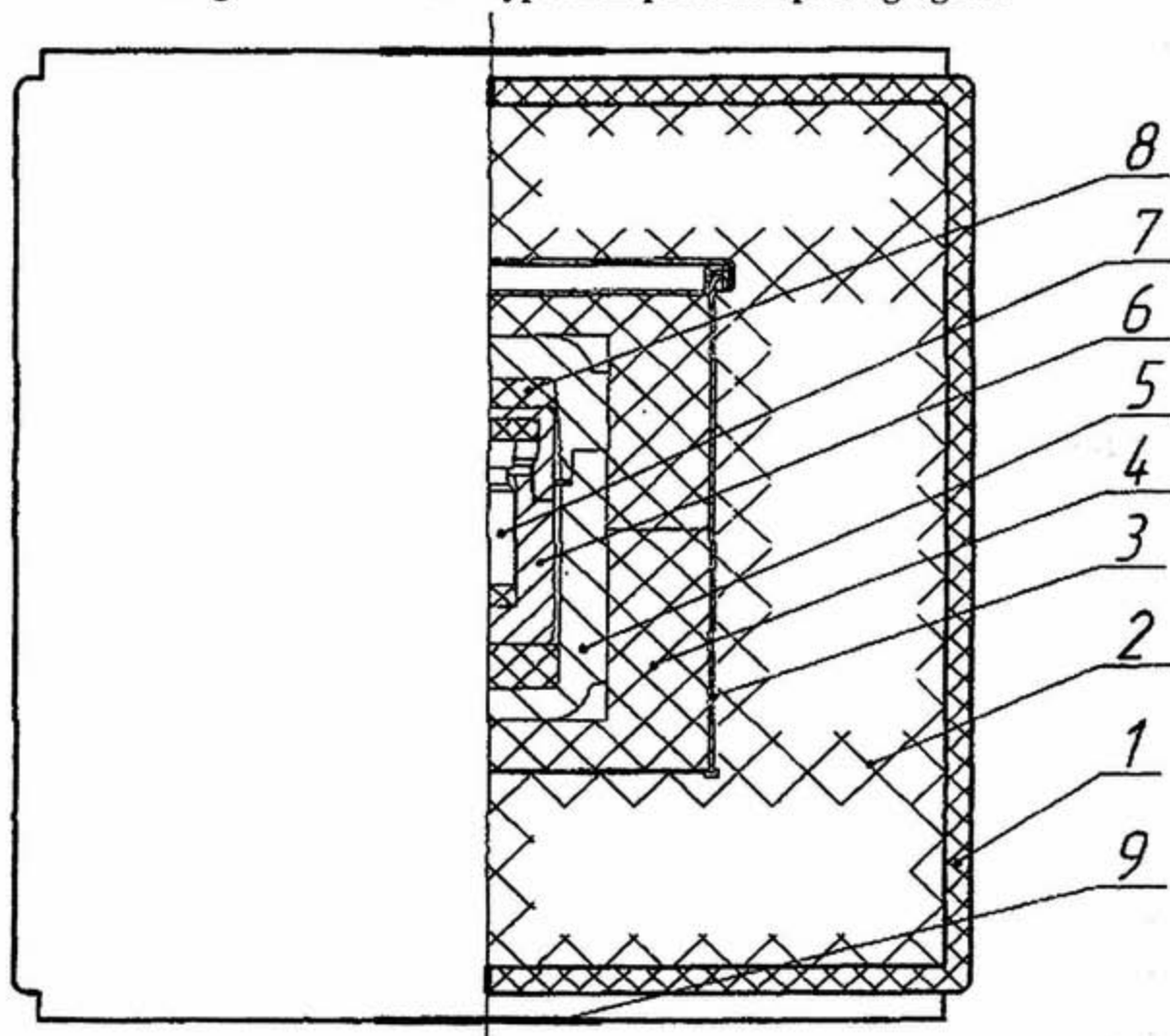
To prevent protective containers from displacement within shielding container (cardboard box) foam polystyrene or polyurethane foam inserts or cardboard distance-keeping elements are used.

Main parameters and dimensions of UKT1A-RI transportation packaging sets are presented in Table 2.

Table 2

Packaging set designation	Protective container (protection material)	Overall dimensions, mm	Weight, kg
UKT1A-1-2RI	Steel	220 × 220 × 230	1.0
UKT1A-3-2RI	Lead (KT1-3)	220 × 220 × 230	1.2
UKT1A-5-2RI	Lead (KT1-5)	220 × 220 × 230	1.5
UKT1A-10-2RI	Lead (KT1-10)	220 × 220 × 230	2.4
UKT1A-15-2RI	Lead (KT1-15)	220 × 220 × 230	3.6
UKT1A-20-2RI	Lead (KT1-20)	220 × 220 × 230	5.5
UKT1A-40-2RI	Lead (KT1-40)	220 × 220 × 230	9.5
UKT1A-3-1RI	Lead (KT1-3)	210 × 210 × 200	1.0
UKT1A-2-3RI	Aluminium	210 × 210 × 200	1.0

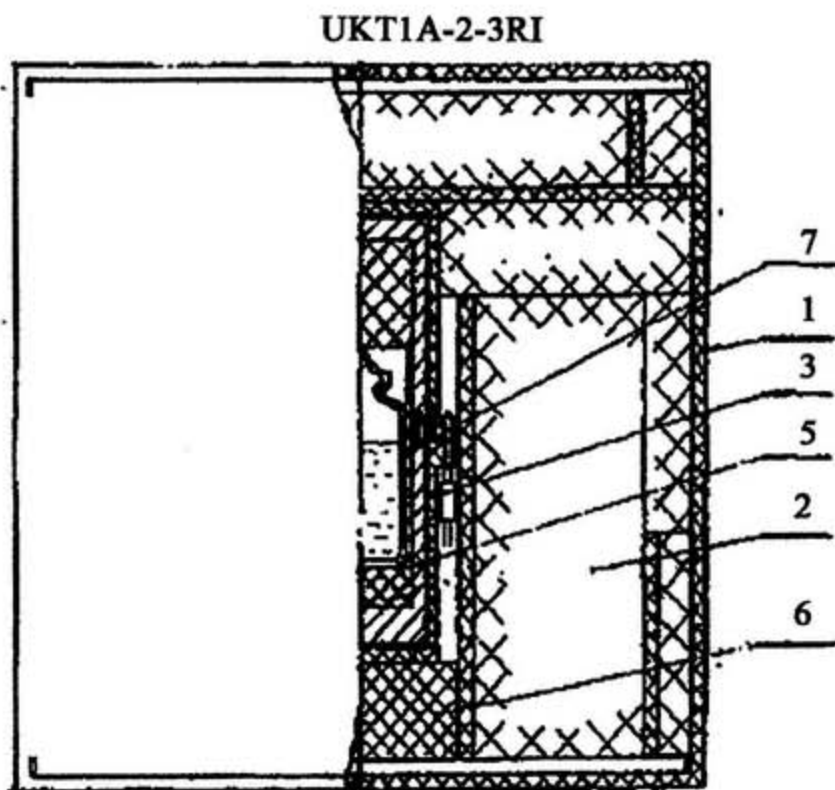
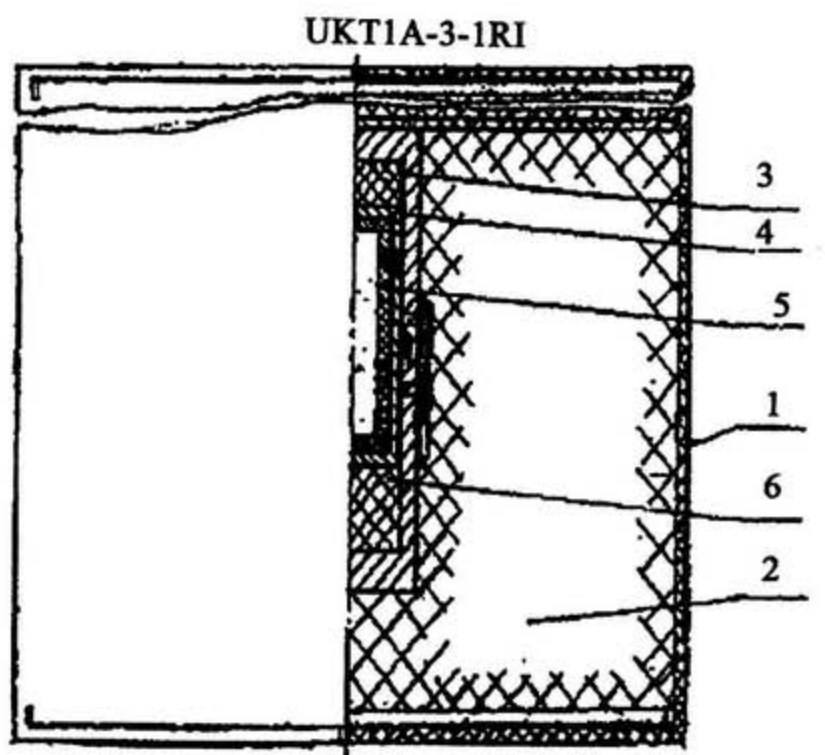
## Design of UKT1A-2RI type transportation packaging sets



- 1 – shielding container (cardboard box)
- 2 – cardboard or foam polystyrene
- 3 – airtight can
- 4 – insert (foam polystyrene)
- 5 – protective container
- 6 – airtight holder
- 7 – capsule or flask
- 8 – polyurethane foam
- 9 – polyethylene tape with adhesive layer

Figure 1

Design of UKT1A-3-1RI and UKT1A-2-3RI  
type transportation packaging sets



- 1 - cardboard box
- 2 - cardboard (polyurethane foam)
- 3 - holder
- 4 - lead container

- 5 - insert
- 6 - polyurethane foam
- 7 - capsule (flask) with radioactive substance

Figure 2

#### **4 Transport facilities and transportation conditions**

UKT1A-RI type transportation packaging sets with radioactive substance may be transported by all means of transport without limitations, observing safety regulations for Class 7 dangerous goods transportation under GOST 19433-88, provided for each means of transport.

UKT1A-RI type transportation packaging sets with radioactive substance shall be transported as per transport category not exceeding "III-YELLOW" (transport index (TI) not more than 10), with equivalent radiation dose rate at any point on the surface of the packaging at maximum radioactive substance load shall not exceed 2 mSv/h (200 mrem/h).

The total number of UKT1A-RI type transportation packaging sets with radioactive substance put on transport facility shall provide total transport index not exceeding 50 and radiation level at any point on the surface of transport facility not exceeding 2 mSv/h (200 mrem/h) and at a distance of 2 m from the surface – 0.1 mSv/h (10 mrem/h).

#### **5 Safety Precautions**

Works with UKT1A-RI type transportation packaging sets while loading and unloading of radioactive substance during transportation and storage shall be performed as per effective "Radiation Safety Norms" (NRB-99), "Basic Sanitary Regulations for Radiation Safety" (OSPORB-99), "Sanitary Regulations for Radiation Safety of Personnel and Population during Transportation of Radioactive Materials (Substances)" (SanPin 2.6.1.1281-03), "Safety Regulations for the Radioactive Materials Transportation" (NP-053-04) and also in compliance with technical description and operation instructions.

In case of emergency during transportation of UKT1A-RI type packagings with radioactive substance, one shall report immediately to:

FSUE "Atomspectrans" Command dispatch service at +7 (495) 239 44 81 (24 hour);

FSUE "SKC Rosatom Russia" at +7 (495) 933 60 44, fax: +7 (495) 933 60 45,  
239 24 35;

FSUE "ATC SPb" at Command dispatch service +7 (812) 702 19 00,  
fax: +7 (812) 591 53 33 (24 hour);

and act in accordance with emergency response cards depending on radionuclide being transported, requirements of NP-053-04 Section 7 and requirements of NP-014-2000 "Violation Review and Registration while Handling Radiation Sources and Radioactive Substances Used in National Economy" Section 3.

On any matters concerning certificate of approval, please contact Department of Nuclear and Radiation Safety and Licensing and Permissible Activity Organization of the Federal Atomic Energy Agency of the Russian Federation at 119017, Moscow, B. Ordynka str., 24/26; phone: +7 (495) 239 48 28, +7 (495) 239 29 27, or FSUE "ATC SPb" at 194292, Saint-Petersburg, 3<sup>rd</sup> Verhny per, 2; tel.: +7 (812) 297 73 10, tel./fax: +7 (812) 702 19 01.

Only registered copies of this certificate of approval with original stamp of FSUE "ATC SPb" or Department of Nuclear and Radiation Safety and Licensing and Permissible Activity Organization of the Federal Atomic Energy Agency of the Russian Federation are valid.

Deputy Head  
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October 30, 2007

Head of the Department  
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Director General  
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« \_\_\_\_ » \_\_\_\_\_ 2007