

## User's Guide for Preparation of Transport Package

**AERB Code to be followed:** Atomic Energy Regulatory Board (AERB) Safety Code No. AERB/NRF-TS/SC-1(Rev.1),2016

Reference book:

IAEA Regulations for the Safe Transport of Radioactive Material, Specific Safety Requirements No. SSR-6, 2012 Edition

### Selection of package

The selection of package depends on:

- Type of source
- Activity of source and
- Physical form of source

Based on the above, UN.No. and proper shipping name of the package can be obtained from Table 1.

**Table 1: Typical packages and their corresponding activity limits, UN No and proper shipping name**

Types of Package	Activity Limit	UN No	Proper shipping name and description
Excepted		2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-EMPTY PACKAGING
Excepted	$\sim 10^{-2}-10^{-4}$ of A <sub>1</sub> or A <sub>2</sub>	2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL
Type A (Other than special form)	A <sub>2</sub>	2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form
Type A (special form)	A <sub>1</sub>	3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM
Type B(U)	*Approved value	2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE
Type B(M)	*Approved value	2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE

\*The maximum activity of the source in the packaged to be approved by Competent Authority of AERB

**Table 2: Some Basic radionuclide values ( For details please refer AERB Code 2016)**




Sl.No.	Radionuclide	A <sub>1</sub> TBq	A <sub>2</sub> TBq
1	Co-60	0.4	0.4
2	Cs-137	2	0.6
3	Ir-192	1	0.6
4	Mo-99	1	0.6
5	I-131	3	0.7
6	F-18	1	0.6
7	Kr-85	10	10

### Packaging



Figure 1 : A typical packaging of radioactive contents

### Selection of category of package for labeling

Category >	Category I	Category-II	Category-III
			
Maximum radiation level at the external surface of the package	0.005 mSv/h ( 0.5 mR/h)	0.5 mSv/h (50 mR/h)	2.0 mSv/h (200 mR/h)
Transport Index	0.0	1.0	10

### A Typical Example of label: Category -I



### Typical Examples for Marking and labelling of package

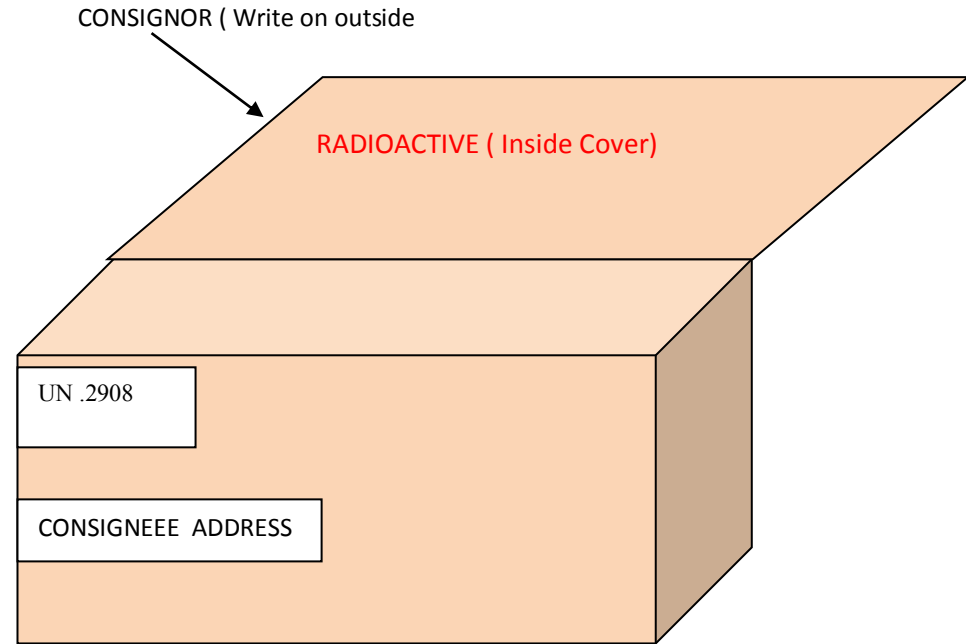


Figure 2: A typical marking and labelling of Excepted Package (Empty)

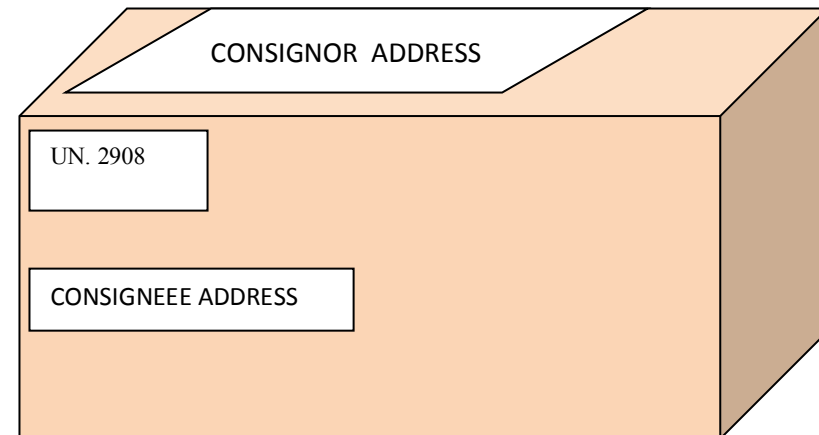


Figure 2i: A typical marking and labelling of Excepted Package (Empty)

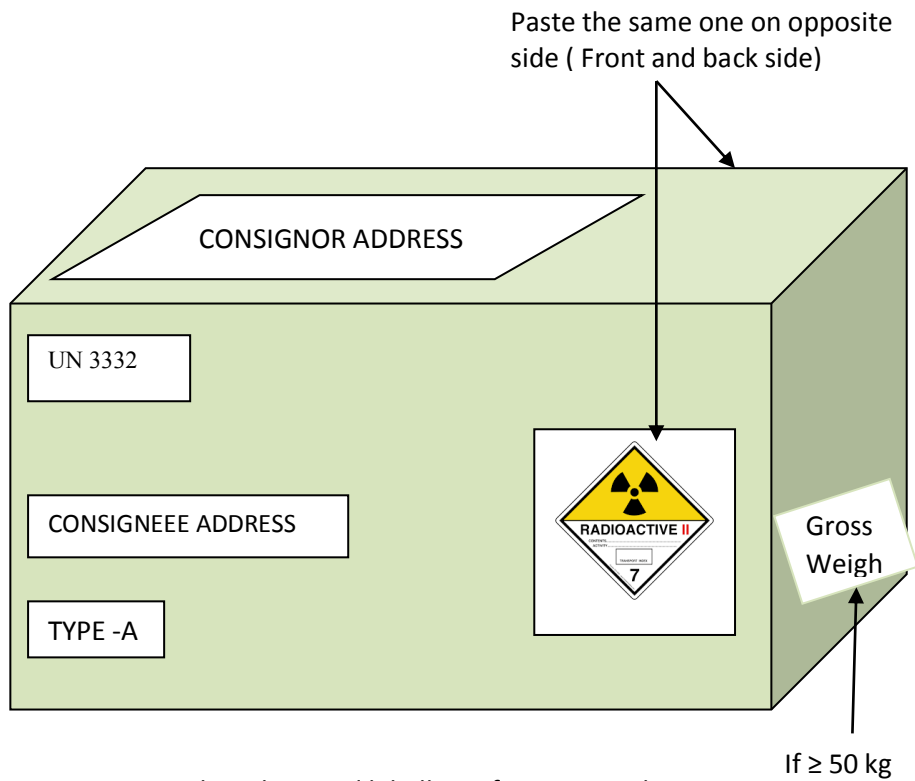


Figure 3: A typical marking and labelling of Type A package

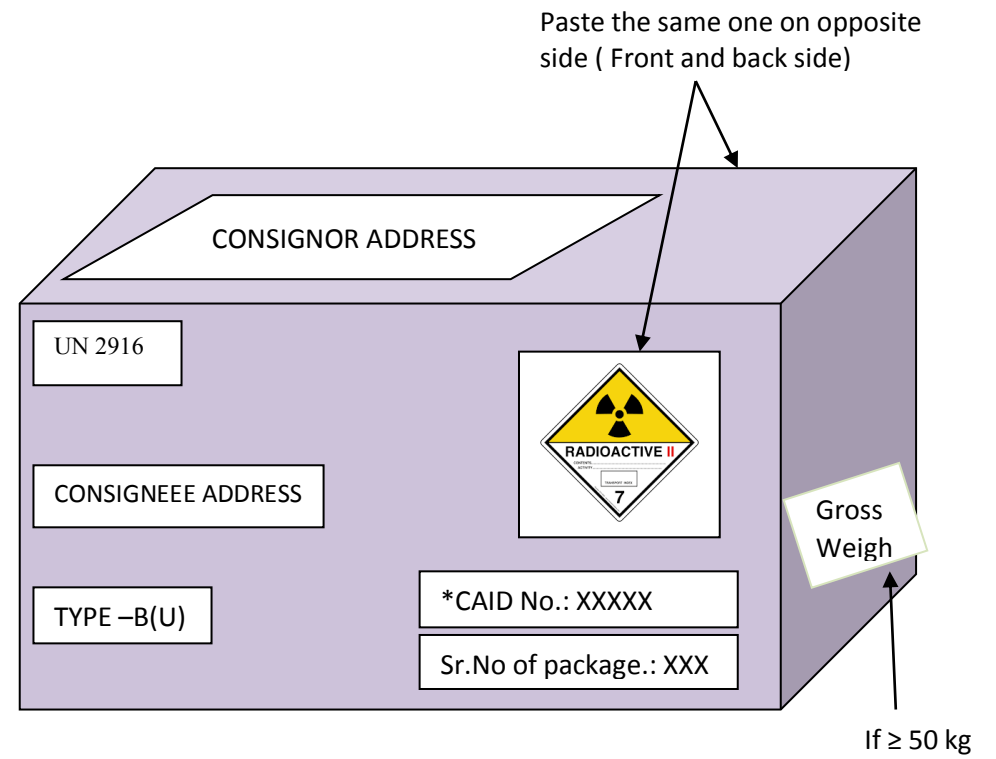


Figure 3: A typical marking and labelling of Type B(U) package

\*Competent Authority Identification Number

Cargo	:	Radioactive material
Nature of Hazard	:	Radioactive material, Potential external exposure
Emergency action	:	<ol style="list-style-type: none"> <li>1. Inspect the package visually. If it is intact, ensure onward journey in the same or another vehicle.</li> <li>2. In case of fire, fight from a distance</li> <li>3. If the package appears to be damaged, cordon a distance of 3 m around the package</li> <li>4. Obtain the names and addresses of persons who might have been exposed to radiation and convey the particulars to the Head, RSD, AERB and to the Head, RP&amp;AD, BARC</li> </ol>
Contact telephone numbers for advice and assistance	:	<p>A. Emergency Control Room, Crisis Management Group, DAE, Mumbai-400 001</p> <p>TF: 022-2202 3978, Telefax- 022-22021714  Fax-022-22830441, Mobile- +919969201364  Email- daeocr@dae.gov.in</p> <p><b>B. Alternate CMG – DAE, Emergency Control Room (ECR) located at Anushakti Nagar (VSB)</b></p> <p>Tel.: 022-2599 1070 ,<i>Telefax – 022-25515283*</i>  Fax- 022-25991080/022-25993080, Mobile- +919969201365  Email- vsbecr@npcil.co.in</p>