



**Network of ASEAN  
Chemical Biological Radiological  
Defence Experts**

**Recommended Operational Procedure**

**for**

**INTERNATIONAL  
TRANSPORTATION OF CBR  
SAMPLES**

**ASEAN-CBR-ROP-003 (draft)**

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**Amendment Record Sheet**

This form contains a record of the amendments made to the previous version of this document.

Paragraph(s)		Brief details of amendment	Proposed by	Approved by
New doc.	Previous doc.			

**1. Introduction**

This Recommended Operating Procedure (ROP) outlines the principles to be followed by setting out the general procedures for the preparation, packing (& unpacking) and transportation of CBR samples from field/on-site location (place of collection) to the mobile/stationary laboratory, or further to other certified/designated laboratories and possibly back to laboratory designated for long-term storage and preservation.

**2. Purpose**

This ROP guides members of the sampling team (ST), staff of on-site and off-site CBR laboratory/station involved in samples collection, splitting, preparation, identification, and packing (and unpacking) for transportation (locally and internationally) and/or storage of CBR samples with maintaining chain-of-custody during throughout.

**3. Scope**

This ROP sets out general procedures and mindset as guidance to ensure efficient and proper preparation and packing of CBR samples for transportation from where the samples were collected to field (on-site) and/or designated laboratories (off-site) for analysis and archival.

The scope of this ROP also covers the general principles and requirements regarding possible contingencies in preparation, packaging and transportation phases, including mishandling, compromising outer inner packages or transportation incidents/leakages/breaches etc. Key elements of procedures for the safe addressing (and documenting) of these situations are addressed as well.

This ROP is to be applied together with the other relevant procedures listed in paragraph 4 below.

**4. References**

The following documents have been used in preparing this procedure:

- a. ASEAN-CBR-ROP-001 on CBR Sample Collection;
- b. ASEAN-CBR-ROP-002 on CBR Sample Documentation and Chain of Custody;
- c. United Nation – Recommendation on the Transportation of Dangerous Goods, 21<sup>st</sup> revised edition;
- d. World Health Organization – Guidance on regulations for the Transport of Infectious Substances;

- e. Division 6.2 and Packing Instruction 650 of International Air Transport Association (IATA) – Dangerous Goods Regulations 62<sup>nd</sup> edition;
- f. NATO Handbook for Sampling and Identification of Biological Chemical and Radiological Agents (SIBCRA)
- g. Krüger, S. (2005). On-Site Analysis by the Inspection Team. Sampling, Analysis, Equipment, Procedures and Strategies. In Chemical Weapons Convention Chemicals Analysis, M. Mesilaakso (Ed.). <https://doi.org/10.1002/0470012285.ch3>;
- h. IAEA – Safeguards techniques and equipment 2011 edition.

## 5. Acronyms and Definitions

CBR	Chemical, Biological, and Radiological
CWA	Chemical Warfare Agents
CWC	Chemical Weapons Convention
IATA	International Air Transport Association
OIC	On-site Incident Commander
ROP	Recommended Operational Procedure
RT:	Response/Reconnaissance Team
SDS:	Safety Data Sheet
SPK	Sample Preparation Kit
ST	Sampling Team
STC	Sample Transport Container
ICAO	International Civil Aviation Organization
STL	Sampling Team Leader
UN	United Nations

- a. **Authentic sample:** An authentic sample is collected during an operation/response/investigation. An authentic sample can be a liquid or solid material, a wipe, a gaseous sample adsorbed on adsorbent material, or an on-site extract of these samples.
- b. **Control Sample:** Control samples are used to assess the performance of equipment, methods and personnel at an internal/external laboratory. Control samples are prepared by spiking target agent or its products at a known concentration into a characterised matrix, preferably a matrix of a similar composition as the matrix of the authentic sample.
- c. **Field background:** When possible, field background (control) samples corresponding to each type of contamination sample are to be taken from

non-contaminated proximate area/object/subject similar to contaminated area/object/subject and packaged and transported in the same manner as the samples suspected of contamination

- d. **Matrix blank:** A matrix blank consists of a characteristic matrix, preferably a matrix of a similar composition as the matrix of the authentic sample and/or the control sample. A matrix blank is used to assess the performance of equipment, methods and personnel at an internal/external laboratory. Field background samples can be/are also taken and processed for the purpose of estimating incidental or accidental contamination of samples during collection, packaging and shipping from the field. This is frequently called contamination bias.
- e. **Duplicate samples:** Duplicate samples are a pair of co-located yet independent samples that are of equally representative (in time and space) of a single sample location. They represent the same population and are carried through all steps of the sampling and analytical procedures in an identical manner. Examples of duplicates include water samples collected from the same location, or side-by-side soil samples. Duplicates provide an overall assessment of precision for the entire measurement process, and may also indicate whether contamination is homogeneous or heterogeneous
- f. **Sample:** The generic term “sample” when used without specifications applies to all types of samples given above.

## 6. Responsibilities

The responsibilities of the Sampling Team Leader (STL) and the team member(s) involved in on-site sampling procedures are described in “CBR Sample Collection” (ASEAN-CBR-ROP-001). The responsibilities for activities described herein are assigned to the personnel responsible for packaging and transportation of CBR samples while maintaining chain-of-custody of the CBR samples.

Deviations/modifications to the procedures in this ROP can be undertaken if properly documented (Annex 1) to allow evaluation of the impact on the analysis results.

## 7. Packaging of Samples for Transportation

All activities involving samples collected, for examples collection, splitting, preparation, analysis and transportation of samples should be duly documented in the S&A Booklet (refer to Annex 2 of ASEAN-CBR-ROP-002), and supported by relevant documentation.

- a. **Sample in original vessel:** Transfer appropriate amount of sample (refer to ASEAN-CBR-ROP-001 on sample collection) into appropriate primary receptacle (e.g. sterile or clean bottle/tubes) that meets International Civil Aviation Organization (ICAO) requirements. Close the primary container properly and tightly.
- b. **Primary receptacle:** Wipe exterior of each primary receptacle using appropriate decontamination solution. Affix (i) tamperproof security seal and (ii) unique identification number onto each primary receptacle.
- c. **Secondary receptacle:** One or more primary receptacles may be placed into a single secondary receptacle (e.g. leak-proof and/or tamperproof bag or box) that meet ICAO requirements. When more than one primary receptacle is to be placed inside a single secondary receptacle, each primary receptacle should be separated to prevent them from coming into contact with each other. Appropriate absorbent materials (e.g. liquid absorbent materials, carbon sachet) can be used to wrapped individually around each primary receptacle to create partition between them. In addition, when sufficient quantity (i.e. sufficient to absorb entire content of all primary receptacles) of absorbent materials are used, the absorbent materials can help absorb leakage from the primary receptacles (if any). Seal secondary receptacles with tamperproof seal (if it's sealing is not tamperproof) and affix a unique identification number to each secondary receptacle. Wipe exterior of secondary receptacle using appropriate decontamination solution or put it through decontamination tank during exit from hot zone to warm/cold zone (e.g. at contamination reduction point).
- d. **Accompany documents:** Essential information such as scenario where samples were collected, results of any on-site analysis, number of samples and potential hazards of the samples needs to be packaged separately from the samples itself (i.e. outside the secondary container) and be transferred together with the samples to the receiving laboratory.
- e. **Storage conditions:** Samples should be stored under appropriate physical and environmental conditions to avoid degradation of samples (e.g. inside fridge) prior and during transportation.
- f. **Personnel protection equipment:** Appropriate personal protection equipment (PPE) (e.g. splash-proof disposable gown/suit, contact/exposure barrier such as gloves or shield, and respiratory and mucosa protection such as canister respirators) should be donned while handling samples; or additional protection(e.g. isolator or "gloved" box), based on risk assessment, might be required for handling the samples.

- g. **Materials safety data sheets:** All individuals handling samples should familiarize themselves with the Safety Data Sheets (SDS) of potential agents suspected to be present in the samples collected and also to review any other relevant information available so as to ensure proper preventive measures are implemented and availability of first aids measures in case of an emergency.
- h. **Tertiary receptacle:** Samples in secondary receptacles and accompany documents should be packaged into appropriate tertiary receptacle (i.e. comprises of two components – inner container and outer shipping box) that meets ICAO requirements. The outer shipping box of tertiary receptacle should be affixed with appropriate hazard sign, appropriate dangerous goods logo, tamperproof seal, tracking identification number, recipient name and destination address. The final package must be accompanied by duly completed shipping documents. The information contained in the shipping documentation must be limited to the minimum information necessary for the transfer of the custody of samples (and for respecting the dangerous good regulations) and should not be packed into the tertiary receptacles
- i. **Qualification and witness:** Packing and sealing of sampling for transportation must be performed by or under the guidance of a certified dangerous goods packer and witnessed by a staff member of Sampling Team and/or On-site Incident Commander.
- j. **Sample tracking:** Chain-of-custody form (refer to ASEAN-CBR-ROP-002, Annex 3) must be updated with primary and secondary receptacles unique identification number and tracking identification number on tertiary receptacles; and a hand-over-take-over (HOTO) form must be prepared and accompany the tertiary receptacle package.

## 8. Movement and Hand-Over of Tertiary Receptacles

- a. **Physical hand-over:** On-site Incident Commander (OIC) will appoint a Sampling Team member as sample escort to accompany the sample package (i.e. packed in tertiary receptacle) and necessary documentations (inclusive of HOTO form) from on-site to off-site destination. At destination, the addressed recipient will need to verify the integrity of the tamperproof seal, record any non-conformities observed and signs on the HOTO forms. The person escorting the sample package is to physically return the completed HOTO form to office of OIC.

- b. **“Virtual” hand-over:** When deemed more appropriate by the Head of the off-site laboratory, with concurrence from the office of OIC, a “virtual” hand-over may be used. In this case, ST or on-site laboratory staff member(s) do not accompany the sample, and the HOTO forms is transmitted via secured channel. The receiving laboratory shall photograph integrity of the tamperproof seals, record any non-conformities observed and signs on the HOTO forms, then transmits completed form via secured channel back to the office of OIC.

## 9. Transportation via air

For shipment by air cargo, IATA regulations on dangerous goods must be followed. Samples are shipped under:

- a. **Chemical samples:** For neat CWA/unknowns, it falls under UN number 3315 “Chemical sample, toxic – liquid or solid”, class 6.1. These samples are allowed to be transported by air only under the Special Provision A106 (see Annex 2). Under this provision, these samples can be transported on a passenger or cargo plane providing prior approval by the appropriate authority of the State of origin (see Annex 2, 3). The original approval document has to be presented to the airline company, a copy of the approval must be sent with the samples. Final acceptance of the dangerous goods shipment is at the complete discretion of the operator (airline pilot).
- b. **Biological samples:** All infectious substances are classified under Class 6.2. Following under ICAO/IATA Packing Instruction 620 for Infectious Substances and under IATA Packing Instruction 650 for Diagnostic Specimens. Infectious substances are substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsia, parasites, and fungi) and other agents such as prions, which can cause disease in humans or animals. Possible Polystyrene freezer container with closure and closure stabilizer where dry ice can be packed inside of the freezer. This option conforms to ICAO/IATA packing instruction 954 for dry ice shipments.
- c. **Radioactive samples:** Radioactive materials falls under shipping Class 7 (Type A<sup>1</sup>). It conforms to the requirements of the ICAO 2015-16 edition

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<sup>1</sup> Type A packages: used to transport small quantities of radioactive material with higher concentrations of radioactivity than those shipped in industrial packaging. They are typically constructed of steel, wood, or fiberboard, and have an inner containment vessel made of glass, plastic, or metal surrounded with packing material made of polyethylene, rubber, or vermiculite. Examples of material typically shipped in Type A Packages include nuclear medicines (radiopharmaceuticals), radioactive waste, and radioactive sources used in industrial applications.

Type A packaging and its radioactive contents must meet standard testing requirements designed to ensure that the package retains its containment integrity and shielding under normal transport conditions. Requirements for Type A packaging are addressed in 49 CFR 173.412

technical instructions for transporting dangerous goods by air and the road-ADR, 2015 edition, for the carriage of dangerous goods by road. Class 7 Radioactive Material is defined as any substance with a specific activity greater than 70 kBq/kg (70 Bq/g).

- d. Since the samples will always be transported by road, (e.g. to and from the on-site Laboratory) their shipment must follow the appropriate regulations as well.

## **10. Transportation via road**

To comply with local regulations on transport of dangerous goods on roads.

## **11. Copyright and Disclaimer**

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**Annex 1 – An Example of a Non-conformity Report Template**

Date	
Operation/Deployment Code	
OIC/Team Leader	
Sub-team Leader of the Sampling/Identification Team	
Non-conformity related to ROP number	
Location/time of non-conformity action	

Reported by (Full name and Role): \_\_\_\_\_

Description of the non-conformity\*:

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Reason for deviation\*

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Signature of reporting team member	
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\*include further pages if necessary

## Annex 2 – Transport Regulations

### **IATA Dangerous Goods Regulations (spec.provision for Chemical Weapons Convention-based neat chemical warfare agents and unknown samples)**

**PROVISION A106:** This entry may only be used for samples of chemicals taken for analysis in connection with the implementation of the Chemical Weapons Convention.

They may be transported on a passenger or cargo aircraft providing prior approval has been granted by the appropriate authority of the **State of origin** or the Director General of the Organization for the Prohibition of Chemical Weapons. For instructions on shipping such samples contact the national competent authority.

The substance is assumed to meet the criteria of Packing Group I for Division 6.1. Subsidiary risk labelling is not required.

A copy of the document of approval showing the quantity limitations and the packing requirements must accompany the consignment.

### **Packing Instruction 623 of the ICAO2**

The general packing requirements of Part 4, Chapter 1 of the Technical Instructions must be met.

Packages must incorporate features such as security seals, coatings or wraps to provide an indication of tampering.

Consignments of Chemical samples, toxic, liquid or solid must be prepared in such a manner that they arrive at their destination in good condition and present no hazard to persons during shipment. They must be packed according to either a) or b) and the construction of the packaging and its testing must be approved by the appropriate authority of the State of Manufacturer.

1. The chemical samples must be contained in inner packages, which are packed into an intermediate packaging. The intermediate packaging must be packed in an outer packaging.
  - a. The inner packaging must comprise primary receptacles, secondary packages and activated granular charcoal, or inactive absorbent material, as appropriate, as follows:
    - i. Primary receptacles which must be one of the following:
      - a vial containing pure material with maximum contents of 1.25 g; or

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<sup>2</sup> According to 2011-2012 Edition, Supplement.

- a vial for dilute material with maximum contents of 50 g; or
  - a vapor absorption tube with maximum contents of 10 milligrams;
- ii. Watertight secondary packaging which must be in the intermediate packaging. The secondary packaging must not contain more than two primary receptacles;
  - iii. Activated granular charcoal or inactive absorbent material, as appropriate, which must be placed between the primary receptacle and the secondary packaging. If there are two primary receptacles they must be wrapped individually to ensure contact between them is prevented. The quantity of activated granular charcoal or inactive absorbent material, as appropriate, must be sufficient to absorb the entire contents of all primary receptacles. The primary receptacles or secondary packaging must be shown through testing to be capable of withstanding a 250 kPa hydrostatic pressure test.
- b. The intermediate packaging must be a steel drum (1A2) containing a maximum of four secondary packaging and sufficient quantity of activated granular charcoal or inactive absorbent material, as appropriate, to absorb the entire contents of all the primary receptacles. The activated granular charcoal or inactive absorbent material, as appropriate, must be placed between the secondary packaging and the intermediate packaging. If there is more than one secondary packaging in an intermediate packaging, each secondary packaging must be wrapped individually to ensure contact between them is prevented.
  - c. The outer packaging must comprise a wooden box in which is a metal box containing thermal insulation (compressed cork). The intermediate packaging must be held securely in place within the outer packaging. A maximum of two intermediate packaging may be placed in an outer packaging.

The design type of the intermediate packaging must be tested to demonstrate that it can withstand the free drop test and penetration test in Part 6;7.16.2 a) and b) and the thermal test in Part 6;7.16.3. There must be no external release of the contents as a result of the tests.

2. The chemical samples must be contained in a packaging consisting of an inner packaging, an intermediate packaging, and a steel drum (1A2) outer packaging. The packaging components must conform to the following:
  - a. The inner packaging must include impact resistant primary receptacles of glass or other material of at least equivalent strength contained in a secondary receptacle. Each primary receptacle may contain no more than 50 milliliters of sample.

- b. Each secondary receptacle must be shown through testing to be capable of withstanding a 250 kPa hydrostatic pressure test. The secondary packaging must contain sufficient absorbent material to absorb the entire contents of all primary receptacles. Not more than seven primary receptacles may be contained within the secondary container. Prior to each shipment, the secondary packaging must be leak tested by pressurizing the packaging to 100 kPa and testing for leakage with a device capable of detecting leak rates of  $10^{-3}$  atm-cm<sup>3</sup>/sec.
- c. The intermediate packaging with the inner packaging in place must be capable, as demonstrated by testing, of withstanding the drop test in Part 6;7.16.2 a), the penetration test in Part 6;7.16.2 b) and the thermal test in Part 6;7.16.3 a). There must be no release of contents. After being subjected to the above tests, the inner packaging must be capable of successfully passing the leak proofness test prescribed in the ISO/TR 4826-1979(E) with a leakage rate not greater than  $10^{-6}$  atm-cm<sup>3</sup>/sec.
- d. The steel drum (1A2) outer packaging must be capable of meeting the performance packaging requirements at the Packing Group I level for solids and must be capable of withstanding a 100 kPa internal air pressure test.

The intermediate packaging must be firmly secured in the outer packaging.

## **Annex 3 – Examples of sample transportation container**

### **Transportation of infectious substances**

#### **References:**

1. World Health Organization – Guidance on regulations for the Transport of Infectious Substances.
2. Division 6.2 and Packing Instruction 650 of International Air Transport Association (IATA) – Dangerous Goods Regulations 62<sup>nd</sup> edition.

#### **A. Transportation regulations**

1. UN Model Regulations (Recommendations on the Transport of Dangerous Goods – Model Regulations)
  - a. A set of recommendations that provides minimum set of provision for safe transportation of dangerous goods, including infectious substances.
  - b. It covers all modes of transport, such as: air, rail, road, sea, postal.
2. National regulations
  - a. Many countries adopt the UN Model Regulation holistically and with variation/modification to cater to local situations for their national dangerous goods legislations.
3. Courier's regulations
  - a. Courier operators may impose additional safety requirement to ensure higher level of accountability of clients that engaged them for transportation of dangerous goods.
  - b. Failure to comply might result in delay and/or rejection of shipment.
  - c. Not all airliners will carry dangerous goods, among those that are willing, some only carries a limited range of dangerous goods.
4. Dangerous goods security
  - a. Substances/materials that can potentially be used for terrorist intent resulting in mass casualties/destruction will be considered as dangerous goods of high consequences.
  - b. A security plan must be developed, implemented and complied for dangerous goods of high consequences.

#### **B. Stakeholders**

1. Shipper – the person or institution sending the package

2. Courier – the commercial entities involved in carrying the package
3. Receiver – the person or institution receiving the package

C. Definitions of materials

1. Infectious substances – are materials/products known to contain or expected to contain pathogens (i.e. microorganisms such as bacteria, virus, parasites and fungi; and prions that can cause diseases in human and animals)
  - a. Cultures – pathogenic microorganisms intentionally propagated under laboratory conditions, amount of pathogen present is usually high.
  - b. Patient specimens – substances/materials collected directly from human or animals.
  - c. Biological products – substances/materials derived from living organisms.
  - d. Medical/clinical waste – substances/materials used and/or discarded in the process of patient's management and/or laboratory activities.

D. Infectious substances categories

1. Infectious substances are assigned to Dangerous Goods Class 6, **Division 6.2** and sub-divided into two categories – Category A and B
  - a. **Category A** – materials transported in a form that can result in permanent disability, life-threatening or fatal disease in healthy humans or animals, when being exposed.
    - i. **UN2814** and a proper shipping name of **INFECTIOUS SUBSTANCE, AFFECTING HUMANS** is to be assigned to infectious substance capable of causing disease in humans, or both humans and animals
    - ii. **UN2900** and a proper shipping name of **INFECTIOUS SUBSTANCE, AFFECTING ANIMALS** is to be assigned to infectious substance capable of causing disease in animals only.
    - iii. If the technical name of the hazardous biological agent present is known, it must be provided in **(parentheses)** after the proper shipping name.
    - iv. If biological agent is unknown, and suspected to meet the criteria of Category A, it must be indicated as “**suspected Category A infectious substance**” in parentheses after the proper shipping name.
  - b. **Category B** – materials that does not meet the criteria of Category A, i.e. when exposed, it does not lead to disability and/or life-threatening consequences. The UN number assigned

for this category is **UN3373** with its proper shipping name of **BIOLOGICAL SUBSTANCE, CATEGORY B**.

E. Packing instructions

1. Packing Instruction P620 provides Category A packing requirements. Category A infectious substances must only be transported in a triple packaging system tested according to the 'Requirements for the Construction and Testing of Packaging for Division 6.2 Infectious Substances of Category A (refer to Table Annex 3-1).
  - a. Primary receptacle – to hold the sample
    - i. Appropriately labelled.
    - ii. Quantity limit of 50ml or 50g for passenger aircraft, 4L or 4kg for cargo only aircraft and no limit for surface transport (i.e. road, rail and maritime)
    - iii. Can be of glass, metal or plastic materials
    - iv. Impermeable and watertight (i.e. leak-proof for liquid and sift-proof for solids).
    - v. Must not become punctured, broken, weakened or affected when in contact with materials within.
    - vi. When contain is liquid or semi-liquid, it must be wrapped with sufficient absorbent materials on its exterior to absorb all the fluid in event of a breakage or leakage.
  - b. Secondary container – to hold the one or more primary receptacles, absorbent materials and cushioning materials when required.
    - i. Able to withstand differential pressure of at least 95kPA (0.95 bar) and temperatures in the range of -40°C to +55°C.
    - ii. Watertight, leaf-proof and sift-proof.
  - c. Tertiary (Outer) packaging – to hold secondary container so as to protect it from physical damage during transit and an itemized list of contents that includes the proper shipping name and technical name in parentheses of the biological agent present if known or “suspected Category A infectious substance” when identity of biological agent is unknown
    - i. Must be rigid
    - ii. With appropriate strength to hold the weight, size and composition of secondary container
    - iii. Has at least one surface with minimum area of 100mm x 100mm.

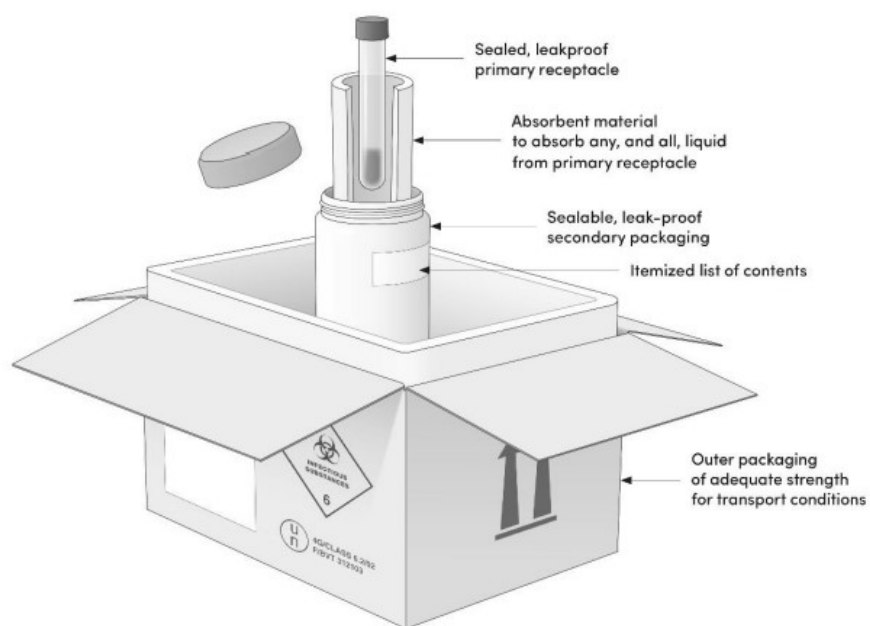


Figure Annex3-1: An example of triple packaging for Category A. Image was extracted from WHO Guidance on regulations for the Transport of Infectious Substances.

2. Packing Instruction P650 provides Category B packing requirements. Category B infectious substances must only be transported in a triple packaging system, fairly similar to Category A, but with lesser stringency in requirements. Refer to Table Annex 3-1 for requirements comparison between Category A and B.
  - a. Primary receptacles – quantity limit of 1 liter for air shipment but no limit for road, rail and maritime.
  - b. Secondary container – quantity limit of 4 liters for air shipment but no limit for road, rail and maritime.

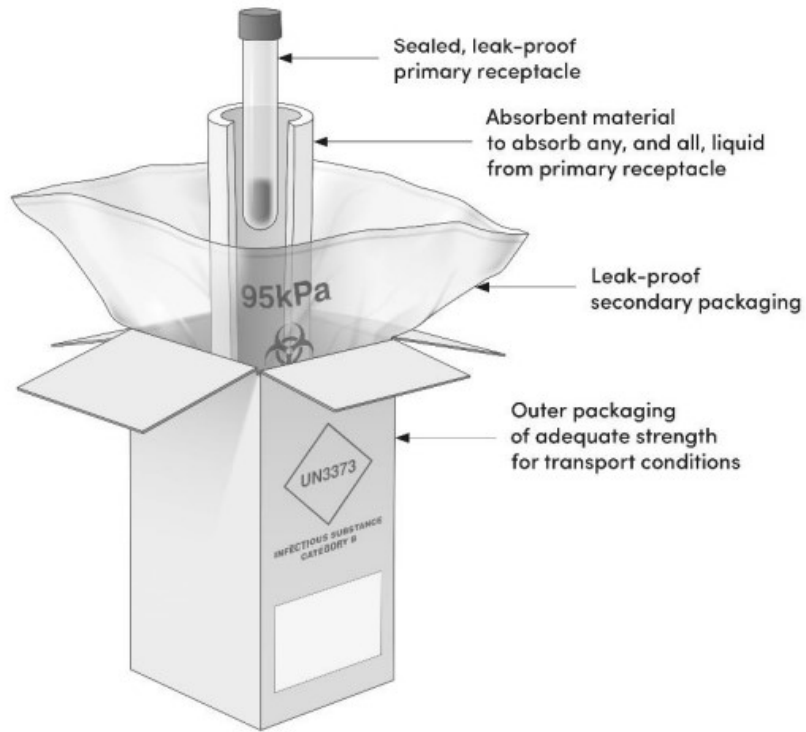


Figure Annex3-2: An example of triple packaging for Category B. Image was extracted from WHO Guidance on regulations for the Transport of Infectious Substances.

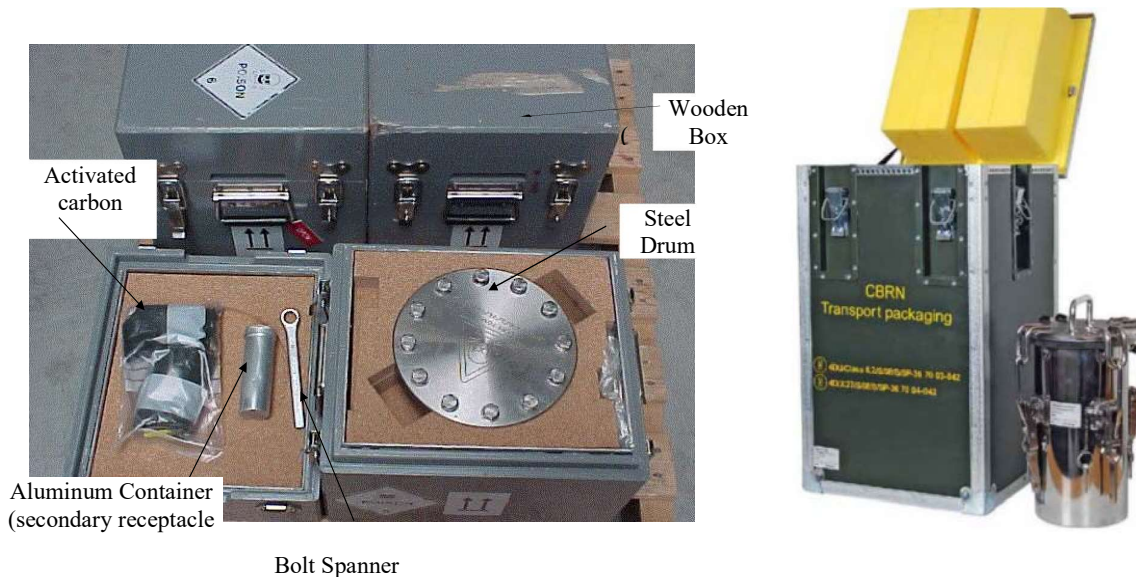
Table Annex 3-1: Comparison on triple packaging requirements for Category A and B substances.

Packaging requirements	Category A UN2814 & UN2900	Category B UN3373
Primary receptacle	Leakproof / Sift-proof	Leakproof / Sift-proof
	Cushioning required (Must be individually wrapped when more than one going into same secondary container)	Cushioning required (Must be individually wrapped when more than one going into same secondary container)
	Absorbent materials required (sufficient to absorb all content)	Absorbent materials required (sufficient to absorb all content)
Secondary container	Leakproof / Sift-proof	Leakproof / Sift-proof
	Able to withstand differential pressure of at least 95kPA (0.95 bar) and temperatures in the range of -40°C to +55°C	Able to withstand differential pressure of at least 95kPA (0.95 bar) and temperatures in the range of -40°C to +55°C
Outer packaging	An itemized list of contents that includes the proper shipping name and technical name in parentheses (in between secondary container and outer packaging)	An itemized list of contents that includes the proper shipping name and technical name in parentheses (in between secondary container and outer packaging)
	Rigid	Rigid
	Has at least one surface with minimum area of 100mm x 100mm	Has at least one surface with minimum area of 100mm x 100mm
Packaging drop-test height	9 meters	1.2 meters
Packaging stack-test	3 meters for 24 hours	Not required
Marking	Class 6.2 hazard label and proper shipping name	UN3373 mark and proper shipping name

## Transportation of chemical agents

Special provision for Chemical Weapons Convention-based neat chemical warfare agents

ICAO packing instruction 623 section a).



Parts of the kit:

- (i) Wooden box with cork insert and locking claps (outer packaging)
- (ii) Steel drum, lid and bolts (intermediate packaging)
- (iii) 4 Aluminium containers (secondary packaging)
- (iv) 2 packs of activated carbon from SPK
- (v) Bolt spanner

The **small transportation container** can be packed with a maximum of eight primary containers (sample vials): maximum of two primary containers in one secondary packaging (aluminium container) and maximum of four secondary containers in the intermediate packaging (steel drum).

Packing is performed in accordance with the ICAO instructions 623 section a) in Annex 1.

## **Example of Approval of Transport Under Air, Road and Sea Regulations**

(special provision for CWC-based neat CWA and unknown samples)

### **Approval of the Transport of Chemical Samples by 1) Air, 2) Road, or 3) Sea**

#### **Head of National Authority /...**

**for air transport:** *With reference to the Supplement of the International Civil Aviation Organisation's Technical Instructions (Doc. 9284-AN/905) concerning the safe transport of dangerous goods by air and in accordance with Special Provision A106 of the ICAO-TI and IATA Dangerous Goods Regulations; and considering this document can only be used for samples of the chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (CWC), hereby grants approval to: and*

**for road transport:** *With reference to the European Guideline 94/55/EG, that states that the ADR provisions are applicable concerning the safe transport of dangerous goods by road, and in accordance with the Special Provision 250 of paragraph 3.3 of the ADR; and considering this document can only be used for samples of the chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (CWC), hereby grants approval to: and*

**for sea transport:** *With reference to the International Convention for the Safety of Life at Sea (SOLAS), 1974, that deals with the transport of dangerous goods and the International Maritime Dangerous Goods – Code (Amendment 30) in accordance with the Special Provision 250 of the IMDG-code; and considering this document can only be used for samples of the chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (CWC), hereby grants approval to: and*

considering this document can only be used for samples of the chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (CWC), hereby grants approval to:

- any operator transporting on behalf of State Party National Authority
- any designated official of the State Party National Authority

to offer for transport / to carry on board a 1) *passenger or cargo aircraft*; 2) *vehicle*; 3) *sea transport*:

### Specifications:

UN -number	UN 3315
Proper Shipping name	Chemical sample, toxic
Class/ Division	
<i>for air transport:</i>	Class 6, 6.1 (subsidiary risk not required)
<i>for road transport:</i>	6.1 (subsidiary risk not required)
<i>for sea transport:</i>	Class 6, 6.1 (subsidiary risk not required)
Packing Group	
<i>for air transport:</i>	I
<i>for road transport:</i>	I
<i>for sea transport:</i>	I
Classification Code	
<i>for road transport:</i>	T8
Specifications of the Package	Special designed and approved steel drum (1A2-intermediate packaging), packed into a metal box containing thermal insulation, packed into a wooden box
Specification Marking :	UN/1A2/X16/S/( GB/2302 <i>manufacture year, i.e</i> 96) <sup>3</sup> /
Serial Number	Example: 001, 002, or 003
Packing Instruction	
<i>for air transport:</i>	623 ICAO-TI (as referred to in ICAO Doc. 9284)
<i>for road transport:</i>	623 ICAO-TI (as referred to in Special Provision 250 ADR)
<i>for sea transport:</i>	623 ICAO-TI (as referred to Special Provision 250 ADR)

<sup>3</sup> Each certificate needs to have the correct year of manufacture (listed on the steel drum) and serial number (on wooden box)

**This approval is subject to the following conditions:**

1. A copy of this approval must accompany each consignment.
2. The transport must be in accordance with the chain of custody and security procedures as per the CWC guideline
3. The packaging must incorporate features such as security seals, coatings or wraps to provide all indications of tampering.
4. The transport document for dangerous goods must include a 24 hour emergency response telephone...
5. This telephone number must be entered in the "Additional Handling Information" box after the statement: "Emergency contact".
6. The package must be labelled with a Division 6.1 hazard label.
7. All other relevant requirements of the transport regulations shall be fulfilled.
8. Any accident or incident with regard to the transport under this approval shall be reported immediately, without delay, to the Head of National Authorities to the CWC.

Member State NA

(Date and Place)

## Example of Packaging Certificate for Transport Under Air, Road and Sea Regulations

(special provision for CWC-based neat CWA and unknown samples)

### CERTIFICATE OF PACKAGING PERFORMANCE

Issued on behalf of the Department of the Environment, Transport and the Regions, Civil Aviation Authority  
and the Health and Safety Executive by Pira International Limited

Randalls Road, Leatherhead, Surrey KT22 7RU England.  
Telephone (01372) 802000. Fax (01372) 802238.  
Registered Number: 3858209 England Limited Liability



Certificate serial number:	<b>2302</b>	<b>NOT TRANSFERABLE</b>	Application No.:	<b>1214</b>		
Issue number and date:	<b>03 23/11/01</b>					
Issued to:	<b>DEFENCE SCIENCE AND TECHNOLOGY LABORATORIES</b> <b>Chemical and Biological Services</b> <b>Porton Down</b> <b>Salisbury</b> <b>Wiltshire</b> <b>SP4 0JQ</b>		Packaging type:	<b>1A2</b> Description: <b>Drum, steel, removable head</b>		
			Test Contents:	<b>Powdered charcoal surrounding 4 x aluminium cannisters containing vials and/or absorption tubes</b>		
Capacity:	<b>2.2 litres</b>	Stainless:	<b>Yes</b>	Tinplated:	<b>No</b>	
Metal thickness Body:	<b>10.00 mm</b>	Base:	<b>12.00 mm</b>	Head:	<b>15.00 mm</b>	
Diameter:	<b>203 mm</b>	Height:	<b>170 mm</b>	Rolling hoop(s):	<b>No</b>	
Closing ring:	<b>None - flanged closure with 12 bolts</b>		Full aperture:	<b>Yes</b>	Head gasket:	<b>148mm dia. 'O' ring</b>
No closures in head:	<b>0</b>	Handle:	<b>None</b>			

Within the drum is powdered charcoal surrounding up to 4 x screwcap aluminium containers holding a quantity of glass vials and/or vapour absorption tubes.

☒ For additional options see schedule issue no n/a date n/a.

It is certified that samples of the packaging design type described above have been tested in accordance with the provisions of the United Nations Recommendations on the Transport of Dangerous Goods, Chapter 6.1 (and the equivalent provisions in RID/ADR, the IMDG Code and the ICAO Technical Instructions) and successfully met the criteria described in paragraphs 6.1.5.3 to 6.1.5.6:

To test levels of:	The packaging is approved, as provided in the relevant transport rule, to contain solids of:		
DROP HEIGHT (m)	9	packaging group	gross mass (kg)
STACKED AT 3m with BD (d)	I	-	16
	II	-	16
	III	-	16

#### THE TEST REPORT(S) AND ITS APPENDICES ARE AN INTEGRAL PART OF THIS DOCUMENT

Packagings of the sample specifications shall bear the marking:



**1A2/X16/S/\*\*/GB/2302**

Signed:

\*\* To be replaced by the last two digits of the year of manufacture

R M Castle, Chief Officer (Dangerous Goods)

Amendments or additions to this certificate or the design type specification described therein other than those authorised by the certifying body render the certificate invalid

## Annex 4 – Example - Material Required for Packaging and Transport of CBR Samples

### 1 Equipment required for transporting samples off-site.

Name	Quantity
<b>Small sample transportation kit consisting of:</b>	
Box, wooden with locking claps	1
Cork packing insert	1
Steel canister, lid and bolts	1
Steel or aluminium container and screw lid	4
Labels, UN 3315 <sup>1</sup>	5
Activated Carbon, packs of 1 L	2 pks
Equipment transport container, tie-on plastic seals	10
Hazard labels, address labels, documentation as required for transport <sup>1</sup>	1 set per container

<sup>1</sup> Provided by the cargo company

### 2 Material required for packaging samples (minimum quantities).

Name	Quantity
Activated Carbon, Shielding pellets, etc. from SPK	2 packs
Tape	4 rolls
Bags, ziplock plastic, different sizes	40
Digital camera	1
Printer	1
Seals, frangible, adhesive	20
Seals, tie-on	20
Balance, min capacity 100g, min range $\pm 0.1$ g	1
Tools	1 set

### 3 Personal protective equipment (minimum requirement).

Name	Quantity
Gloves, nitrile, disposable, different sizes	15 pairs
Gloves, durable, chemically resistant, different sizes	5 pairs
Safety goggles or safety glasses with side shields	1 per person
Laboratory coat or cotton overall	1 per person