SARS-CoV-2 Specimens: Packing and Shipping

Personnel must be trained to pack and ship suspected or confirmed SARS-CoV-2 specimens according to the regulations and in a manner that corresponds to their function-specific responsibilities. This job aid is not a substitute for the required training to pack and ship infectious substances, but instead serves as a quick reference guide adapted from the CDC Laboratory Training course Packing and Shipping Dangerous Goods: What the Laboratory Staff Must Know.
Packing and Shipping Process

Job Aid Overview

This job aid describes a practical four-step method to packing and shipping suspected or confirmed SARS-CoV-2 specimens as UN 3373 Biological Substance, Category B. This process is designed to systematically think through the requirements needed for transportation and provide quick-reference job aids to apply in the workplace.

Step 1: Determine the mode of transport for the package
Step 2: Determine the classification of a substance
Step 3: Pack the Material
Step 4: Label, mark, and document the package

Recommendations are in accordance with the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations and U.S. Department of Transportation (DOT) Transporting Infectious Substances Safely.
Scenario

This scenario will be referenced throughout the job aid to walk through the four-step method of packing and shipping suspected or confirmed SARS-CoV-2 specimens.

“A 65-year-old patient requests a COVID-19 test from their physician. The patient is experiencing chills, body aches, and cough, and had a close encounter in the last three days with a friend who was recently diagnosed with SARS-CoV-2. The physician’s office collects a nasopharyngeal (NP) swab and contacts the state public health laboratory who requests that all specimens be sent to the designated laboratory for testing within 24 hours or overnight. The physician’s team contacts an air transport company* to ship the specimen via priority air overnight to the designated laboratory at the requested frozen temperature (<0°C).”

*The air transport company must be an IATA member airline such as FedEx or UPS.
**Scenario**

**Step 1: Determine the Mode of Transport**

Step 1 is to determine the mode of transportation and associated regulations. The state public health laboratory requested that all specimens be sent to a designated laboratory for testing. The physician's team contacts an air transport company to ship the specimen(s) priority air overnight to the designated laboratory. The person shipping the specimen should reference the IATA Dangerous Goods Regulations as the mode of transportation will be **AIR**.

- Additional guidance on packing and shipping infectious substances regulations:
  - IATA Novel Coronavirus (COVID-19) Guidance for Operators  
    [https://www.iata.org/contentassets/5b7bfb49568442049a384623cefb3cea/covid-19-guidance.pdf](https://www.iata.org/contentassets/5b7bfb49568442049a384623cefb3cea/covid-19-guidance.pdf)
Scenario

Step 2: Determine the Classification

For this scenario, suspected or confirmed SARS-CoV-2 specimens should be packed and shipped as UN 3373 Biological Substance, Category B*, in accordance with the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations and U.S. Department of Transportation (DOT) Transporting Infectious Substances Safely.

Biological substances are classified as “Category B” if they are not in a form generally capable of causing permanent disability or life-threatening or fatal disease when exposure occurs. This applies to both human and animal specimens. Category B substances are assigned to UN 3373. The job aid below provides guidance on determining the classification of a specimen:

- IATA Decision Tree and Indicative List Job Aid
  (https://www.cdc.gov/labtraining/docs/job_aids/packing_and_shipping/Step_2_IATA_Job_Aid_508.pdf)

*Unless the countries of origin, transit, or destination have issued national recommendations defining them otherwise.
Scenario
Step 3: Pack the Material

According to the packing instructions (PI) regulations, the shipper is responsible for all aspects of packing the dangerous goods. All suspected or confirmed SARS-CoV-2 specimens must be triple-packed with primary, secondary, and outer packaging. For this scenario, the shipper would:

- Place the specimen into a leak-proof, sift-proof glass, metal, or plastic primary receptacle.
- Cushion each primary receptacle with absorbent materials and place it into a leak-proof, sift-proof 95 kPa bag or tube that can absorb the entire volume of the substance.
- Surface decontaminate the secondary packaging and move it to a “clean” zone.
- Secure the secondary packaging in rigid outer packaging, then add dry ice or gel packs.
- If dry ice is used, the outer packaging must be designed and constructed to permit the release of carbon dioxide gas to prevent the build-up of pressure.

The job aid below provides guidance on packing requirements for each classification:

- Step 3: Packing Category B Specimens – Page 2
  (https://www.cdc.gov/labtraining/docs/job_aids/packing_and_shipping/Step_3_Packing_Category_A_and_B_and_Exempt_Human_and_Exempt_Animal_Specimens_Job_Aid_508.pdf)
Scenario
Step 4: Mark, Label & Document the Package

The following markings and labels should be used when shipping the suspected or confirmed SARS-CoV-2 specimen by Air:

- **Shipper and Consignee Information**
  The shipper and consignee's name and address must appear on all dangerous goods packages.

- **UN 3373 Mark**
  UN373 is a diamond-shaped mark used when shipping Category B substances. It must be displayed on the outer package near the proper shipping name.

- **Proper Shipping Name**
  The proper shipping name is the specific name from the list of dangerous goods used to describe the hazard properties and the composition of dangerous goods.

- **Class 9 Label, Proper Shipping Name, UN 1845 Mark and Net Weight of Dry Ice in Kg.**
  Packages including dry ice must include additional pieces of information. Generally, this is a single label but can also be found as two individual labels.

- **Responsible Person Contact Information**
  A responsible person's name and telephone number are required for shipment of all dangerous goods. The responsible person must be aware of the package contents.
Scenario
Step 4: Mark, Label & Document the Package

For this scenario, the following documentation should be used when shipping the suspected SARS-CoV-2 patient specimen by Air:

Itemized List of Contents
An itemized list of contents includes the contents of the primary packaging. This must be enclosed between the secondary and outer packaging.

Air Waybill
The Air Waybill is a critical document that constitutes the contract between the shipper and the carrier airline. It is required for all shipments of dangerous goods by air. The Air Waybill must be attached to the outer packaging.

The job aid below provides guidance to determine required labeling, marking, and documentation for the package, based on the mode of transportation and classification:

- Step 4: Labeling, Marking, and Documenting Requirements – Page 4
  (https://www.cdc.gov/labtraining/docs/job_aids/packing_and_shipping/Step_4_Labeling_Marking_and_Documenting_Requirements Job_Aid_508.pdf)
Packing and Shipping Process
SARS-CoV-2 Specimen Packing Overview

Biological substance Category B packaging checklist:

- Leak-proof/ sift-proof primary receptacle
- Cushioning and absorbent materials for liquid specimens that can absorb the entire volume of the substance
- Leak-proof/ sift-proof 95 kPa bag or tube secondary packaging
- Rigid outer packaging
- UN3373 mark
- Proper shipping name
- Shipper and consignee addresses
- Responsible person contact information on outer packaging or written documentation
- Biohazard symbol on primary or secondary packaging if the substance contains blood or is contaminated with human blood
- Itemized list of contents between secondary and outer packaging
- Air Waybill (air transport only)
- Packages including dry ice must include additional pieces of information
SARS-CoV-2 Specimens: Packing and Shipping

Resources