

Pre-Transportation

Ready to Ship

- **Label:** each container shows Expedition Label, Date, preservative, ontact phone/email.
- **Manifest:** printed and digital; lists CIDs, contents, preservative, destination.
- **Secondary containment:** double-bag with absorbent inside inner bag; leak-proof box.
- **Tracking:** temp logger (near samples), shipment tracker (e.g., AirTag).
- **Docs packet:** cover letter on letterhead; MTA; permits; receiver address & phone.
- **Carrier check:** accepts **dry ice/dangerous goods** if applicable.

Cover Letter

- Non-hazardous, non-living environmental research samples; volumes/masses; preservative.
- Intended use: research only; no commercial value.
- Packaging: leak-proof, insulated; compliant with airline/IATA/courier rules.
- Sender/receiver full contacts; reference permits & MTA.

Chain of Custody

- CID/TFID verified on tubes & in manifest.
- Departure/arrival timestamps; deviations/temps logged; issues flagged.

Temperature & Packing

Ambient / Room Temp (e.g., Shielded aliquots)

- Parafilm tubes, secure tightly
- Pack all tubes in cryoboxes, secured within plastic bags that are secured shut with tape.
- Use padded/insulated container; avoid heat/sun.
- If ambient >21 °C, add blue ice barrier around tubes (to avoid overheating)
 - Put these ice packs in the fridge (not freezer) to cool (<2hrs)
- Double-bag , absorbent; limit lid-open time during transfers.

4 °C (blue ice)

- Parafilm tubes, secure tightly
- Pack all tubes in cryoboxes, secured within plastic bags that are secured shut with tape.
- Target 2–8 °C (goal 4 °C); do not freeze.
- Pre-chill packs (–20 °C); line bottom/top; buffer tubes from direct contact.
- Swap packs when flexible/mostly thawed or internal temp ≥6 °C and rising.

Frozen / Dry Ice (–78.5 °C)

- Pack all tubes in cryoboxes, secured within plastic bags that are secured shut with tape.
- Insulated vented cooler (never airtight); fill voids; keep upright.
- Replenish when volume ≈ 50%; log cooler/rack temp every 60–90 min & on hand-offs.
- Ventilation in vehicles; no sealed cabins; keep CO₂ buildup awareness.

Domestic vs. International Transportation

Domestic (within USA)

- Manifest + tube labels match; include contact phone/email on outer box.
- Temp control: pack per Ambient / 4 °C / Dry-Ice rules; place a temp logger near samples; add a tracker (e.g., AirTag).
- Hand-carry: check airline rules for dry ice and liquids; keep cover letter + manifest printed in your carry-on.
- Courier: choose overnight/Mon–Wed service, “hold for pickup” at destination if after hours; signature required.
- Outer-box notes: “Non-hazardous research samples; no commercial value.” If using dry ice, add UN1845, net weight, Class 9 per carrier instructions.

International

- Docs packet: permits + MTA, cover letter, pro forma invoice/packing list, airway bill; offline PDFs on your phone/computer.
- Pre-clear: confirm the receiver’s import permit and any export license on the sender side; add permit numbers to the invoice/air waybill if required.
- Common triggers: Soil (USDA APHIS); Corals (CITES); certain marine sediments from MPAs; plants/freshwater/endangered materials.
- Customs tips: declare even when optional; put “Documentation Inside” on the outer box; include a 24/7 contact; consider using the carrier’s broker service.
- Shipment planning: avoid weekends/holidays; separate replicates across shipments; pre-alert the receiver with ETA, tracking, and temp-logger instructions.

Permit Notes

- Soils: APHIS (PPQ) permits and/or phytosanitary certificates may be required; some countries prohibit import entirely—verify before packing.
- Corals: CITES export and import permits can apply to live, dead, or fragments; match species names to permits.
- Other sensitive: confirm obligations under Nagoya/Access & Benefit-Sharing; keep PIC/MAT (prior informed consent/material transfer terms) on file and referenced in the cover letter.

Tips & Emergencies

Tips

- Ship Mon–Wed overnight; avoid weekends/holidays; confirm receiver hours in advance.
- Pre-alert receiver with ETA + tracking; agree on hold-for-pickup if delivery is after hours.
- Split replicates across boxes/routes to reduce single-point failure.
- At each hand-off, record time, internal temp, and ice/dry-ice status; keep boxes upright and shaded.

Emergencies

- Delay / Temp excursion: Restore first (add blue/dry ice; move to –80 °C). Log time, max temp, duration, actions; flag affected CIDs; notify receiver; request hold-for-pickup or hub re-icing.
- Lost / Misrouted: Open a trace with carrier. Request hub re-icing and hold-for-pickup; escalate to supervisor/broker; log case numbers.
- Customs hold / Inspection: Provide cover letter, permits/MTA, invoice/packing list; Request cold storage; keep broker + receiver looped; document all calls/emails.