

Frequently Asked Questions

How does the Cryoport solution work?

The Cryoport solution is a cost-effective, state-of-the-art, end-to-end solution for shipping frozen biological materials. The system combines our innovative pre-packaged liquid nitrogen dry vapor dewar with Web-based Cryoport™ ordering technology and international logistics to ship, track and monitor the location and condition of frozen shipments worldwide.

Here is how it works:

After an order is submitted through Cryoport™, Cryoport arranges to send a dewar, precharged with liquid nitrogen, via a carrier delivery to the origin point of the specimen shipment.

Based on the information entered into the portal, Cryoport prepares the paperwork and attaches it to the dewar (air bill, commercial invoice, regulatory labels, etc.) for the entire journey. When the Cryoport dewar arrives, the recipient personnel simply load the materials, close the dewar up and make it available for pickup by the already-notified carrier. Cryoport will already have prepared and attached the destination address label.

Upon arrival at the shipment destination, the recipient unloads the materials from the dewar, closes it and makes it available for pickup by the carrier for the return to Cryoport for reconditioning and revalidating. Cryoport will already have prepared and attached the return shipping address label.

In summary, the system includes:

- The Cryoport Express® dewar, equipped with the SmartPak II condition monitoring system
- Access to the Cryoport™
- Creation and placement of all necessary paperwork for the entire roundtrip
- The liquid nitrogen refrigerant in the dewar
- All transportation charges involved in transporting the dewar

Can we do pilot shipments of the Cryoport solution?

Yes. Pilot programs are available to validate the solution and to confirm we are the best fit for your organization. Please contact Cryoport for more information.

What are the benefits of the system?

In addition to the direct cost savings, 24/7 customer service, chain of condition, chain of custody and complete visibility of shipping with Cryoport versus alternative dewars, our system has three additional elements that provide significant benefits and reinforce its overall value:

Reduced Risk of Specimen Loss

The holding time for the Cryoport Express® dewar is 10 days, compared to two to three days with alternative systems. This longer holding time minimizes the risk of sample and data loss due to unexpected delays such as custom holds, routing errors or weather delays.

Less Environmental Impact

Unlike dry ice, which evaporates as carbon dioxide, a greenhouse gas that contributes to global warming, liquid nitrogen evaporates harmlessly. Cryoport dewars are returned to Cryoport at the end of each shipment for cleaning, reconditioning and validation, lessening the impact on the environment.

Fewer Regulatory Restrictions

The liquid nitrogen vapor dry dewars utilized by Cryoport are classified as non-hazardous by IATA and therefore require no special labeling or handling. Dry ice, on the other hand, must be labeled as dangerous goods and can be refused as cargo by the airlines. In addition, an increasing number of countries simply refuse to allow dry ice shipments into or within their borders, creating major challenges for the global movement of frozen biological materials.

What does “cryogenic” mean?

Cryogenic, derived from the Greek word kryos (meaning cold), is a term used to describe very low temperatures, usually below -150°C .

What is the temperature of liquid nitrogen?

At normal atmospheric pressures, liquid nitrogen boils at a temperature of -196°C and is considered a cryogenic fluid.

Is liquid nitrogen vapor toxic?

No. The earth's atmosphere, the air we breathe, is 78 percent nitrogen by volume. Liquid nitrogen vapor is an inert gas and will not react chemically or biochemically at the temperatures and pressures that the dewar will be exposed to during storage and transport. Vapor phase storage in nitrogen gas has been used for more than 50 years to preserve and store biological materials and blood components (such as red cells and white cells) for patient transfusion, as well as human embryos.

Can samples currently stored or shipped frozen with dry ice (-0 to -80°C) be safely transferred to the Cryoport Express[®] dewar at -150°C ?

Yes. If a specimen or biological material can transition through the freezing point — as happens when frozen in refrigerators and/or packed in dry ice — then holding it at liquid nitrogen temperatures will not harm the specimen. In fact, it will probably have a positive impact because all metabolic processes and certain degradative reactions will cease at these lower temperatures, which will extend the viability and function of the specimen.

Will liquid nitrogen have any effect on the specimens?

No. The specimens placed into a Cryoport Express[®] dewar do not come into contact with the liquid nitrogen. Typically, the specimens will not come in contact with the nitrogen gas either, as they are usually packaged in a leak-proof, pressure-proof shipping enclosure in compliance with the IATA (International Air Transport Association) such as a medical grade Tyvek[®] bag (supplied by Cryoport along with the dewar).

The Cryoport Express[®] shippers utilize a liquid nitrogen vapor dry shipper. What is a “dry shipper”?

A “dry shipper,” sometimes called a “dry vapor shipper” contains no free liquid nitrogen. The liquid nitrogen has been absorbed into a retention system. The foam retention system surrounds a holding chamber, which is continuously filled with the escaping nitrogen vapor that maintains the contents at -150°C throughout the shipment.

Is the Cryoport Express[®] dewar considered “hazardous” or “dangerous” by IATA?

No. Cryoport Express[®] dewars are classified by IATA as non-hazardous and, consequently, require no special labeling or handling.

What is the specific regulatory status of liquid nitrogen vapor dry dewars?

UN1977 regulates the transportation of cargo that contains liquid nitrogen. The International Air Transport Association (IATA) Special Provision A152 exempts the Cryoport Express® liquid nitrogen vapor dry dewars because: "Insulated packaging containing refrigerated liquid nitrogen fully absorbed in a porous material and intended for transport, at low temperature, of non-dangerous products are not subject to these regulations provided the design of the insulated packaging would not allow the build-up of pressure within the container and would not permit the release of any refrigerated liquid nitrogen, irrespective of the orientation of the insulated packaging."

Can you ship infectious materials with the Cryoport Express® dewar?

Yes. When used in conjunction with the packaging material that is supplied by Cryoport, the Cryoport Express® dewar meets IATA requirements for transporting infectious substances in both Category A and B in Dangerous Goods Division 6.2.

This has been verified by an independent testing laboratory. Patient samples often are shipped under UN3373: Biological Substance, Category B.

What is the holding time for the Cryoport Express® dewar?

The Cryoport Express® dewar will last up to 10 days in transit.

Has the holding time for the Cryoport Express® dewar been validated?

Yes. The holding time for the Cryoport Express® dewar has been validated by an independent testing laboratory. Contact us to request a validation packet and to talk about your shipping needs.

What is the best application for the Cryoport solution?

The best application for the Cryoport logistics solution is for biologics that need to be transported below the glass transition temperature (-136°C) in a stable and reliable method.

What tracking capabilities and exception response does Cryoport provide?

Cryoport provides 24/7 monitoring and proactive notification of exceptions via email and/or phone.

What is the Cryoport™ Web portal?

Cryoport™ is a proprietary system for ordering and managing Cryoport Express® shipments online, including tracking the movement and condition of the Cryoport Express® dewar until it is delivered.

In what parts of the world does Cryoport Express® operate?

Globally. Cryoport has deep carrier relationships and a network of providers to cover destinations all over the world. We understand best practices and have international experience in shipping to more than 90 countries.

How much does the Cryoport Express® system cost?

We can provide quotes based on the shipment's point of origin and destination. Please contact Cryoport for more information or fill out the request-a-quote form on our website – www.cryoport.com.

What safety precautions should be taken in working with liquid nitrogen dry vapor dewars?

Because of the cold temperatures, thermal protective gloves and protective eyewear should be worn at all times when loading and unloading samples. Liquid nitrogen can displace oxygen in confined areas, so work should always be done in a well-ventilated location.