



IT Security



Supply Chain



OT Security



Insider Threat



Physical Security



Interoperable Communications

CISA INSIGHTS



DEFEND TODAY,
SECURE TOMORROW

Primer on Safe & Efficient Handling of Dry Ice

December 2020

THE THREAT AND HOW TO THINK ABOUT IT

As critical infrastructure owner/operators participate as a key cold chain connection in America's transportation and distribution of coronavirus vaccines, this product will help owners/operators ensure they are safely and efficiently handling dry ice, and subsequently while there is limited supply, ensure the safety and integrity of facilities that receive, house, and distribute the vaccines. Supply chain disruptions, order integrity issues, and monitoring integrity can all have a negative impact on the ability for the U.S. to efficiently and effectively distribute critical COVID-19 vaccines.

Dry ice is a critical component in the ultra-cold and cold chain vaccine distribution infrastructure. As part of the carbon dioxide supply chain, owners/operators in this supply chain need to ensure the most efficient use of this critical asset.

ASSUMPTIONS FOR OWNER/OPERATORS

- Dry ice will sublime (turn from solid to gas) at a rate of 5 to 10 pounds (lbs.) every 24 hours.
- Sublimation is faster in hot weather and low air pressure (i.e., airplane flight).
- Dead-air space in container will cause dry ice to sublime faster.
- 1 lb. of dry ice sublimates to produce 8.3 cubic feet of carbon dioxide (CO₂) gas.

DRY ICE HANDLING GUIDANCE

- Use insulated gloves to handle (prolonged unprotected contact will burn skin).
- Do not store in completely airtight container – allow container to ventilate (gas expands and could cause an airtight container to explode). Use insulated container to store and transport dry ice.
- Do not store dry ice in unventilated rooms, cellars, cars, vans, etc. (carbon dioxide gas sinks to low levels and could cause an oxygen depleted atmosphere – if you start panting, feeling dizzy, develop a headache, or your fingernails and lips start turning blue – leave area immediately, open windows or doors and allow air to circulate).
- Do not enter closed storage areas that have or have had stored dry ice before airing out completely.
- Do not leave dry ice on a tiled or solid surface countertop as the extreme cold could crack it.

CISA'S ROLE AS THE NATION'S RISK ADVISOR

As the nation's risk advisor, the Cybersecurity and Infrastructure Security Agency (CISA) leads the nation's efforts to ensure the cybersecurity, physical security, and resilience of our critical infrastructure. CISA works with partners across government and industry to defend against today's threats and collaborates to build more secure and resilient infrastructure for the future.

To download poster on safe handling of dry ice go to: [Dry Ice Safety - Compressed Gas Association](#)

Please contact your supplier if you are in need of a Safety Datasheet (SDS) for Carbon Dioxide, Solid, Dry Ice.

Please visit the [CISA Resource Page on Cold Storage](#) for more information.