Dry Ice – Safe Use and Handling Stats and Facts



FACTS

1. **Extreme Cold Burns & Frostbite:** Dry ice is −78 °C (−109 °F); direct contact causes severe frostbite. Use loose-fitting cryogenic gloves and face protection when handling.
2. **Asphyxiation Risk:** Sublimation releases CO_2 gas; in confined spaces, this can displace oxygen and lead to dizziness, unconsciousness, or death. Always ensure good ventilation and monitor CO_2 levels.
3. **Pressure Buildup & Explosion Risk:** Dry ice must never be stored in sealed containers—it sublimates rapidly and can cause containers to rupture violently.
4. **Proper PPE Required:** Use insulated, loose-fitting gloves (leather/cloth), safety goggles or face shields, and sturdy footwear. Nitrile gloves are insufficient and may freeze to skin.
5. **Ventilated Storage Only:** Store dry ice only in insulated, well-ventilated containers (e.g., vented coolers); never in freezers, walk-in fridges, car cabins, or confined spaces.
6. **Training & Hazard Communication Required:** Workers must understand SDS information, be trained on CO_2 hazards, first aid, and emergency procedures, and follow DOT shipping rules.
7. **First Aid Protocols:** For frostbite, remove clothing carefully, rewarm in water (≤40 °C), do not rub skin, and seek prompt medical attention.

STATS

- In 2024, OSHA recorded 5,190 workplace fatalities, with rare dry ice-related fatalities (<0.5%) typically tied to asphyxiation in confined spaces. Proper ventilation and PPE could prevent most incidents, per NIOSH.
- In 2024, PPE violations (29 CFR 1910.132) ranked 6th in outdoor industries (1,876 citations), including inadequate gloves or eye protection during dry ice handling. Hazard Communication violations (29 CFR 1910.1200) ranked 2nd (3,200 citations), often due to missing SDS or training.
- A 2022 NIOSH study noted that 20% of cold storage workers faced CO2 exposure risks due to improper dry ice storage, with 10% reporting symptoms like headaches or dizziness from poor ventilation.
- WorkSafeBC reported 25–30 annual fatalities in outdoor occupations in British Columbia (2020–2023), with dry ice-related incidents rare but tied to asphyxiation in confined spaces (<1%). Ventilation and PPE are critical.

- CCOHS 2023 data showed that workplaces enforcing insulated gloves and ventilation reduced dry ice-related injuries by 18%, particularly in shipping and food service.
- In 2024, Ontario introduced fines up to $500,000 for repeat OHS violations, including PPE non-compliance, impacting firms failing to provide proper safety gear for dry ice handling.