Dry Ice – Safe Use and Handling Meeting Kit



WHAT'S AT STAKE

Dry ice might seem like a cool and harmless way to keep things cold – especially in labs, schools, or when shipping items – but don't let its foggy appearance fool you. This frozen form of carbon dioxide can seriously hurt you if it's not handled right. Skin contact can cause painful burns, and breathing in too much of its gas in a small space can knock you out cold – literally. Whether you're prepping a science experiment or unloading a delivery, mishandling dry ice can quickly turn a routine task into a dangerous situation. A little know-how can go a long way in keeping you safe.

WHAT'S THE DANGER

The Dry ice isn't your average freezer pack – it's solid carbon dioxide at –78.5°C (–109.3°F). That extreme cold and its unique behavior can create several serious hazards if you're not careful. Let's break it down:

1. **Skin Contact – Instant Frostbite**

Touching dry ice with bare skin, even briefly, can cause immediate frostbite. It doesn't feel "cold" – it burns. The extreme temperature damages skin tissue in seconds, similar to a thermal burn but with cold. Pain, redness, and blistering are common, and in severe cases, the injury may require medical treatment or even lead to permanent nerve damage.

1. **Asphyxiation Risk – CO_2 Displacement**

Dry ice turns into gas as it warms up – a process called sublimation. In small, enclosed areas (like walk-in freezers, labs, or delivery vans), this gas can build up fast and displace oxygen. You won't smell or see it coming. Symptoms of overexposure include dizziness, confusion, headaches, and loss of consciousness. According to the CDC, even a few minutes in a poorly ventilated space with excess CO_2 can be fatal.

1. **Pressure Buildup – Explosion Risk**

Storing dry ice in sealed containers is a recipe for disaster. As it sublimates, the gas has nowhere to go, which causes pressure to build until the container bursts – sometimes violently. There have been multiple documented incidents of workers being injured by exploding containers, including in schools and food service settings.

1. **Poor Ventilation – Silent but Dangerous**

Dry ice fog looks cool during demos, but in the wrong space – like a storage closet or unventilated classroom – it can silently raise CO_2 levels to unsafe ranges. You might not notice anything is wrong until someone starts feeling faint or collapses.

Real World Example:

A lab technician was transporting dry ice in a car with the windows up. After several minutes, she began feeling dizzy and disoriented. She pulled over just in time and later learned she had early symptoms of CO_2 poisoning. If she had driven a few more miles, she might've lost consciousness behind the wheel.

HOW TO PROTECT YOURSELF

Dry ice can be used safely, but only if you respect its hazards and follow strict handling procedures. Here's how to protect yourself every time you work with it:

Wear the Right PPE – Protect Your Skin and Eyes

Always wear insulated gloves (not latex or vinyl – they're too thin), safety goggles, and long sleeves when handling dry ice. Tongs or a scoop should be used to move chunks – never your bare hands. Even a quick touch can cause frostbite. If dry ice gets in your eye, flush it with water immediately and seek medical help.

Example: If you're about to reach into a box of dry ice with your bare hands, stop and grab a proper glove or a scoop first. Just a second of contact can burn your skin.

Ensure Good Ventilation – Don't Trap the Gas

Only use dry ice in well-ventilated areas. If you're working in a confined space (vehicle, lab, cooler, or storeroom), make sure there's airflow. Keep doors open or use fans to circulate fresh air. Never store dry ice in a walk-in cooler without checking air quality – carbon dioxide can accumulate fast and silently.

Tip: Carry a portable CO_2 monitor in small workspaces when using dry ice frequently.

Store It Safely – Prevent Pressure Explosions

Never seal dry ice in airtight containers – as it sublimates, gas builds up pressure that can cause the container to explode. Always store dry ice in vented containers, like insulated coolers that aren't fully sealed. Clearly label them so others know there's dry ice inside.

Warning: Do not place dry ice in screw-top bottles, thermoses, or jars — even small amounts can rupture them violently.

Transport with Caution — Crack the Windows

When transporting dry ice in a vehicle, crack the windows and avoid keeping it inside for long periods. The confined space can fill with CO_2 gas quickly. Never leave dry ice in a parked car — buildup of gas can be dangerous for the next person who enters.

Dispose of It Properly — Let It Evaporate Safely

Don't dump dry ice in sinks, toilets, or trash bins — it can damage plumbing and create gas buildup in enclosed spaces. Instead, let it sublimate in a well-ventilated area, away from people and pets. Do not attempt to break it into smaller pieces with tools — this can cause injury.

What to Do in Case of Exposure or Emergency

If someone has touched dry ice and shows signs of frostbite (white, hard skin or numbness), move them away from the source and rinse the area with lukewarm water. Do not rub the affected skin. Seek medical attention.
If someone feels dizzy, confused, or faints after working around dry ice, get them into fresh air immediately and call emergency services. CO_2 poisoning can worsen quickly.

FINAL WORD

Dry ice is powerful stuff — great for keeping things cold, but dangerous if misused. Whether you're using it for science, storage, or shipping, always treat it with respect.