Precautions for Handling and Working with Dry Ice

Some raw materials used in our processes are transported in dry ice to help keep them fresh. Dry Ice is frozen carbon dioxide, a normal part of our earth's atmosphere. It's the gas we exhale during breathing and the gas plants use in photosynthesis. Dry Ice is particularly useful for keeping things frozen because of its very cold temperature of -109.3°F or -78.5°C. Dry Ice is widely used because it's simple to convert to its frozen form and easy to handle with insulated gloves. Dry Ice changes directly from a solid to a gas "sublimation" in normal atmospheric conditions without going through a wet liquid stage.

HANDLING - Dry Ice temperature is extremely cold at -109.3°F or -78.5°C. Always handle Dry Ice with care and wear protective clothing, leather or insulated gloves whenever touching it. If touched briefly it's harmless, but prolonged contact with the skin will freeze cells and cause injury similar to a burn.

VENTILATION - Normal air is 78% Nitrogen, 21% Oxygen and only 0.035% Carbon Dioxide. If the concentration of carbon dioxide in the air rises above 5%, carbon dioxide can become toxic. Smaller concentrations can cause quicker breathing but is otherwise not harmful. If Dry Ice has been in a closed room for more than 15 minutes, open doors and allow adequate ventilation before entering. Leave area containing Dry Ice if you start to pant and breath quickly. This is the sign that you have breathed in too much CO₂ and not enough oxygen. Dry Ice CO₂ is heavier than air and will accumulate in low spaces. Do not enter closed storage areas where Dry Ice is or has recently been stored before airing the room out well.

STORAGE - Dry ice items are stored in plant 1 coldroom 11, plant 2 coldroom 2 and the plant 3 coldroom. The coldrooms in Plant 1 & 3 have built in alarm sensors to monitor the carbon dioxide level in the rooms. Check the alarm panel before you enter either of these coldrooms. If the warning light or audible alarm is on, with the coldroom fans “on”, fully open the door until the oxygen level returns to normal... the warning light turns off and/or audible alarm stops sounding. Coldroom 2 in plant 2 does not have an alarm sensor so the following steps must be followed.

1. Place the “Dry Ice” warning placard outside the coldroom door whenever dry ice is stored inside the coldroom.

2. If the “Dry Ice” warning placard is posted on the coldroom door, with the coldroom fans “on”, fully open the coldroom door then wait 5 minutes before entering the coldroom. This will allow the oxygen level to return to normal.

3. Removing the “Dry Ice” Placard – After following step 2 above, remove the dry ice from the coldroom. After all the dry ice has been removed and the room ventilated, remove the placard from the door.

Do not store Dry Ice in a completely airtight container. The sublimation of Dry Ice to Carbon Dioxide gas will cause any airtight container to expand and possibly explode. Keep proper air ventilation wherever Dry Ice is stored. Do not store Dry Ice in unventilated rooms. The sublimated Carbon Dioxide gas will sink to low areas and replace oxygenated air. This could cause suffocation if breathed exclusively.

BURNS - Treat Dry Ice burns the same as a regular heat burns. See a doctor if the skin blisters or comes off. Otherwise if only red it will heal in time as any other burn. Apply antibiotic ointment to prevent infection and bandage only if the burned skin area needs to be protected.

DISPOSAL - Unwrap and leave it at room temperature in a well-ventilated area. It will sublimate from a solid to a gas.