

CRSIG POLICY ON THE USE OF DRY ICE IN SCHOOLS

Dry ice is listed as a hazardous material by the federal government. Students should not be using or handling dry ice under any circumstances. Hazards associated with the use of dry ice include:

Burns: Dry ice is a cryogenic material that can cause severe frostbite burns to the skin.

Explosion: If stored in an air-tight container, pressure may build potentially causing an explosion.

Toxic: Although dry ice is not poisonous, if even a small piece is ingested, it could be fatal or at least cause severe damage to internal organs.

Suffocation: If used in confined areas, the carbon dioxide emitted may displace oxygen causing an oxygen deficient environment.

Dry ice may be used in science programs. If they are used in Science Programs – please follow the attached Safe Handling of Dry Ice Guidelines.

Principals should inform staff that the use of dry ice by any student is prohibited.

CRSIG does not recommend the use of dry ice under any circumstances—the hazards outweigh the benefit.

SAFE HANDLING OF DRY ICE

Caution: Keep Dry Ice away from children if they cannot be closely supervised at all times.

HANDLING

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

STORAGE

Store Dry Ice in an insulated container. The thicker the insulation, the slower it will sublime. 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 or possibly explode. Keep proper air ventilation wherever Dry Ice is stored. Do not store Dry Ice in unventilated rooms, cellars, autos or boat holds. The sublimated Carbon Dioxide gas will sink to low areas and replace oxygenated air. This could cause suffocation if breathed exclusively. Do not store Dry Ice in a refrigerator freezer. The extremely cold temperature will cause your thermostat to turn off the freezer. It will keep everything frozen in the freezer but it will be used up at a faster rate.

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 0.5%, carbon dioxide can become dangerous. Smaller concentrations can cause quicker breathing and headaches but is otherwise not harmful. If Dry Ice has been in a closed auto, van, room, or walk-in, for more than 10 minutes, open doors and allow adequate ventilation before entering. Leave area containing Dry Ice if you start to pant and breath quickly, develop a headache, or your fingernails or lips start to turn blue. This is the sign that you have breathed in too much CO_2 and not enough oxygen. Dry Ice CO_2 is heavier than air and will accumulate in low spaces. Do not enter closed storage areas that have or have had stored Dry Ice before airing out completely.

PICK-UP TIME AND TRANSPORTING

Plan to pick up the Dry Ice as close to the time it is needed as possible. It sublimates at 10%, or 5 to 10 pounds every 24 hours, whichever is greater. Carry it in a well-insulated container such as an ice chest. If it is transported inside a car or van for more than 15 minutes, make sure there is fresh air. After 15 minutes with Dry Ice only in its paper bag in the passenger seat, the driver may begin to breathe faster and faster as though running a race. The driver won't figure out why they are so out of breath unless they notice that the car's air conditioning system is set in the re-circulated position, not fresh outside air. So, be sure to set the car's AC system to the fresh air position and not the recirculating position.

BURN TREATMENT

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.

MSDS - Here is a Material Safety Data Sheet available on line: <https://www.airgas.com/msds/001091.pdf>

COUNTERTOPS

Do not leave Dry Ice on a tiled or solid surface countertop as the extreme cold could crack it.

DISPOSAL

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

DO NOT leave Dry Ice unattended around children.