Dry Ice Policy

Date: May 1, 2013  Time: 2:44 pm

This letter sets the policy regarding the training, purchase, shipping, storage, transportation, disposal and necessary training for all users of “dry ice” aka solid carbon dioxide. This policy covers all teaching / research labs and applies to both current and future users.

Dry ice is the solid form of carbon dioxide, which is available in the form of flakes, pellets and blocks from commercial vendors. It can also be made in-house using cylinders of liquid dry ice and a “dry ice maker”. Dry ice sublimes (goes from the solid phase to the gaseous phase) at temperatures of -78.5 ºC or higher. Dry ice sublimes at a rate of approximately five (5) to ten (10) pounds in a 24 hour period. A one pound block of dry ice produces approximately 250 liters of gaseous carbon dioxide upon sublimation. Concentrations greater than 5000 ppm (0.5 %) can cause asphyxiation. Normal air is only (0.04 %) carbon dioxide.

The two biggest hazards associated with the use of dry ice are frostbite and possible asphyxiation when used in confined spaces or in areas with inadequate air exchanges. Sufficient quantities of solid carbon dioxide (after sublimation has occurred) can present an explosion hazard when stored in tightly sealed containers. All individuals using dry ice must be trained regarding frostbite concerns as outlined in Alaska’s Physical Agent Data Sheet for Cold Stress. Additionally, all users must be made aware of the asphyxiation hazards when using dry ice. Dry ice should only be used in well ventilated areas.

Training

1) Training is the responsibility of the PI or their designated lab representative.
2) Training shall be based on a lab specific SOP and expected handling and use.
3) Training shall include the reading of Alaska Physical Agent Data Sheet for Cold Stress.
4) Training shall be documented.

Purchasing

1) Procurement should be in quantities that can be expected to be used up immediately.
2) EHS authorization by e-mail is needed for all dry ice purchases greater than 5 lbs. The e-mail should include the name of the PI or responsible party, proposed use and quantity of dry ice (> 5.5 lbs.).
3) Dry ice can be purchased using a university pro-card (code 4455).
Shipping
1) All packages containing dry ice for sample shipping must be shipped using FedEx and comply with 49CFR173.217 parts a & c.

2) The quantity of dry ice per package must not exceed 5.5 lbs. The package must be marked “Carbon dioxide solid” or, “dry ice”, and also be labeled with the name of the contents that is being cooled (example “Fish tissue”).

3) The package must be designed and constructed to permit the release of carbon dioxide gas to prevent any buildup of pressure that could rupture the packaging. (Example: Inside a Styrofoam container in a cardboard box.)

Storage
1) Dry ice is to be stored in a well-ventilated location and placed in a Styrofoam chest, insulated cooler, or a special cooler designed for the storage of dry ice. (The cooler should not allow any pressure build up.)

2) Dry ice must NOT be stored in any tightly sealed device such as an ultra-low freezer, cold rooms or any plastic / glass container.

Transportation
1) Any individual using their personal vehicle for the transportation of dry ice accepts any and all liabilities associated with the transport of dry ice including any unforeseen events.

2) Dry ice must NOT be transported inside the passenger compartment of any vehicle.

3a) Passenger car: (Trunk limits: 1 to 5 lbs in a Styrofoam cooler). Time limit: (< 45 minutes)

3b) Pick-up Truck bed: (> 5 lbs in a Styrofoam cooler) Time Limit (None)

Disposal
1) NEVER dispose of dry ice in a sink, floor drain, toilet or in ordinary trash receptacles.

2) Dispose of all unused dry ice in a shallow plastic container that has 1” of insulating material (Styrofoam blue or white board) between the bottom of the container and the bench top in an operating fume hood.

In winter the dry ice can be dropped into a snow bank away from people and animals.

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