



Mr Iceman's FAQ for Dry Ice

Q: What is dry ice?

A: Dry ice is a name that is applied to compressed carbon dioxide, "snow."

Q: What temperature is the surface of dry ice?

A: Dry ice has a surface temperature of about -78.5 Celsius

Q: Does it melt?

A: No. Dry ice goes through a process called "sublimation" in which a solid substance skips the liquid state and changes directly into a gaseous state.

Q: How is dry ice created?

A: Under normal conditions, carbon dioxide is a colourless and odourless gas. To make carbon dioxide snow (dry ice) the gas is cooled at high pressure which liquefies the gas.

Further cooling takes the carbon dioxide to the, "triple point." The highly pressured liquid is then suddenly expanded by spraying, and turns it into snow. The snow is then pressed into blocks weighing between 22-115 Kg's.

Q: How much of the liquid carbon dioxide turns to snow?

A: About 30% of the liquid which is sprayed turns to snow. The rest is turned back into gas and is returned to the compression and cooling process.

Q: What will prevent the dry ice from turning into a gas again?

A: Nothing will prevent the dry ice from "subliming." Once it is out of the high pressure it must be insulated to reduce the rate of sublimation.

Q: What should dry ice be put into, to insulate it?

A: a “kraft” paper bag will reduce the sublimation rate on its own. The ice wrapped in the paper should be put into a container which is insulated as much as possible, but NEVER seal the ice into an air tight container due to the pressure.

Q: what is the “triple point?”

A: When carbon dioxide is subject to a temperature of 69-degrees Celsius and also to a pressure of 60.4 psi, carbon dioxide can exist as a solid, a liquid and a gas at the same time. The ability to be in three states simultaneously is known as the triple point effect.

Q: Does Mr Iceman Provide containers to ship the dry ice in?

A: Yes. We offer Styrofoam containers called styro-shippers which can hold capacities of 3kg to 25kg. These range in price from \$7 up to \$16.

Q: How heavy is dry ice?

A: A slab measuring 25cm x 25cm x 5cm is 4.5-5kg.

Q: At what rate can I expect the dry ice to sublimate? **A:** Customers will find that with good insulated shipping similar to those styro-shippers which we sell, there will be a loss of 1% per hour.

Q: What type of clientele do you find would require the use of dry ice?

A: There are many types of clients we cater to including:

Laboratories, Universities & Schools, Caterers Drug manufactures, Hospitals, Specialty food processors, Special effects companies for TV and Film, Baked product producers, Meat processors, shippers etc. Refineries Transport companies, Hunters/campers, Metallurgy/cold grinding/de-flashing.

Q: What are some benefits to using dry ice?

A: It is an alternative method to heat displacement refrigeration. (i.e. electric refrigerators) It is inexpensive & simple. It consumes no fuel or electricity. It can be cut, wrapped & delivered to predetermined specifications and limiting waste.

Handling

- 1.** Dry ice has a surface temperature of -78.5 Celsius.
- 2.** Not wearing gloves when handling the product will result in extreme frostbite.
- 3.** Always keep dry ice away from children.
- 4.** Do not swallow, or put dry ice in your mouth.
- 5.** Do not put dry ice in anyone's clothing for fun. Potentially severe frostbite may occur as a result of prolonged contact with the skin.
- 6.** Do not place dry ice inside an air tight container. Sublimed vapours will increase the interior pressure and will rupture the container.
- 7.** Place a thick layer of cardboard, Styrofoam or similar separator between food and liquid products which need to be chilled. Food and liquid products in containers will freeze when their container is placed in contact with dry ice over a short period of time.
- 8.** Dry ice does not "melt" into a liquid. A process called "sublimation" occurs. Sublimation is when a solid substance skips the liquid state, and goes directly into a gas from its original solid state.
- 9.** Dry ice is solid carbon dioxide that expands to a gas. You can lose consciousness by directly breathing in the dry ice vapours for an extended period of time. You will sense carbon dioxide by a "tingling" sensation in the mouth.

Always, always, always BE CAREFUL WITH DRY ICE!!!!!!