

Frequently Asked Questions About Dry Ice

What is dry ice?

Dry ice is solid carbon dioxide (CO₂). It has the unusual property of 'subliming', that is going from a solid to a gas without passing through a liquid phase and this is how it gets the name 'dry' ice. The product can only exist at -78C and it maintains this temperature by sublimation.

How is dry ice made?

Liquid Carbon Dioxide (CO₂) is the source of all dry ice products. The liquid is stored at 20 bar and around -20C. It is released through a nozzle to 1 bar at which point dry ice 'snow' is created. This snow is compressed and extruded at around 1500 psi to form pellets and blocks of dry ice.

How do I store dry ice?

Store dry ice in an insulated container - the better the insulation, the slower the rate of sublimation to CO₂ gas. The best container is the polystyrene box that the dry ice was shipped in.

Do not store dry ice in an airtight or glass container. The sublimation of dry ice into CO₂ gas will cause an airtight container to expand, rupture or burst. The CO₂ gas occupies about 800 times the volume that the dry ice did!

CO₂ gas is heavier than air and will sink to low areas and displace air. At elevated concentrations CO₂ can be fatal as an asphyxiant. For this reason always store dry ice in a well ventilated area - avoid unventilated rooms such as cellars, boat holds and walk-in freezers.

Note: you can store dry ice in domestic (non-walk-in) freezers provided the dry ice is kept in the polystyrene packaging. The dry ice will release CO₂ gas whilst in the freezer however there is no risk of asphyxiation. The freezer will reduce heat transfer into the box and prolong the life of the ice. However do not store dry ice in walk-in freezers as there is a risk of an accumulation of CO₂ which could cause an asphyxiation risk if the freezer is not used regularly.

Some surfaces left in direct contact with Dry Ice may be damaged by the extreme cold. Adhesives may become brittle and break. So please do not let dry ice into contact with kitchen tiles, or other surfaces which are susceptible to damage from the cold.

Is dry ice safe?

Provided the safety guidelines are followed dry ice is safe - we ask that our customers follow the BCGA guidelines as a condition of sale. You can download these guidelines and other safety information at www.green-gases.com/safety.htm

What is dry ice fog?

When dry ice is added to warm water a dense white fog is immediately generated.

The white fog is an aerosol of tiny water droplets just like fog created naturally. What's happening is that the very cold dry ice is subliming from solid to the gaseous phase and bubbling through the water. In so doing the CO₂ gas leaves the water container which has a substantial amount of moist air above it. The cold CO₂

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gas condenses water molecules in the air above the container leading to the formation of tiny water droplets which are so small they stay in suspension with the gas.

The only difference between natural fog and dry ice fog is the presence of gaseous CO₂ interspersed with the water droplets. CO₂ gas is heavier than air and so tends to carry the white fog towards ground level creating cool effects! The fog will cover the ground, roll down stairs, and swirl when walked through. It will not rise into light beams like glycol type foggers and will not make a fine mist in the air like hazers.

Dry ice fog has no odour, contains no chemicals, and leaves no oily residue.

How do I make a fog effect?

Consider using a fog generator – the next question “How is a dry ice fogger operated?” for more information. If you are looking to cover a large area, such as a dance floor, you will need 20kg for 8 - 10 minutes.

Add dry ice to a container with hot water (50C) and the fog effect will be spontaneous.

The fog effect can be halted if too much dry ice has been added to the water so chilling (and ultimately freezing) the water and reducing the humidity of the air above the container.

The upshot of this is that to maximise the fog effect you need to use warm/hot water. If you want the fog effect to last for a prolonged period consider adding a source of heat to keep the water warm - the container could be a rice cooker or slow cooker on the lowest heat setting. Be careful - if you use the heater on a high setting thermal currents will send the fog into the air spoiling the effect. Candles will not work as the CO₂ will extinguish the flame, after all CO₂ is used in fire extinguishers!

How is a dry ice fogger operated?

The fog machine is filled with water and heated with its built-in heating elements. When the water has reached operating temperature (two to three hours), the ice chamber in the machine is loaded, when fog is needed the pump is turned on and hot water is pumped into the ice chamber, immediately creating fog. The fan is turned on and the fog is blown out to the stage via a ducting hose.

How do I order dry ice?

You can place orders for 4, 10, 20, 30 and 40kg online at www.green-gases.com. We can deliver Tuesday to Friday. For special requests and other quantities, please phone us on: 08450 130 3280

How long will the ice last for?

It depends! 10kg can be consumed within minutes if added to sufficient hot water to create large scale effects. However for smaller more subtle effects the ice can last for hours. We ship in thick polystyrene boxes and the ice will last for 3 - 5 days depending on how you store the ice. We recommend keeping the ice unopened in the packaging until it is required and to store the box in a safe cold place. Once ice has been used put the lid on the remaining product and place in a cold location.

Can we put ice in drinks? The MistyStix...

Dry ice should never be placed into the mouth or swallowed. So as a rule dry ice should never be added to drinks to avoid any such risk. There is a new product called the MistyStix which allows dry ice to be added to drinks by providing a safety barrier between the drinker and the dry ice and so creating great smoking drinks safely.

When dry ice is loaded into a MistyStix a majority of the gas will bubble to the surface and create the much-loved mist. A small amount of gas will dissolve into the liquid to create carbonic acid and effectively carbonate the beverage though not enough to cause any fizzing. The slight carbonation effect is enough to tingle the tongue and give a slightly bitter taste as found in popular soda waters.

Ironically dry ice does not mix well with carbonated soft drinks or beer. The vigorous bubbling action will substantially un-carbonate the beverage leaving the drink "flat". Mistystix are therefore best used with non-carbonated cocktails and fruit drinks, punches etc. Dry ice will chill drinks and because it sublimates will not dilute drinks as does conventional water ice. It is cold enough to chill beverages without the use of ice. Hence dry ice will not water down or dilute drinks.

Always use tongs to handle dry ice and ensure that once loaded the Mistystix capsules are securely closed before serving.

The mist effect varies depending on the temperature of the beverage. The colder the liquid the slower the dry ice will be dissolved see our section on fogging. A hot beverage can produce spectacular results as the dry ice is rapidly dissolved. Typically the mist effect can last between 3 to 5 minutes.

Find out more about Mistystix at www.green-gases.com/mistystix.htm

How much ice do I need?

For presenting small items such as cakes, food and beverages our small 4kg pack is ideal. Please note that if you are looking for a subtle effect to enhance a food/wine presentation less is definitely more!

If you wish to create a couple of large smoke effects for your guests then you will need the 10kg pack, and if you have a large space and want to create something memorable multiples of this are worth considering. As a rough guide 20kg of dry ice will produce between eight to ten minutes of fog and create a thick fog carpet.

Where do you Ship Dry Ice?

We can send dry ice nationwide on a next day service to arrive with you Tuesday to Friday. We can also arrange Saturday services and timed arrivals by special arrangement.

What Type of Dry Ice can I buy?

For most effects we recommend pellets, however to keep large items cold we offer block ice from 1 to 10kg. We also sell micro pellets of 3mm diameter for very fragile products. Please contact us for more information.

I only need a small amount of Dry Ice.

We offer the smallest pack in the UK at nominal 4kg weight and can despatch next working day.

It's the weekend - and I forgot to order Dry Ice! What can I do?

You can pick up dry ice from our production plant in Hook Basingtoke on Saturday and Sunday from 9am to 5pm; please phone first to ensure somebody will be available to help you.

Do you Ship Frozen Goods?

Yes, we offer a full service for frozen or chilled shipping including pick-up, document preparation and small lot shipping nationwide.

For more information on on dy ice purchase and usage, contact us:

www.green-gases.com

0845 130 3280