



PHARMACY



4 Medical & Pharmaceutical

HOW CAN DRY ICE SOLVE MEDICAL PROBLEMS?



Dry ice is solid carbon dioxide (CO_2) at a temperature of $-78,5\text{ }^{\circ}\text{C}$, which is a perfect cooling agent for medical use due to its unique properties. Some of the key applications include:

1. Cryopreservation: _____

Dry ice is utilised to preserve biological samples, tissues, organs and cells at very low temperatures. Metabolic activity and cell deterioration is slowed down, allowing for long-term storage and transportation of valuable biological materials. Bone banks procure femoral heads from donor patients undergoing hip replacement surgery. Femoral heads need to be stored in $-80\text{ }^{\circ}\text{C}$ freezers for which dry ice is ideal for transportation between medical facilities.

2. Storage and transportation of transplant organs: _____

Dry ice is utilised to preserve and transport transplant organs from the donor to the recipient, e.g. hearts, kidneys and livers. The extreme cold helps to extend the organ's viability and shelf life during transit, slowing down metabolic processes and reducing the risk of tissue deterioration.

3. Wart and skin tag removal: _____

Cryotherapy can be done very effectively with dry ice, which utilises extreme cold to destroy abnormal tissue growth, by applying dry ice directly to the affected area resulting in controlled freezing of the skin lesions. It is essential to make use of properly insulated containers during transport in order to maintain the required temperature range. The transportation time should be minimised to ensure the femoral head remains viable for transplantation.



HOW CAN DRY ICE SOLVE PHARMACEUTICAL PROBLEMS?

1. Preserving pharmaceutical products:

Pharmaceutical companies often handle products which are extremely sensitive to temperature fluctuations. Vaccines, biologics and some medications require strict temperature control to maintain efficacy and safety. Dry ice acts as a dependable and consistent cooling agent during the sublimation process (transforming from a solid to a gas), which provides exceptional cooling properties and maintains consistently low temperatures. Creating this particular storage environment prevents pharmaceutical drugs from becoming less useful or even entirely useless.

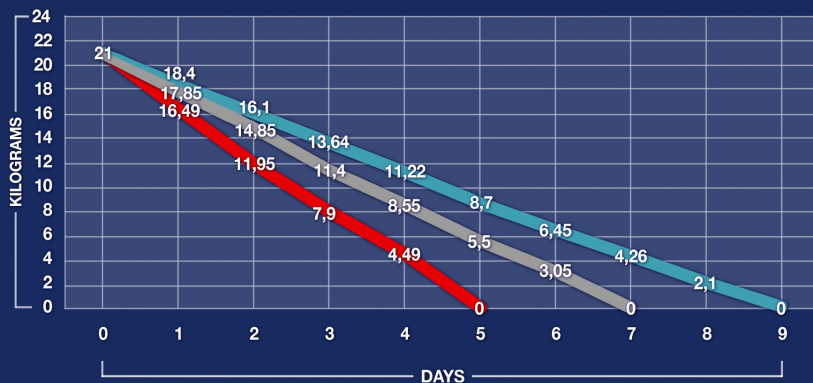
2. Shipping and storage:

Dry ice contributes significantly to the preservation of valuable medicines and vaccines in the pharmaceutical industry.

3. No residue or risk of contamination:

The risk of ice melting and contaminating/ diluting the media/product always remains high with the use of traditional ice packs/blocks during shipping. As dry ice does not melt but rather sublimates, it offers a perfect solution for use in the pharmaceutical industry as it entirely eliminates the risk for water/residue contamination.

Sublimation of Dry Ice in Various Containers



— Dry Ice Tainer — Fishtainer — Cooler Box

4 Medical & Pharmaceutical

HOW DO I STORE DRY ICE?

Use an insulated cooler, polystyrene container or order the perfect size on demand. Wrap the dry ice in paper or blanket to extend the life of the product if necessary. Do not store dry ice in your home freezer!

WHAT ABOUT SAFETY?

Dry ice is not for human consumption. Handle only with protective gloves or mitts. Transport only in complete isolation from the driver. Do not place dry ice in any gas-tight container - it sublimates and expands! Keep away from children (adult supervision is required).

WHAT IS DRY ICE?

Dry ice is frozen carbon dioxide (CO₂) at a temperature of -79 °C. It is a non-toxic, non-flammable food-grade product, which sublimates directly from a solid to a gas resulting in no liquid/water remaining behind. Sublimation of dry ice creates the cooling effect, of which the energy value is 570 kJ/kg.

DELIVERY

Dry Ice International delivers countrywide on a 24-48 hour basis. Dry ice may be ordered on the website to be delivered at your doorstep, or collected at any of our retail outlets.

MORE ABOUT US

Dry Ice International has been providing the South African industry with innovative dry ice technology and solutions since 1994. We are known for our dedicated national client service, creativity, innovation and team of highly qualified and experienced personnel.



All hours: 012 810 0500 - info@dryice.co.za - www.dryice.co.za

Dry Ice International © 2023