Polar Tech INDUSTRIES, INC.

Manufacturing/Distribution Centers in Illinois and Pennsylvania

**Temperature Safe Shipping & Protective Packaging Products**

## Shipping Refrigerated or Frozen Products

Every year, more products are shipped refrigerated or frozen – from cakes, pastas and ice cream to human tissues, medicines and bio-tech specimens.

The most important item needed to ship perishable products is a high-quality, industrial, styrofoam-insulated cooler with a wall thickness of 1-1/2 to 3 inches. A thick-walled EPS polystyrene container will reduce the amount of cold packs or dry ice needed and extend transit times.

Choose the required shipping temperatures for your products.
**DEEP LOW FROZEN** use dry ice @ -108°F (-78°C).
**MILD FROZEN** use frozen cold packs @10°-30°F.
**LOW-MILD FROZEN** use frozen cold packs and a little dry ice to extend transit time by 10 up to 24 additional hours.

For products requiring a **DEEP LOW FROZEN** profile, general guidelines include using dry ice, approximately 5 to 10 pounds for each 24 hours of transit time. Varying quality and or larger insulated shipping containers will require more dry ice to cover larger surface area. Load dry ice on bottom of container, then load products to ship and cover with dry ice. Dry ice will freeze and keep product frozen. For the required amount of days to ship, multiply the dry ice per each 24 hours of transit. Fill all void areas remaining inside insulated container with solid dunnage packaging material. This improves temperature stability and reduces dry ice sublimation.

For products requiring a **MILD FROZEN** profile, general guidelines for maximum product protection include: Surround product on 2 or 4 sides and on top and bottom. Varying quality and/or larger insulated containers including larger product pay load will require larger and more cold packs for the number of days in transit. General ratio to start is 1 lb. cold pack per 3 lb. of product and may require more. Fill all void areas remaining inside insulated container with solid dunnage packing material, this improves temperature stability.

For products requiring a **LOW-MILD FROZEN** profile, general guidelines for extended transit from 10 to 24 additional hours and lower frozen profile include: Surround packed product with frozen cold packs on 2 or 4 sides and place on top and bottom. Varying quality and or larger sized insulated containers and larger payload of product will require larger and possible additional cold packs to accommodate for extended transit time. Fill all void areas remaining inside insulated container with solid dunnage packaging material, place from 1-1/2 lbs. to 5 lbs. of dry ice on top of cold packs and packaging filler to buffer from packed product. This will enhance temperature and transit an additional 10 to 24 hours.

* Warning - Certain temperature sensitive items may be exposed to heat loss and freezing may result. Vaccines not recommended.

Contact parcel shipper for the correct labeling instructions and documents to declare weight and dry ice used in each package.

Always be sure work areas and transport vehicles are well ventilated when working with or transporting dry ice and packages with dry ice. Consult your local dry ice and liquid $CO_2$ supplier for more information.