



C. Nelson Mfg. Co. Inc. 419-898-3305  
 www.cnelson.com, sales@cnelson.com

# Re-Useable Cold Packs

Great for use with non-refrigerated carts or extra protection in extreme conditions

## *Eliminate Wet & Dry Ice Hassles Forever*

Before each use, freeze the eutectic liquid contained in the plate. To do this, place the plate in a freezer at a temperature at least 10 degrees below the set point of the plate for 24-48 hours until it is completely solid. Handle with care when frozen as it is sensitive to shock. Do not expose to high heat (120 deg F.) .



PRICES	1-4 pcs		BOXES	100+	
GN1/1	\$65 ea		of 5 for \$240	\$40. ea	
GN1/2	\$40 ea		of 10 for \$340	\$28. ea	
UPS shipping Charges extra	Best \$, buy in box(es)			Orders ship the following day when in stock	Dry-Ice No More!

Eutectic Plates are available in the following temperatures:

Choose plate temperature closest to the temperature of your product

+26 Deg F. requires +10 to freeze, Holds Refrigeration temperature, Green cap

+3 Deg F. requires -10 to -15 to freeze, Used for Ices or Frozen Foods, Red cap

+6 Deg F. requires -15 to freeze, Ice Cream, Yellow Cap

### **Plates GN1/1**

Size : 20.75" x 12.75" x 1"

Weight 11 lbs ea.

### **Plates GN1/2**

12.75" X 10.5" x 1"

Weight 7 lbs

## FAQ's for Eutectic Cold Packs

### 1. The most common question asked is "How long do they last"?

There is no good answer to this general question as it depends on many, many factors such as:

a. How hot is the ambient temperature?

b. Are the cold packs being used only for maintaining temperature in a passive situation, such as transporting temperature sensitive goods from one point to another without using dry ice or wet ice. Or are they being used in an "active" situation, with the door or lid being opened frequently while serving or preparing a product?

c. How well insulated is the container being used?

- There are containers that use urethane foam insulation (best),
- Expanded polypropylene insulation (more common in Europe than here) that is 2nd best,
- Styrofoam (the blue board or green board you see on the outside of houses being built), 3rd best; and
- EPS or expanded polystyrene, 4th (the cheap white stuff that cheap coolers are made from).

So the quality of the cooler is critical

We have data using a standard small catering box or non-refrigerated cart .

### 2. What are the cold packs made from?

The shell of the cold pack is food-grade HDPE (high density polyethylene) and the liquid inside the container is a true eutectic solution.

Eutectic is a fancy word that refers to a substance that has the same consistent chemistry as the material goes through the transition of water to ice to water repeatedly. The eutectic solutions in our cold packs are basically salt water with some other traces of alcohols and some "magic dust". These solutions, while not pleasant to drink, are non-toxic.

True eutectics (as opposed to glycols or organic materials like the "blue ice" stuff you can buy for keeping your lunch chilled) are the most efficient method to store "cold" energy. You get the most stored energy per pound of material.

### 3. How do they work?

When water freezes, it stores tremendous energy. As it melts, it releases that stored energy very efficiently. For instance, the amount of energy to make a pound of

water drop from 34 degrees to 33 degrees is 1 unit of energy (BTU if you want the technical stuff).

**The energy required, however, to go from 33 degree water to 32 degree ice is 144 units of energy.**

We call the transition from liquid to ice and ice to liquid a **phase change** in the material. The energy to keep products cold for extended periods relies on the energy stored during the **phase change** of the solution.

The requirement to have the solution go through the phase change leads to a **very important point-**

Cold packs will only work for any length of time when they are **completely frozen. Putting "cold" cold packs in a cooler will do very little cooling if the cold packs are not frozen solid.**

4. What temperatures are necessary to freeze the cold packs?

A freezer at least 10 degrees colder than the freezing solution of the cold pack is required, with 15-20 degrees colder much better. For instance-

26° solution requires at least 16°, +10 works better (easy)

3° solution requires at least -7°, with -10 to -15 better. (not so hard)

-6° solution requires at least -15° with -20 recommended. (harder)

Obviously, the colder the freezer, the faster the cold packs will freeze.

5. Are other temperatures available? And other sizes available

There are many other temperatures, available.

6. How many do I need?

The GN1/1 +26 replaces approximately about 7 lbs of ice. (see faq 1.)

Trial and error is usually necessary to optimize the use. See (1) above and the same conditions apply- how hot is it, how well is the container insulated, how many times will the doors be opened?, etc.

For a starter, figure 1 cold pack for every 2-3 cu. ft. of space. For instance, our CLT6, which is about 9 cu.ft., seems to work well for Italian ice for 6-8 hours using 4-5 of the GN1 size cold packs at +3 degrees. The colder you want your product to be, the more cold packs you would use.

We also suggest a second set such that when one set is in use, the second is freezing

7. Shouldn't the colder one work better and longer? I want the coldest ones to keep my refrigerated product colder longer.

FALSE. You want to work with the warmest cold pack temperature possible to hold your products at that temperature for the longest time. You will keep beverages at a 33-38 degree temperature longer with +26 degree cold packs than using a +10 or +3 cold pack. You will keep Italian ice at a 10-15 degree temperature longer using a +3 cold pack than a -6 cold pack.

8. What's the difference between the cold plate temp and my product?

Depends on the amount of cold surface area, use more or less to manipulate the temp.