

Cold Storage/Freezer Application Case Study



Nitrogen Generator:

Eliminate Ice Plugs
Eliminate Corrosion
Minimal Maintenance
Supply Many Systems

VS



Dry Air Pac™:

Ice Plugs Possible
No Corrosion Protection
Extensive Maintenance
Limited Volume Per Unit

Nitrogen Generator installed in Riser Room



ECS Solution

- (1) ECS Protector PGEN-40 - Stand-Alone Nitrogen Generator System
- (1) TCMP-40 - 5HP Compressor Package
- (1) ECS Protector Dry SMART Vent (PSV-D)
- (1) ECS Protector Handheld Gas Analyzer (PHGA-1)

“Nitrogen Generators provide a superior source of supervisory gas for dry and preaction systems.”

Overview

A cold storage facility in the food service industry was originally built in 1992 with one (1) preaction system covering the freezer area that is kept at (-10°F). Wayne Automatic Sprinkler Corporation located in St. Louis, MO has been contracted for the facility fire sprinkler inspection and service. As part of the quarterly maintenance procedures, Wayne Automatic Sprinkler routinely inspects the supervisory gas supply line and preaction system mains for ice plugs.

System Information

The preaction system was maintained with a legacy Dry Air Pac™*. Ice was continually found in the air supply line during the quarterly inspections. Not only was ice present in the air line at the freezer penetration, it also occasionally caused a total blockage in the preaction air supply line.

These ice plugs resulted in frequent supervisory low air signals. Additionally, the fire alarm control panel was programmed to receive the supervisory low air signals as alarm signals which resulted in the facility's horns and strobes being activated and the fire department being dispatched.

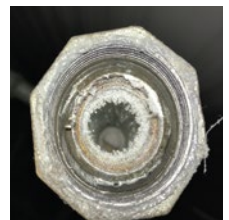


“50% of cold storage fire sprinkler systems have ice plugs” -FM Global

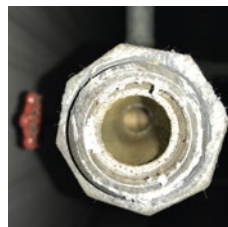
Dry Air Pac™ Replaced

In the fall of 2017 Wayne Automatic elected to install an ECS Nitrogen Generator after struggling with poor performance of the Dry Air Pac™ for years. This picture (right) was taken before commissioning prior to the line being cleared of ice during a quarterly inspection. Frost and ice had formed near the entry to the freezer area in the air line. There was an approximate 20% blockage in the air supply line before commissioning of the nitrogen generator.

SEPT. 2017



APRIL 2018



The preaction system was initially filled and then maintained with high purity nitrogen. Seven (7) months after the commissioning of the nitrogen generator, no ice buildup has been found in any of the nitrogen supply lines or preaction mains. Both the building owner and the fire sprinkler service provider are pleased with the results.

Annual Maintenance Cost: \$450 Nitrogen Generator vs. \$2,300 Dry Air Pac™ (Based on manufacturer's suggested maintenance and average U.S. sprinkler fitter labor rate)

* General Air Products asserts that it owns trademark rights in Dry Air Pac™. ECS does not claim to own any rights in that mark.



Typical System Configuration

1. N₂ Generator to supply one or more dry pipe sprinkler systems
2. Nitrogen generator sized to meet system volume demands
3. Single oxygen removal vent per dry/preaction system

ECS Advantages

Patented Fill and Purge Breathing Process

- Allows all equipment to be installed in the riser room
- No remote equipment in critical areas - vents installed on the riser
- Ensures minimal labor time to install and maintain equipment

No Unnecessary Equipment

- No refrigerated dryers, nitrogen tanks, or extensive gas sampling lines
- Reduces equipment footprint where space is limited
- Minimizes installation labor and coordination with other trades

All Products Sold Direct

- No distributor mark-up
- System design and product selection assistance with every project
- Direct support and training from the manufacturer
- All orders processed and shipped within 72 hours of receipt

| | WALL MOUNT | | | SKID MOUNT | STAND ALONE W/ SEPARATE AIR COMPRESSOR | | | |
|--|------------|----------|-----------|------------|--|-------------------------|-------------------------|-------------------------|
| | PGEN-3 | PGEN-5 | PGEN-10 | PGEN-20 | PGEN-30 | PGEN-40 | PGEN-50 | PGEN-60 |
| Total System Capacity | 675 gal | 950 gal | 2,000 gal | 3,200 gal | 6,500 gal | 11,000 gal | 18,500 gal | 22,500 gal |
| Single System Capacity @ 40 psi ⁽¹⁾ | 215 gal | 265 gal | 560 gal | 950 gal | 1,150 gal | 1,440 gal | 2,025 gal | 2,900 gal |
| Single System Capacity @ 20 psi ⁽¹⁾ | 540 gal | 590 gal | 1,120 gal | 1,800 gal | 2,300 gal | 2,880 gal | 4,050 gal | 5,800 gal |
| Air Compressor | Integral | Integral | Integral | Integral | Separate | Separate | Separate | Separate |
| Size (H x W x D) | 36x24x9 | 36x24x9 | 38x29x11 | 57x32x40 | 53x24x9 ⁽²⁾ | 76x24x12 ⁽²⁾ | 76x24x12 ⁽²⁾ | 76x24x12 ⁽²⁾ |
| Weight | 115 lbs | 125 lbs | 175 lbs | 420 lbs | 152 lbs ⁽²⁾ | 264 lbs ⁽²⁾ | 300 lbs ⁽²⁾ | 300 lbs ⁽²⁾ |

NOTES:

- (1) Single system capacity based on 30 min. fill requirement of largest single sprinkler system; a secondary air compressor with normally closed isolation valve can be used to meet fill requirement for larger individual systems
- (2) Size and weight of nitrogen generator only, does not include separate air compressor
- (3) All nitrogen generators include one (1) year manufacturer's warranty per ECS terms and conditions