



STOPS DEHYDRATION

KILLS BACTERIA & MOLDS

ELIMINATES ETHYLENE

INCREASED PRODUCT QUALITY

**APPLES CITRUS KIWI GRAPES STONE FRUIT
ONIONS POTATOES TOMATOES CHERRIES
AVOCADOS VEGETABLES MELLONS**



DESCRIPTION

The patented PurOcold ozone technology for cold storage rooms provides an excellent solution to stop product dehydration, kill mold spores/bacteria and eliminate ethylene from CA and RA cold storage rooms. This new patented technology maintains the humidity above 97% so the stored products do not dehydrate. Typical cold storage rooms defrost the evaporator(s) and the PurOcold technology eliminates the need to utilize defrost cycles. Ozone gas is added to the cold storage room continuously at .100 to .125 ppm to killing mold spores and bacteria. Ozone also eliminates ethylene by converting the ethylene to CO₂ and water stopping the ripening process. These low levels of ozone are safe for personnel to enter and work in the rooms. In an environment of low level ozone and high humidity airborne mold spores will not grow, eliminating nesting molds and cross contamination spoilage. Ozone is approved by the USDA as organic and no other chemicals are required. By reducing the water lost to dehydration and the products lost to molds the PurOcold process provides significant increased profits. The recent NIH (National Institute of Health) publication says that ozone will eliminate up to 99% of pesticides.



OPERATION

The PurOcold ozone generator and Quad Controller are located outside and near cold storage rooms. One generator can treat up to four individual cold storage rooms, each with its own control setpoint. Ozone is produced by the ozone generator and the Quad Controller distributes the ozone to each room. Personnel can enter and work in rooms with an ozone level at between 100 and 125 ppb for up to 8 continuous hours.

The PLC Controller includes a color touch screen that provides the operator with continuous monitoring of the ozone generator. The Quad Controller includes a color touch screen displaying the ozone level and the setpoint in ppb. Each room is individually PID controlled and displayed and each room can be turned on or off using the color touch screen. Both the ozone generator and the Quad Controller can be remotely monitored via the internet or cell phone.

Ozone can also be used to clean the cold storage rooms prior to being filled. The room is closed and the ozone is applied at between 2 and 5 ppm for up to 48 hours with humidity above 95%. This will disinfect the entire room including the refrigeration coils and fans. Personnel cannot enter the room during treatment. Ozone naturally decays within a few hours leaving the room clean and safe.



MOLD CONTROL

Fresh harvested produce comes from the field covered with mold spores and bacteria, and when placed in cold storage the molds continue to grow. All molds sporulate, releasing new spores that grow into new mold colonies. Maintaining ozone at 100 to 125 ppb with humidity above 95% in the cold storage environment prevents the released spores from growing. Traditional treatment fungicides can reduce mold growth but they lose their effectiveness with time and the molds begin to grow into nesting molds. Individual products which have been damaged during harvest and packing will also mold but ozone prevents the mold from spreading to adjacent products. For organic produce, ozone is one of the only solutions that provides long term control of molds for cold stored products.

PUROCOLD[®] STORED



9 months in ozone



9 months no ozone
large nesting molds



3.5 months in ozone
No Molds/Dehydration



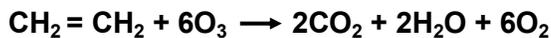
5 months in ozone



5 months no ozone

ETHYLENE CONTROL

Ethylene is produced by fresh fruits and vegetables and causes them to continue to ripen. Applying ozone continuously to the cold storage facility maintains ethylene below the detection level of 2 ppb. The ozone is distributed uniformly throughout the room so any ethylene molecule produced by the product is converted to CO₂, water and oxygen. Ethylene and ozone cannot exist together because ozone breaks the double bond of the ethylene molecule. This characteristic makes ozone an excellent organic choice to retard ripening without the use of chemicals that permanently destroy the products ability to ripen when brought out of cold storage.



PUROCOLD[®] SYSTEM

Comm: ETHERNET
WIRELESS



3402 Ozone Generator

Communications

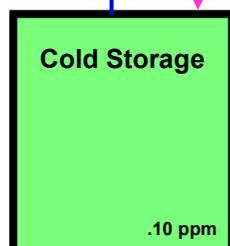
5601 Quad Controller

Fan On/Off Inputs (4)

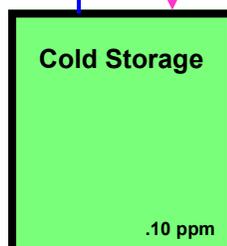
Ozone

Sample Inputs

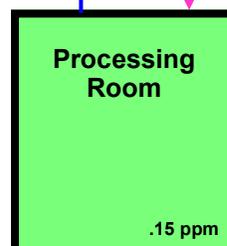
Ozone Outputs



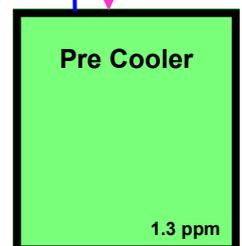
.10 ppm



.10 ppm



.15 ppm



1.3 ppm