

# Grape

Carrier Transicold's EverFRESH® active controlled atmosphere (CA) system for refrigerated containers now offers a new carbon dioxide (CO<sub>2</sub>) injection option to better preserve the full range of perishable cargo, including low-respiring cargo. The new option allows the container to be pre-charged with CO<sub>2</sub> at the start of a voyage and automatically adds more as needed over the course of the trip.

**Optimum Temperature:** -0.5-0.0°C

**Optimum CA levels:** O<sub>2</sub>: 5.0-10.0%, CO<sub>2</sub>: 10.0-15.0%

**Weeks in Air:** 4-16 (with SO<sub>2</sub>)

**Weeks in CA:** 4-18

**Relative Humidity:** 85-95%

#### Benefits of CA:

Low O<sub>2</sub> delays senescence. Elevated CO<sub>2</sub> reduces decay. CA could substitute for the use of SO<sub>2</sub>. 25-45% CO<sub>2</sub> can be used up to 2 weeks for insect control.

#### Ethylene:

Grapes produce little ethylene and are not very sensitive to it. However, ethylene can enhance senescence and browning of stems (variety dependent). Avoiding ethylene in transit can help extend transit life potential \*

#### Special Treatments Before Shipping:

Grapes are often treated with SO<sub>2</sub> to prevent botrytis, either in fumigation chambers and/or slow release pads during transit.

#### Varietal Differences:

Keeping quality and response to CA is dependent upon variety. With some varieties CA can keep fruit and rachis quality. With other varieties CA can keep fruit quality but causes rachis to turn brown. Benefits of CA need to be assessed for each specific variety.



#### Mixed Loads:

If grapes have SO<sub>2</sub> packets, they should not be mixed with other produce as SO<sub>2</sub> can damage many kinds of produce. Otherwise grapes can be shipped in mixed loads with same temperature, CA, and ethylene sensitivity requirements. Grapes can absorb odors from leeks, garlic and onions.

#### Cautions:

O<sub>2</sub> < 1% can cause off-flavors. CO<sub>2</sub> > 5-10%, depending on variety, can cause browning of berries and stems. SO<sub>2</sub> is associated with health hazards SO<sub>2</sub> and may not be approved in some exporting countries. SO<sub>2</sub> is a very strong oxidant and causes corrosion in the aluminum inside marine reefer containers. SO<sub>2</sub> in transit is incompatible with CA so they should not be used together.



**EverFRESH®**