



Thawing Procedure for a Frozen CO2 Beverage Tank

To thaw a tank with dry ice the tank needs to be pressurized with (warm) CO2 gas from an external pressure source. This can be accomplished using a 50 lb. HP cylinder regulated to a supply pressure of 250 psi. **The tank must be isolated and not in use during the thaw process.**

- 1) Gain access to the head (gas) space of the frozen tank through a “gas port” on the tank and connect the high-pressure source.
 - a. If the tank is a “liquid withdrawal” style tank (Matic / Max) or a gas withdrawal tank equipped with a Sure-Fill circuit, gain access to the head space by removing the Sure-Fill regulator and attach a hose from the high-pressure source to the Sure-Fill regulator’s connection point using a hose barb fitting. (The high-pressure line could also be connected to the gas side of the Economizer circuit on a “liquid withdrawal” style tank.)
 - b. If the tank is a “gas withdrawal” (Charger / Mizer) style and does not have a Sure-Fill circuit the high pressure can be introduced through the gas-use port coming from the knuckle of the tank or it can be connected to the gas side of the “pressure building” circuit; whichever is most convenient.

Note: When making a connection to either the gas-side of the PB circuit or the Economizer circuit make sure both isolation valves in the circuit are closed before making the connection. After connecting the high-pressure line, open only the “gas-side” of the circuit when beginning pressurization.

2) Under the conditions described above, the dry ice in the tank should thaw at a rate of 100 lbs. / 24 hours and will consume one 50 lb. high pressure cylinder for each 100 lbs. of dry ice thawed. Therefore, it is important to have at least one high pressure cylinder available for every 100 lbs. of dry ice suspected in the tank and to change the H.P. cylinder as necessary during the thaw process. For example, if 300 lbs. of dry ice are suspected inside the tank, plan to use 4 HP cylinders (and four days) to accomplish the thaw. It is important to change the cylinders as soon as they are consumed to avoid re-freezing the tank. **It is also important to check the tank for leaks while it is being pressurized.** Plumbing leaks could also result in a re-freeze of the tank.

3) To determine whether a tank is thawed, dispense gas from a liquid port on the tank. On a “liquid withdrawal” style tank the liquid “port” is the gas-use port. On a “gas-withdrawal” style tank the liquid port is the liquid side of the pressure building circuit. If a sustained flow of gas is obtained through either of those ports, and if frost begins to form on the location of the internal vaporizer coils of the tank, this is indication that the tank has been thawed and contains liquid CO2.

Note: If the procedure described above does not appear to be effective (perhaps on a tank completely full of dry ice or a tank that water has backed up into the tank) it is possible to thaw the tank by completely depressurizing the tank and “opening” the tank through the Sure-Fill circuit or the contents gauge port (unless the float rod is embedded in dry ice) and introducing a heating rod and warm gas. If the heating rod / warm gas method is used, **make sure the tank is in a well ventilated area** and that warm gas is circulated over the ice in the head space of the tank while it is being thawed. Another method would be to use a heat gun with variable



temperature and flow. Rig up an adapter that will fit over the end of the heat gun barrel and then reduce down to a tube size that will fit into one of the top ports of the tank knuckle. Make the tube that will go into the tank long enough to protrude past the bottom of the inner neck tube. If there is back flow through the intake of the heat gun drill holes into the larger pipe to allow excess flow to exit until no back flow is felt on the inlet side of the heat gun to protect the heating element and fan motor. Do not exceed an inlet temperature of 300 degrees F, 250 is preferred. Leave run until all the dry ice has evaporated. If there is water in the bottom of the tank remove it with a wet/dry vac, pressurize tank with dry nitrogen to blow any moisture that may be in the internal coils, once there is no visible moisture coming out the plumbing purge with dry nitrogen gas to purge out any remaining moisture.