

XLC FREEZERS:

A few weeks back, one of our distributors came across a problem situation in the field. They had recently set up 2 XLC-500's for the initial fill. Each freezer was supplied by its own liquid cylinder and there were no racks installed. One unit functioned properly but the other was experiencing level reading fluctuations during the fill cycle. This is what was happening:

When one of the units is turned on and goes into fill-mode, the level immediately drops below the Low-level alarm, and the alarm is activated. This happens intermittently, but would be at least 2-3 times per week (when filling). As an example, when I was there with the customer, the reading was 14.2", then fill commenced, and reading drops straight away to 11.4, 11.5, then slowly up to 11.9, then 12.0 and so on until the level increased to the fill stop parameter. However, the alarm is set at 11.0 and the fill level is at 13.0. When filling commences, the level drops to below the alarm level, and it is activated. This is only occurring on one unit, the other is functioning correctly.

Additionally, this customer is finding they are going through more LN2 than they would expect. There is a figure of 1.3 inches per day liquid usage on the readings. Could it be a split in the clear plastic sensor tube from the dual port pressure transducer?

Jeff Brooks investigated this problem and this was his conclusion:

The cause is not a leak in the clear vinyl tube. If the vinyl tube had a leak, you would never read the correct level. I assumed from the description that the level reading is correct up to the point where it starts filling.

To duplicate the symptoms in house, we disconnected the 1/8" OD copper tube where it connects to the purge valve adjacent to the vinyl tube. The following explains what is happening.

At the beginning of each fill cycle, a 30-second purge cycle occurs. To accomplish this, the 3-way purge valve that the vinyl and copper tubes connect to is energized. This closes off the port that the vinyl tube is connected to, and opens the port that the 1/8" OD copper tube is connected to. The other end of the copper tube tee's into the fill plumbing downstream of the fill valve (physically above the fill valve). This cycle allows gas (liquid is vaporized in the 1/8" tube) to blow through the sensor tube in the tank and clear ice particles from the bottom of the tube. During this cycle, no level readings are taken, and the controller displays the last reading taken before the fill cycle began.

If the 1/8" copper tube is disconnected from the purge valve, opening this port opens the sensor tube in the tank to atmosphere. Liquid will then rise in the tanks sensor tube and attempt to reach the level in the tank. Once the purge cycle is complete, the valve then reconnects the vinyl tube port to the tanks sensor tube and begins to read the level again. At that point the pressure in the tube is lower than the actual level in the tank. Heat transfer down the tube will vaporize the liquid

that is now in the tube and gradually push all the liquid out until there is only gas in the tube. At that point the level display would again indicate actual level in the tank.

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We disconnected the copper tube at the connection to the fill line first. However, to duplicate your symptoms, we had to disconnect it at the purge valve.

If this is indeed the case of the problem that you are seeing, it could account for the elevated liquid consumption in this unit. Liquid would flow through the 1/8" copper tube and be vented in the back of the cabinet for the duration of the fill cycle.

For answers to questions on maintaining your XLC freezers please contact Chart Technical Service Representative for Cryo-biological products Gil Edwards. He can be reached at 770 720-6714. Gil will have a toll free 800 number within the month.

AI/CRYO SHOWS FOR 2001

Chart-MVE will be exhibiting at the following shows this year. If a show is in your area and you wish to attend please contact the CHART-MVE Sales associated listed next to each show.

2001 BIO MED CONFERENCE Harvard Medical School Boston MA	Sept 18-19th	Bruce Edel Cryo Assoc.
DAIRY EXPO 2001 Madison WI	Oct 3-7 th	Paul Lydolph
NIH SHOW Bethesda MD	Oct 4-5	Bruce Edel Cryo Assoc.
AABB (American Association of Blood Banks) Henry B Gonzales Conv. Center San Antonio TX	Oct 14-16 th	Bruce Edel
ASRM (American Society for Reproductive Medicine) Orange County Convention Ctr. Orlando FL	Oct 20-24 th	Lois Tuma
ASH (American Society of Hematology) Orange County Convention Center Orlando FL	Dec 8-10th	Bruce E

Bachman at (952) 882-5168, Pager (612) 579-8367, Fax (952) 882-5175.