

ULT Freezer (Minus-80) Recommended Preventative Maintenance Plans

ANNUAL PREVENTATIVE MAINTENANCE (About 3 to 4-hours + about \$14.00 materials):

We recommend a thorough defrosting prior to the Annual PM which would be done by the owner. It involves moving the entire product out of the freezer, turning the freezer off, and unplugging it. Wipe out any loose ice and frost, and then allow the unit to defrost for 24 to 48 hours, cleaning up any melting ice along the way.

When the unit is thoroughly defrosted, our technician will then clean the foam filter, chemically clean the condenser fins, condenser fan blades, wipe down the compressors and other components, check the compressor windings, clean the vacuum port, check all electrical connections, and check the compressor start components. Once everything is cleaned and checked, he will confirm proper start-up of the compressors, compressor sequencing, and heat exchanger temperatures and pull down timing, second stage cut-in controls, and operating current and initial temperatures.

Once the system is verified to be operating and pulling down properly, the unit will be allowed to completely pull down (operating 12 to 24 hours). If available, any on-board error codes will be checked; calibration of the temperature sensor will be checked and adjusted as necessary. The High Temperature, Low Temperature, and Power-Loss alarms will be tested. Other alarms will be checked if available. The alarm back-up battery will be checked. Any other operational and functional items will also be cleaned and / or checked as appropriate. If at any point of the PM something is discovered to be in need of adjustment or repair outside of the scope of the normal PM, we will inform you of the issue and cost to correct it.

Upon completion of the PM, we will give you a copy of the PM check-list and analysis report and turn the unit back over to you. We recommend you put your product back in at the rate of 1/3 capacity every 8-hours or more. (IE: fill about 1/3 the capacity with already frozen product and allow to stabilize for 8-hours, put in another 1/3 capacity and allow to stabilize for 8-hours, finally complete filling the last 1/3 capacity if you have it.

SEMIANNUAL PREVENTATIVE MAINTENANCE (About 2 to 3-hours + \$10.00 materials):

The semiannual PM is similar to the annual with a couple exceptions: First, depending on the condition of the freezer cabinet (amount of frost, frequency of opening, quantity / type of material kept in it) it may or may not need to be defrosted on a semi-annual basis. Our technician will be able to let you know, prior to scheduling a semi-annual PM if he recommends a defrost or not. Typically a chemical cleaning of the condenser would not be needed on a semi-annual basis; usually a brushing / vacuuming and possibly pressurized gas is all that would be done. The rest of the steps remain the same with the exception that if you don't defrost you would not need to move the contents to temporary holding, and since the unit would already be at or near set-point, we will be able to do the evaluation without needing to wait for the unit to pull down to temperature.

QUARTERLY PREVENTATIVE MAINTENANCE (About 1-hour (no materials)):

We also offer a quarterly PM which entails a more basic check-up: we clean the foam filter, vacuum the condenser fins, check for any on-board error reports, do a visual inspection of operating components, check current flow on the compressors and check heat-exchanger temperature.

Typical Annual cost of recommend PMs on one Minus-80 Freezer at the current billing rate (\$64.00 / hour):

1 Annual PM at about 3.5 hours =	\$224.00 + \$14.00 materials =	\$238.00
1 Semi-annual PM at 2.5 hours =	\$160.00 + \$10.00 materials =	\$170.00
2 Quarterly PMs at about 1-hour each =	\$128.00 (no material costs) =	\$128.00
Annual Total about:	\$224.00 + \$160.00 + \$128.00 =	\$512.00

Billing Details

1. All Preventive or Corrective Maintenance work is billed at actual time and materials. Estimated time to perform any PM or CM may vary from unit to unit. If we determine that the PM or CM work needed to be done on your specific unit exceeds our estimate, we will notify you and await authorization before proceeding further.
2. The owner will be charged a minimum of 1 hour labor for diagnostics. If repairs are necessary, the owner must approve all work; the owner will be charged accordingly for actual labor provided and materials used.
3. Facilities will provide a copy of the completed preventive maintenance task list and analysis report sheet.
4. A Facilities Management HVAC Mechanic can also provide troubleshooting and repair services to any computer room air conditioning (CRAC) unit, Minus-80 Freezer, domestic freezer, ice machine, domestic refrigerator, etc.
5. Rate Schedule: (Rates are reviewed and adjusted annually):

Regular Service Rates	\$64.00/Hour	Mon.-Fri. (07:30 to 16:00)
Overtime (Minimum of two hours)	\$96.00/Hour	Mon.-Fri. (16:01 to 0730)
Off /Holiday/Weekend (Minimum of two hours) (On Emergency Basis Only)	\$96.00/Hour	
6. Hourly rates are reviewed annually and adjustments made at fiscal year end. Client will be advised in advance of rate changes. Clients are to provide a job request and speed type number prior to the start of any preventive maintenance or work. Either client or Facilities Management can end the agreement at any time by advising one another in writing. Annual service plans are renewed automatically unless cancelation is received in writing.
7. To schedule a one-time PM service call or set-up a scheduled PM service plan, please send the request via our online Work Request process, found [here](#).