Purpose

This SOP provides direction of the use and maintenance of the vacuum pump. The pump is capable of pumping gases and vapors.

Materials

1. Leybonol LVO 100 oil
2. Cleaning solvent (ex.: 70% ethanol)

Operation

1. Complete the log sheet associated with this equipment.
2. Pumping of condensable gases and vapors
    A. This pump is not suitable for pumping the following:
        I. Combustible and explosive gases or vapors
        II. Radioactive and toxic substances
        III. Pyrophorous substances
    B. Always operate the pump with a suitable exhaust line that is properly connected and slopes down and away from the pump.
    C. Check the oil level and appearance prior to stating the pump. The oil should appear transparent and must be between the marks of the viewing glass.
    D. Check the dirt trap before and after each use. Remove the trap and clean with a suitable solvent (ex.: 70% ethanol). Thoroughly dry the dirt trap and reassemble it.
    E. Turn the pump on and allow it to reach its operating temperature. The pump should be allowed to run for at least 30 minutes with the intake line closed and the gas ballast open (position 2).
    F. When the pump is warm, the temperature at the surface of the oil box may rise to between 40˚C and 80˚C. This results in the danger of receiving burns.
    G. Once the pump has reached its operating temperature, open the gas ballast valve (position 3).
    H. Refer to SOP 004 for operation of the freeze dryer.
3. Shutting the pump down
    A. During the pumping process, vapors may dissolve in the oil of the pump. This impairs the properties of the oil and there is the risk of corrosion within the pump. For this reason, the pump must not be switched off immediately after termination of the process. The pump must remain on with the gas ballast valve open and the intake lines sealed until all vapors in the oil have been removed.

4. Maintenance
    A. Change the oil after 100 hours of use or if it appears discolored. The oil should be transparent.
    B. Clean the internal demister every 6 months in conjunction with an oil change.

In the event of a problem, contact the Spokane lab services group (spok.labservices@wsu.edu, 509-358-7621)

Failure to use the equipment properly may result in a misuse fee to the last researcher or lab to use the equipment.