



VACUUM PUMP SAFETY TIPS

Mechanical vacuum pumps* are commonly used in laboratories and can present a range of physical and chemical hazards. These guidelines outline some effective ways to prevent injuries and incidents from occurring.

▪ PHYSICAL/MECHANICAL RISK MITIGATION

- Ensure belt driven pumps have a protective guard to prevent hand/hair or loose clothing from getting caught in the moving belt.
- Ensure the electrical cords and switches do not have defects.
- Plug the pump directly into an outlet. If a temporary power strip is used, make sure it is properly rated for the vacuum pump electrical load and the plugs are fully seated and secure as loose connections can generate heat.
- Use correct vacuum tubing. Replace the tubing if it becomes cracked or shows signs of degradation as it can minimize vacuum performance.

▪ CHEMICAL RISK MITIGATION

- Before each use, check oil level window to ensure pump is properly filled. Notice the oil color and odor. If oil looks dark brown/black, has black flecks or cloudy, oil needs immediate replacement. A burnt smell signals oil contamination and can't effectively cool the pump. Follow manufacturer's recommendations on frequency of oil changes to prevent damage to pump.
- Always use pumps in well-ventilated areas and vent exhaust into fume hood/exhaust system.
- Dispose of used oil as hazardous waste.
- Place a tray under the pump to catch oil drips/spills. Clean up spilled oil from tray.
- Do not use solvents that may damage the pump. Use cold traps (dry ice/isopropyl alcohol) to prevent solvents from entering pump to protect it from damage.
- Do not operate pumps near containers of flammables or near combustible materials.

Summary: Risks and Mitigation

HAZARDS	RISKS	PREVENTION
Physical / Mechanical	Entanglement, overheating, fire	Install guards for belt mechanical pumps, plugs need to be fully seated making full contact, cords in good condition.
Chemical	Dirty/contaminated oil, exhaust exposure	Perform routine maintenance, vent pump exhaust properly, use cold traps.

*Consider oil-free vacuum pumps to minimize maintenance

See the EH&S
Website for more
Essential Safety
Resources



NEED HELP? CONTACT EH&S
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