



Laboratory Safety Fact Sheet: Vacuum Pump

The fact sheet below gives hazard information and precautions for the use of vacuum pumps in laboratory settings.

Vacuum Pumps

Vacuum pumps are devices used to remove air or gases from a chamber, creating a partial or full vacuum. They are commonly in laboratories for filtration, freeze-drying, distillation, and sample preparation.

Hazards

Glassware Implosion	-Glass vacuum systems can implode if weakened or improperly assembled
Chemical Exposure	-Pumps may exhaust hazardous vapors, solvents, or particulates -Oil-sealed pumps can backstream oil vapors into the system
Pressure Hazards	-Sudden loss of vacuum can cause spills, glass breakage, or sample release
Electrical Hazards	-Risk of electrical shock or fire from improper wiring or overloaded circuits

Personal Protective Equipment (PPE)

- Safety glasses face shield (especially with glassware)
- Lab coat
- Chemical-resistant gloves (appropriate for material used)
- Closed-toed shoes

Safe Handling Procedures

Training Required: Only trained personnel may work with vacuum pumps. Ensure you have received specific training on using vacuum pumps.

Location & Setup:

- Operate pumps in well-ventilated areas or inside fume hoods.
- Place on stable surfaces; secure glassware with shields when possible.

Exhaust Handling:

- Always vent exhaust into fume hood or connect to appropriate filters/traps.
- Use cold traps for volatile chemicals to protect pump and environment.

Startup/Shutdown:

- Do not block ventilation or cooling systems.
- Follow manufacturer's instructions for startup and shutdown.

Maintenance:

- Regularly inspect belts, oil, and connections.
- Replace pump oil contaminated with solvents or chemicals promptly.
- Report malfunctioning pumps.

Emergency Procedures**Glassware Implosion**

- Do not attempt to cleanup without PPE; treat as chemical waste.

Electrical Malfunction:

- Shut off power at breaker.
- Do not touch pump if smoking/sparking.
- Report malfunctioning pumps.

Chemical Leak or Odor:

- Shut down pump.
- Call EH&S emergency phone.
- Evacuate if necessary.

Contact EHS:

For spills, exposures, maintenance concerns, or disposal:

EHS Emergency Number: 404-216-5237

Georgia Tech Police Department: 404-894-2500

Email: lab-chemsafety@gatech.edu