

Vacuum Systems

Vacuum work can result in implosion of flasks, dessicators, glass tubing or other apparatus and the risk of an injury from glass sharps, chemical splash, or fire must be addressed. A blast shield and a full face splash shield should be used to protect lab workers, or vacuum operations should be carried out in a fume hood. All glassware under vacuum should be kept behind a shield or fume hood sash, and should be taped or plastic coated.

Dessicators, glass components of rotary evaporators and dewar flasks should be made of pyrex, and should be completely enclosed in a shield or wrapped with friction tape. Before each use, items should be checked for cracks, scratches or etching marks. See details in [Prudent Practices working with vacuum systems](#)

Vacuum lines must be protected against contamination. Where vacuum use may result in fluid or aerosol contamination of the central vacuum system in certain buildings, it is recommended a vacuum trap be employed to avoid contamination of the central vacuum with water, solvent vapors or corrosive gases. Additionally, a high-efficiency particulate air (HEPA) filter cartridge should be placed in any suction tubing immediately before the vacuum inlet (valves) to protect against contamination with particulates, including nanomaterials. These filters should be replaced annually or whenever there is evidence of filter blockage, failure or wetness.

Mechanical vacuum pumps must also be protected against contamination by use of a cold trap, and these should be exhausted into a fume hood or other approved exhaust system that will release contaminants outside of the building.