

## PERCHLORIC ACID HOODS

Perchloric acid is extremely dangerous because it is a very strong oxidizer. When the acid reacts with organic material, an explosive reaction product may be formed.

1. Do not use perchloric acid in a hood designed for other purposes. Identify perchloric acid hoods with large warning signs.
2. Provide exhaust ventilation and room supply air with minimal challenge to the hood.
3. Utilize local exhaust ventilation within the hood to minimize condensation of vapors inside the hood.
4. Locate all utility controls outside the hood.
5. Materials of construction for this type of hood and duct must be nonreactive, and acid resistant, and relatively impervious. AVOID ORGANIC MATERIALS unless known to be safe. Stainless steel type 316 with welded joints is preferred. Unplasticized polyvinyl chloride or an inorganic ceramic coating, such as porcelain, is acceptable.
6. Ease of cleanliness is paramount. Use stainless steel within accessible rounded corners and all-welded construction.
7. The work surface should be watertight with a minimum of 0.5 inch dished front and sides and an integral trough at the rear to collect the washdown water.
8. Design washdown facilities into the hood and duct. Use daily or more often to thoroughly clean perchloric acid from the exhaust system surfaces.
9. Each perchloric acid hood should have an individual exhaust system. Slope horizontal runs to drain. Avoid sharp turns.
10. Construct the hood and duct to allow easy visual inspection.
11. Where required, use a high-efficiency (greater than 80%) wet collector constructed for perchloric acid service. Locate as close to the hood as possible to minimize the accumulation of perchloric acid in the exhaust duct.
12. Use only an acid-resistant metallic fan protected by an inorganic coating or an air injector.
13. Lubricate the fan with fluorocarbon-type grease.
14. Locate the fan outside the building.
15. The exhaust discharge must terminate out-of-doors, preferably using a vertical discharge stack that extends well above the roof eddy zone. See Figure 5.33.



TITLE

PERCHLORIC ACID  
HOOD DATA

FIGURE

VS-35-03

DATE

2-91