

- (e) Flammable liquids shall not be transferred from one container to another unless electrically interconnected.
- (f) Store in properly labeled safety cans or in original container if one gallon or less.
- (g) Flammable and combustible materials shall not be stored in areas used for exits, stairways or areas normally used for the safe passage of people.
- (h) Be sure there is adequate ventilation when storing flammable or combustible materials.
- (i) No more than 25 gal. (90.84 L) of such materials shall be stored in a room, unless an approved safety storage cabinet is provided.

## **14.9 Carbon Dust**

Most electrical brushes expel carbon dust onto machine room equipment. When cleaning components, avoid irritation to skin and breathing passageways. You may want to consider wearing a dust mask and latex gloves or use a closed system (bonnet). Safety glasses/goggles are also required if liquid cleaning agents are being used.

## **14.10 Sulfuric Acid Type Batteries**

- (a) Batteries may contain sulfuric acid and as such shall be handled with care. The acid is contained in a gel media and is not subject to leaking (unless case is cracked), however at high temperatures (greater than 140° F) the gel may liquefy causing leakage. Similarly discharged batteries may freeze at temperatures below 10° F which can crack the case and cause subsequent leakage.
- (b) Sulfuric acid is corrosive and can cause burns to the skin and eyes. Fumes can cause eye, nose and throat irritation, but significant fumes would only be generated in unusual circumstances if the battery were to become overheated.

- (c) Always use personal ground straps to dissipate static discharge if you must handle hot batteries. Battery cabinet shelves are to be lined with plastic to prevent leaking batteries from eating the shelf which, if undetected, may cause it to collapse.

**NOTE:** Sixteen 12V batteries in a series can generate up to 192 volts. Remember disconnecting the main line switch does not protect you. Use proper gloves and insulated tools and follow safe electrical work practices.

- (d) When working on or in rooms with sulfuric acid batteries the following items shall be kept onsite/inside the elevator machine room:
  - (1) One (1) Pair of Rubber Gloves
  - (2) One (1) Pair of Safety Goggles
  - (3) One (1) Spill Kit
  - (4) One (1) Rubber Apron
  - (5) One (1) Face Shield
  - (6) One (1) Eye Wash Kit
  - (7) One (1) Bottle of Sterile Water
  - (8) One (1) Box of Baking Soda
- (e) In addition, it is recommended that the proper warning signage be posted on the machine room door.
- (f) When handling or testing batteries, you shall wear gloves, apron and full face shield (and goggles) to avoid contact with acid which may leak from the battery.
- (g) If acid gas/fumes are detected, immediately exit the room and notify your supervisor.
- (h) Acid gas/fumes are readily detected by an irritation in the nose and throat.
- (i) As charging produces hydrogen which readily burns, machine rooms should be well ventilated to prevent hydrogen build up.

- (j) Smoking, flames or sparks shall be kept away from batteries. Use personal ground straps when handling hot batteries to control static discharge.
- (k) The following procedures should be followed in case of contact with acid:
  - (1) Eyes: Flush with water for 15 minutes – use eye wash in safety kit and follow up with ordinary water if necessary. Seek medical attention.
  - (2) Skin: Flush affected parts of the body with large amounts of water, then neutralize with baking soda or sodium bicarbonate and remove contaminated clothing. If the burn is severe, go immediately to the emergency room at the nearest hospital.
  - (3) Inhalation: Remove immediately to fresh air, if dizzy or unconscious, transport immediately to the emergency room at the nearest hospital.
  - (4) Ingestion: If sulfuric acid is swallowed, DO NOT INDUCE VOMITING, wash out the mouth with water, if milk is available drink as much as possible, if not, then drink as much water as possible and go immediately to the emergency room at the nearest hospital.
- (l) Before energizing equipment, ensure doors on battery compartment are closed. There have been isolated reports of batteries exploding when first put under load.
- (m) Batteries shall not be stacked on each other as this may crack the case.
- (n) Do not clean battery cases with cleaning solvents.
- (o) Return all used batteries to local office for proper disposal.
- (p) Be aware that all bottles of eye wash and boxes of baking soda are dated and shall be routinely checked and replaced as necessary. Make certain that a currently dated eye wash bottle and box of baking soda is available.