

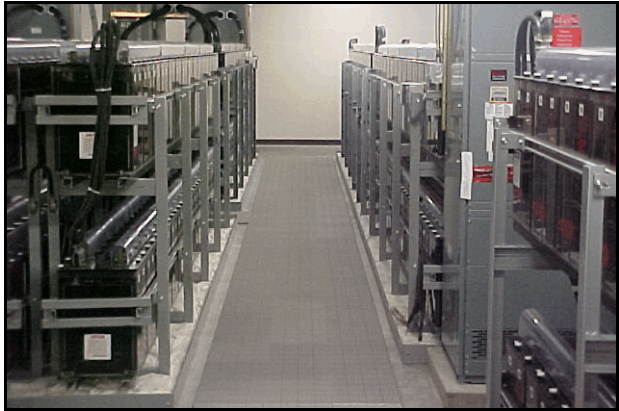
## THE ISSUE: ELECTROLYTE SPILLS

An increasing focus in the area of disaster avoidance is spill mitigation for battery systems. Battery systems contain sulfuric acid and an unintentional release could cause a number of potential hazards including:

- PERSONNEL INJURY
- EQUIPMENT DAMAGE
- BATTERY RACK CORROSION
- BUILDING / FACILITY DAMAGE  
Large spills have the potential to weaken floor support structures and leak to additional floors, causing extensive damage to building.
- ENVIRONMENTAL CLEAN-UP  
Lead particulates and other toxic or hazardous substances may be contained in electrolyte; spillage could result in an environmental clean-up costing thousands of dollars.

In addition to the potential spill clean up costs, compliance is also an issue. A number of agencies recognize the need for containment and have addressed this subject in their regulations. OSHA and WISHA have made general statements regarding the need for spill containment, neutralization and disposal. The UFC (Uniform Fire Code), NFPA (National Fire Protection Association), and IFC (International Fire Code) have all outlined the circumstances in which spill containment would be required.

## THE SOLUTION: ACRAN SPILL CONTAINMENT



**BPS** engineers, furnish and installs Acran spill containment. An Acran barrier system can be installed around new or existing battery systems. This system is comprised of 4" tall steel barriers and acid safe floor coating which prevents the flow of electrolyte to other areas. Inside the barrier, specialized "Nuetra-Mats" stand ready to immediately absorb and neutralize any spilled electrolyte.



When you consider the costs associated to a potential environmental spill clean-up, spill containment makes excellent sense. For more information regarding ACRAN Spill Containment Products call your BPS representative today.

## FEATURES OF THE ACRAN SPILL CONTAINMENT SYSTEM

- Can Be Installed Around an Existing Battery Rack System Without Removing Batteries
- All Steel Construction Coated to Withstand a 98% Concentration of Sulfuric Acid
- Meets UBC Code Requirements for Hazardous Area Spill Control
- No V.O.C.'s - 100% Solids; Allows for Minimal Disruption of Site Activities
- Neutra-mats Conform Easily to Both Floor and Rack Frames.
- Each Mat Absorbs and Full Neutralizes 1 Quart Battery Electrolyte (PH 6.8 to 7.0)
- Exposure to Electrolyte Turns Neutra-Mat Pink in Color
- All Neutra-Mat Ingredients Are Non-Flammable and Non-Hazardous

## 100 GALLON THRESHOLD FOR FLOODED LEAD-ACID BATTERIES

Capacity Ranges Are Approximate; Electrolyte Amount in Relation to Capacity Varies by Battery Manufacturer

### NOMINAL SYSTEM VOLTAGE → CAPACITIES REQUIRING CONTAINMENT

24 VDC	→	1680 AH & Above	(An average 1680 AH cell contains 8.5 gallons x 12 Cells = 102 gallons)
48 VDC	→	550 AH & Above	(An average 550 AH cell contains 6.4 gallons x 24 Cells = 153 gallons)
120 VDC	→	350 AH & Above	(An average 350 AH cell contains 1.7 gallons x 60 Cells = 102 gallons)
240 VDC	→	170 AH & Above	(An average 170 AH cell contains 1.3 gallons x 120 Cells = 156 gallons)
360 VDC	→	75 AH & Above	(An average 75 AH cell contains .6 gallons x 180 Cells = 108 gallons)

## CODE REFERENCES

### UNIFORM FIRE CODE 1999, WITH SUPPLEMENT ARTICLE 64

- 6401 Scope** - Stationary lead-acid battery systems having an electrolyte capacity of more than 100 gal (378.5 L) in sprinklered buildings or 50 gal (189.3 L) in unsprinklered buildings used for facility standby power, emergency power, or uninterrupted power supplies shall be in accordance with Article 64.
- 6404.4 Spill Control** - Each rack of batteries, or group of racks shall be provided with a liquid tight 4-inch spill-control barrier which extends at least 1 inch beyond the battery rack in all directions.
- 6404.5 Neutralization** - An approved method to neutralize spilled electrolyte shall be provided. The method shall be capable of neutralizing a spill from the largest lead-acid battery to a pH between 7.0 - 9.0.

### INTERNATIONAL FIRE CODE 2000

- 608.1 Scope** - Stationary lead-acid battery systems using vented (flooded) lead-acid batteries having an electrolyte capacity of more than 50 gallons (189 L) used for facility standby power, emergency power, or uninterrupted power supplies (UPS) shall comply with this section.
- 608.4 Spill Control and Neutralization** - An approved method and materials for the control and neutralization of a spill of electrolyte shall be provided. The method and materials shall be capable of controlling and neutralizing a spill from the largest lead-acid battery to a pH between 7.0 and 9.0.
- 609.1 Scope** - Valve-regulated lead-acid (VRLA) battery systems having an electrolyte capacity of more than 50 gallons (189 L) used for facility standby power, emergency power or uninterrupted power supplies (UPS) shall comply with this section.
- 609.5 Neutralization** - An approved manual method and materials for the neutralization of a release of electrolyte shall be provided. The method and materials shall be capable of controlling and neutralizing a release of 3 % of the capacity of the largest VRLA cell or block in the room to a pH between 7.0 and 9.0.

- OSHA 1926.441 Batteries and Battery Charging:** (a)(7) Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection.
- 1910.268 Telecommunications Battery Handling:** (b) (2) (i) Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.

- WISHA 296-155-437 Batteries and Battery Charging:** (1)(g) Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection.
- 296-32-220 Telecommunications Battery Handling:** (1)(d) Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.

**Always check with your local authorities to determine your company's responsibilities and compliance requirements**

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OUR KNOWLEDGE IS YOUR POWER

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