

The electrolyte in a VRLA battery is not in liquid form but is immobilized. The most common technology, termed Absorbed Glass Mat (AGM), uses a highly porous, absorbent micro fiberglass mats that immobilize the electrolyte and prevent it from spilling. A crack or hole in the casing of a VRLA battery using AGM technology will not result in a measurable electrolyte spill. Spill containment with VRLA batteries is therefore not meaningful or appropriate.

Slide 10: Two Main fire Codes

The two main fire codes in the United States relating to battery systems are the Uniform Fire Code (UFC) and the International Fire Code (IFC).

Originally published by the Western Fire Chiefs Association, the UFC is now published by the National Fire Protection Association (NFPA - 1) as of 2003.

The International Code Council (ICC) writes the IFC. The ICC was created in 1994 when the Southern Building Code Congress International (SBCCI), the International Conference of Building Officials (ICBO), and the Building Officials and Code Administrators International (BOCA) united to create a set of harmonized standards.

Slide 11: Two Main Fire Codes

Model codes are written by organizations and published every few years. A locality, town, county, or state can choose which code (and which version of the code) to adopt and enforce. For example, the entire State of Alaska adopted the IFC, while only certain towns in Arizona may have adopted it. Many jurisdictions still use the 1994 or 1997 UFC. Checking with the local safety inspector is the best method to determine which code applies to a specific installation. Keep in mind that local authorities can also modify the codes. Under the codes, battery systems are subject to special installation requirements, depending upon amount of electrolyte and the nature of the battery technology.

Codes change with each rewrite and jurisdictions use differing versions of codes. This course can only generalize about codes. Checking with local authorities is essential in order to determine which code they enforce.

- What do I have to declare?
- When do I have to declare it?
- To whom do I have to declare it?
- What forms do I have to use?
- What if I don't do it?

Most commercial battery back-up systems fall below government-required reporting levels, but large UPS and DC plant batteries may have to comply. Failure to comply can result in costly penalties. Wading through the Code of Federal Regulations can be a frustrating and arduous task.

Slide 19: EPA and OSHA

It is important for the data center designer to understand the influences of the Environmental Protection Agency (EPA) and The Occupational Safety and Health Agency (OSHA), with EPA being the main driver. Government agencies are interested in the quantities of substances at a given site that could be dangerous to employees or neighbors. A site with a few hundred battery containers full of lead and sulfuric acid is a likely candidate for inspection. The Internet is a good resource for gathering information regarding these battery safety issues. Those who have experience dealing with government agencies in the past know that no single resource has all the answers. However, the best starting point to learn about the subject of battery safety and related environmental regulations is www.epa.gov.

Slide 21: Important Technology

Data center personnel should become familiar with the following terminology:

- “Pro-active” compliance: reporting the hazardous materials present in the batteries at your site
- “Re-active” compliance: reporting accidents (i.e., spills or releases)

These key categories can be broken down into four, more specific sub-categories:

1. Emergency planning and emergency response plans
2. Hazardous chemical storage reporting
3. Toxic chemical release inventory
4. Emergency release notification