

SANTEE INDUSTRIAL PRODUCTS, INC.

SAFETY MANUAL

It is the policy of this company to provide a safe and secure work environment for all of our employees and customers.

All employees are instructed to follow our safety procedures at all times whether at our facility or our customer's location.

It is our employees' responsibility to be aware of safety rules that apply at various locations. If in doubt, they are to verify with Santee Industrial management or designated safety officers at our customer's location.

Since our start date of June 1, 1983, Santee Industrial Products has maintained an impeccable safety record. It is our goal to continue with zero accidents.

W. Ralph Phillips
President

Standards of Conduct

Whenever people gather to achieve goals, some rules of conduct are needed to ensure that everyone works together efficiently, effectively and harmoniously. By accepting employment with us you have a responsibility to Santee and to your fellow employees to adhere to certain rules of behavior and conduct. The purpose of these rules is not to restrict your rights but rather to be certain that you understand what conduct is expected and necessary. When each person is aware that he or she can fully depend upon fellow workers to follow the rules of conduct, then our organization will be a better place to work for everyone.

Disciplinary Actions

Unacceptable Activities

Generally speaking, we expect each person to act in a mature and responsible way at all times. However, to avoid any possible confusion, some of the more obvious unacceptable activities are noted below. Your avoidance of these activities will be to your benefit as well as the benefit of Santee. If you have any questions concerning any work or safety rule, or any of the unacceptable activities listed, please see your manager for an explanation.

Discipline will be administered fairly and equally to all employees. We are listing offenses in two (2) main categories to provide employees with a fair understanding of what they can expect if they violate certain policies or procedures. It is not possible to list every conceivable infraction. However, the two(2) areas listed should provide a guideline as to what discipline may apply for situations not listed. Facts surrounding termination will be made a part of the employee's record for use by prospective future employers when reference calls are received.

Causes for Disciplinary Action

Employee rules and regulations exist for four main reasons:

1. To provide guidelines which will allow you maximum benefit from your job.
2. To ensure the Safety of our employees.
3. To ensure that the company operates efficiently for our employees and customers.
4. To comply with applicable federal and state laws.

Certain conduct or disregard for the rules are severe enough to result in disciplinary action or dismissal, some of which are as follows:

Serious Offenses

Occurrences of any of the following violations, because of their seriousness may result in immediate dismissal without warning:

- * **Willful violation of any company rule: any deliberate action that is extreme in nature and is obviously detrimental to Santee's efforts to operate profitably.**
- * **Willful violation of security or safety rules or failure to observe safety rules or Santee safety practice; tampering with Santee equipment.**
- * **Negligence or any careless action which endangers the life or safety of another person.**
- * **Being intoxicated or under the influence of controlled substance drugs while at work; use or possession or sale of controlled substance drugs in any quantity while on company premises except medications prescribed by a physician which do not impair work performance.**
- * **Possession of firearms, weapons or explosives on company property.**
- * **Engaging in criminal conduct or acts of violence, or making threats of violence toward anyone on company premises or when representing Santee; fighting or horseplay or provoking a fight on company property or negligent damage of property.**
- * **Insubordination or refusing to obey instructions properly issued by our manager pertaining to your work; refusal to help out on a special assignment.**
- * **Threatening, intimidating or coercing fellow employees on or off the premises-any time for any purpose.**
- * **Engaging in an act of sabotage; willfully or with gross negligence causing the destruction or damage of company property or the property of fellow employees, customers, suppliers or visitors in any manner.**
- * **Theft of company property or the property of fellow employees; unauthorized possession or removal of any company property, including documents from the premises without prior permission from management; unauthorized use of company equipment or property for personal reasons; using company equipment for personal profit.**
- * **Dishonesty; willful falsification or misrepresentation on your application for employment or other work records; lying about sick or personal leave; falsifying reason for a leave of absence or other data requested by Santee; alteration of company records or other company documents.**
- * **Violating the non-disclosure agreement; giving confidential or proprietary Santee information to competitors or other organizations or to unauthorized Santee employees; working for a competing business while a Santee employee; breach of confidentiality of personnel information.**

- * Malicious gossip and/or spreading rumors; engaging in behavior designed to create discord and lack of harmony; interfering with other employees on the job; willfully restricting work output or encouraging others to do the same.
- * Immoral conduct or indecency on company property.
- * Conducting a lottery or gambling on company premises.
- * Discourteous treatment of customers.
- * Unsatisfactory or careless work; failure to meet production or quality standards as explained to you by your manager; mistakes due to carelessness or failure to get necessary instructions.
- * Any act of harassment, sexual, racial or other; telling sexist or racial-type jokes; making racial or ethnic slurs.
- * Sleeping on the job; loitering or loafing during working hours.

Santee Industrial Products, Inc. has developed a progressive disciplinary policy for all employees who have completed their introductory period. The purpose of this policy is to immediately inform you of any potential performance problems. The normal steps in the company's disciplinary policy include:

1. A verbal warning
2. 1st written warning
3. 2nd written warning
4. Discharge

Three or more work-rule violations during any six-month period will be grounds for immediate dismissal. Of course, certain violations are considered serious and may warrant immediate suspension and possible discharge. Examples of these would include fighting, intoxications, stealing and falsifications of records.

We hope that the progressive policy outlined above will be utilized only a minimum of times. Nonetheless, violations of company policies and regulations **WILL NO BE TOLERATED!**

Performance and Compensation Reviews

During formal performance reviews, your manager will consider the following things, among others;

- Attendance, initiative and effort
- Knowledge of your work
- Attitude and willingness to work
- The quality and quantity of your work
- Work habits

The primary reason for performance reviews is to identify your strengths and weaknesses in order to reinforce your good habits and develop ways to improve in your weaker areas. This review also serves to make you aware of and to document how your job performance compares to the goals and description of your job. This is a good time to discuss your interests and future goals. Your manager is interested in helping you to progress and grow in order to achieve personal as well as work-related goals-perhaps he or she can recommend further training or additional opportunities for you.

In addition to individual job performance reviews, Santee periodically conducts a review of job descriptions to insure that we are fully aware of any changes in the duties and responsibilities of each position and that such changes are recognized and adequately compensated.

Other Company Policies

Back Supports

All employees of Santee Industrial Products, Inc. are required to wear back supports when doing ANY lifting or bending while performing company duties. This is a preventative measure designed to ensure your safety and is considered a company mandate. Violations to this rule will be dealt with in accordance with the company disciplinary policies.

First Aid for Medical Emergencies

It is very important that you make sure that your employment records reflect your current contact in the event of a medical emergency. Changes should be made in writing with the Office Manager.

In the event that you witness a medical emergency:

- Summon necessary medical assistance
- Locate someone qualified to administer first aid, if needed.
- Wait for help to arrive
- Report injuries to management, even though medical attention may not be required.

Federal law ("OSHA") requires that the company keep records of all illnesses and accidents which occur during the workday. The South Carolina state Workers' Compensation Act also requires that you report any illness or injury on the job, no matter how slight. If you hurt yourself or become ill, please contact your manager for assistance. If you fail to report an injury, you may jeopardize your right to collect worker's compensation payments as well as health benefits. OSHA also provides for your right to know about any health hazards which might be present on the job. Should you have any questions or concerns, contact the Human Resources officer for more information.

Substance Abuse

The manufacture, possession, use, distribution, sale, purchase or transfer of, or being under the influence of alcohol or illegal drugs is strictly prohibited while on Santee premises or while performing company business.

Off-the-job illegal drug use which could adversely affect an employee's job performance or which could jeopardize the safety of other employees, the public or company facilities or where such usage could jeopardize the security of company finances or business records or where such usage adversely affects customers or the public's trust in the ability of the company to carry out its responsibilities will NOT be tolerated.

Employees who are involved in or suspected of involvement in off-the-job drug activity will be considered in violation of this policy. Santee reserves the right to conduct random and/or company-wide drug screening at any time without prior warning.

Employees will not be permitted to work while under the influence of drugs or alcohol. Individuals who appear to be unfit for duty may be subject to a medical evaluation which may include drug or alcohol screening. Refusal to comply with a fitness-for-duty evaluation may result in disciplinary action up to and including discharge.

Santee recognizes that alcoholism/drug abuse is a form of illness that is treatable in nature. The company shall not discriminate against employees based on the nature of their illness. No employees shall have their job security threatened by their seeking of assistance for a substance abuse problem. The same consideration for referral and treatment that is afforded to other employees having non-drug/alcohol related illnesses shall extend to them.

SECTION II — BATTERY SAFETY

⚠ DANGER

<p>HIGH VOLTAGE... RISK OF SHOCK. DO NOT TOUCH UNINSULATED TERMINALS OR CONNECTORS.</p>	<p>SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY.</p>	<p>NO SPARKS • FLAMES • SMOKING</p>	<p>FLUSH EYES IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST.</p>
KEEP VENT CAPS TIGHTLY IN PLACE.	VENTILATE WELL WHEN IN AN ENCLOSED SPACE AND WHEN CHARGING.		
SEE INSTALLATION, MAINTENANCE AND OPERATION INSTRUCTIONS FOR IMPORTANT SAFETY PRECAUTIONS.		REPAIR SHOULD BE PERFORMED ONLY BY A QUALIFIED SERVICE TECHNICIAN.	

CALIFORNIA PROPOSITION 65 WARNING:

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling!

Only trained and authorized personnel should change, repair or charge batteries.

When used properly, a lead-acid motive power battery is a safe, dependable source of electrical power. However, if proper care and safety precautions aren't exercised when handling a battery, it can be an extremely dangerous piece of equipment.

There are four hazardous elements in a lead-acid battery: sulfuric acid, explosive gases, electricity, and weight.

Hazardous Elements

Sulfuric Acid: The electrolyte in a lead-acid storage battery is a diluted solution of sulfuric acid and water. Although the acid content in the solution is only about 37%, it's still a strong corrosive agent and can burn skin and eyes and eat holes in many types of fabric. (See Wearing Protective Clothing.)

Specific Gravity Reading	% Acid Content by Weight
1.280	37.40
1.290	38.55
1.325	42.50

Explosive Gases: When a lead-acid battery is being charged, it produces an explosive mixture of hydrogen and oxygen gases. Make sure that all vent caps are unclogged and securely attached so that any gas is safely vented from the battery. Never smoke, use an open flame or create an arc or sparks on or near a battery without first eliminating explosive gases from the cells you're working on. (See Gas Purging — Section VI.)

Electricity: An electric shock hazard exists for persons who contact live parts of batteries when the voltage is over 50 volts. The higher the voltage, the greater the electric shock hazard. In addition, metallic objects coming in contact with exposed cell connectors will cause a short and can become very hot. Even shorts involving a single cell can become hot enough to cause severe burns.

Weight: The average lift truck battery weighs more than 2,000 pounds. Obviously it can cause serious injury if it isn't handled carefully during installation, removal or transport. Use proper lifting equipment and techniques at all times.

Wearing Protective Clothing

When working on or near batteries, always wear proper protective clothes including a face shield, safety glasses, long-sleeved shirt, acid-resistant boots and gloves. Do not wear any metal jewelry because it can short circuit a battery and become extremely hot if it accidentally contacts exposed intercell connectors. Refer to detailed warnings, Section I, Page 5.

Lifting Batteries

Chain hoists used to handle batteries should be equipped with a non-metallic container or bucket to prevent the chains from dangling and possibly causing a short by coming in contact with exposed intercell connectors on the battery top. If no protection is available, cover the battery with a non-conducting insulating material such as plywood or heavy plastic.



Fig. II-1

Always use the proper lifting equipment to reduce the risk of tray damage, shorting and possible injury. A wood insulated battery lifting beam used with an overhead hoist is the safest way to move a battery (Fig. II-1). An insulated lifting beam, with hooks that fit properly into the lifting ears in the tray, can be used with almost any type of overhead hoist. Be sure the lifting hooks align perfectly with the battery lifting ears. Misaligned hooks can cause battery lifting ear damage and could disengage while the battery is being lifted.

Using the Battery as a Counterbalance

In order for most lift trucks to operate safely, the battery is used to counterbalance the carried load. Therefore, a new or different battery must fall within the recommended battery weight range. This battery weight information is found on the nameplate of the truck. A battery's service weight is usually stamped on the tray near one of the lifting holes. A battery that's too heavy or too light can change the truck's center of gravity and cause it to be unstable. It's the user's responsibility to be sure that this weight is in the proper range.

SECTION II — BATTERY SAFETY (cont.)

CHARGING BATTERIES

Charging Areas — Proper Equipment

All plants should have designated charging areas, especially if they change batteries at the end of each shift. These areas should have proper battery handling equipment including overhead hoists, lifting beams, battery racks and cranes, and the area must be well ventilated.

A source of running water nearby is desirable and a water hose at the filling operation is recommended.

Racks used in the charging area must be insulated to prevent any sparking. The battery rack supports must also be suitably insulated or made of non-conducting material.

The floors in battery and charging rooms should have an acid-resistant coating and be sloped toward a sump. They should always be washed with clean water after an acid spill. The spill should be neutralized with a non-corrosive, water based neutralizing chemical that is user safe and environmentally compliant.

Hand-operated fire extinguishers should be available in all charging areas even if the areas are equipped with automatic sprinkler systems. For information on extinguisher class, size and mounting locations, consult local fire authorities or your insurance carrier.

Charging Areas — Proper Ventilation

The charging area must be properly ventilated, either naturally or with a ventilation system. When installing a ventilation system, a number of factors must be considered, including the number and size of batteries being charged at one time and the size, height and air-tightness of the room.

Ventilation is considered satisfactory if the hydrogen concentration doesn't exceed 2% in any one location. Concentrations of more than 4% are explosive and dangerous. A number of instruments, such as combustible gas indicators and flammable vapor indicators, are available for continuous automatic analysis of hydrogen content in the air.

Always keep tray covers and truck compartment covers open when charging a battery. This helps cool the battery and disperse the gases.

Connecting/Disconnecting Charger

Always turn the charger OFF before connecting or disconnecting a battery. Live leads can cause arcing and sparking, which could cause an explosion if battery gases are present. In addition, the contact surfaces of the plugs or connectors will become pitted over time.

Sparks, Open Flames

Because of the explosive gas mixtures generated while charging batteries, anything that could ignite the gas, such as sparks, open flames, an electrical arc, smoking, etc., must be prohibited in the charging areas. To serve as a prominent reminder, "NO SMOKING" signs should be posted in all charging areas.

HANDLING ACID

Pouring Acid

Use a carboy tilter or safety siphon when removing acid from a carboy container. The venting device in a carboy prevents splashing. Carboys should be stored in a cool place away from direct sunlight. (Note: Use proper eye protection, protective clothing and equipment.)

Mixing Electrolyte

Mix electrolyte in a heat and acid-resistant container. Always pour acid into water. Never pour water into acid because a violent chemical reaction can occur. Pour the acid slowly and stir the mixture so the acid doesn't settle on the bottom.

When using high specific gravity acid (above 1.400), take special precautions because it can be extremely dangerous. (Note: Use proper eye protection, protective clothing and equipment.)

Store acid and electrolyte solutions in covered containers made of lead, glass or acid-resistant plastic. Keep the containers in a cool, dry area away from direct sunlight.

Important - only the most experienced battery technicians should be allowed access to sulfuric acid and allowed to add acid for cell equalization purposes.

First Aid for Acid Splash

Eyes: Flush immediately with gently running water for at least 15 minutes, then see a doctor as quickly as possible. For contact lens wearers, remove the lens before the eyes are flushed. A buffering or neutralizing agent shouldn't be used in the eyes without the approval of medical or safety personnel.

Skin: Wash affected area under running water and apply a chemical burn treatment. Severe burns require immediate medical attention.

Clothing: If large areas of clothing have been splashed or soaked, the clothing must be removed and the acid must be neutralized with a non-corrosive, water based neutralizing chemical that is user safe and environmentally compliant and then rinsed under running water. If the clothing is rinsed quickly enough, the chances of damage to the material are lessened.

Acid-resistant boots should always be checked before wearing to be sure that there are no acid puddles inside.

SECTION II — BATTERY SAFETY (cont.)

Eye Wash and Emergency Shower Facilities

Emergency eye wash and acid neutralization facilities should be located in the immediate work area for easy access. The three most popular types of eye wash and acid neutralizing equipment are the chemical burn station, deluge shower, and eye wash fountain.



Fig. II-2

1. A chemical burn station (Fig. II-2) is used in smaller battery charging and repair areas. The station consists of a wall-mounted plastic squeeze bottle that contains a buffering solution for treating acid burns on skin, eyes and clothing. This inexpensive equipment should be used only where acid with a specific gravity lower than 1.400 is used. A buffering or neutralizing agent shouldn't be used in the eyes without the approval of medical or safety personnel.

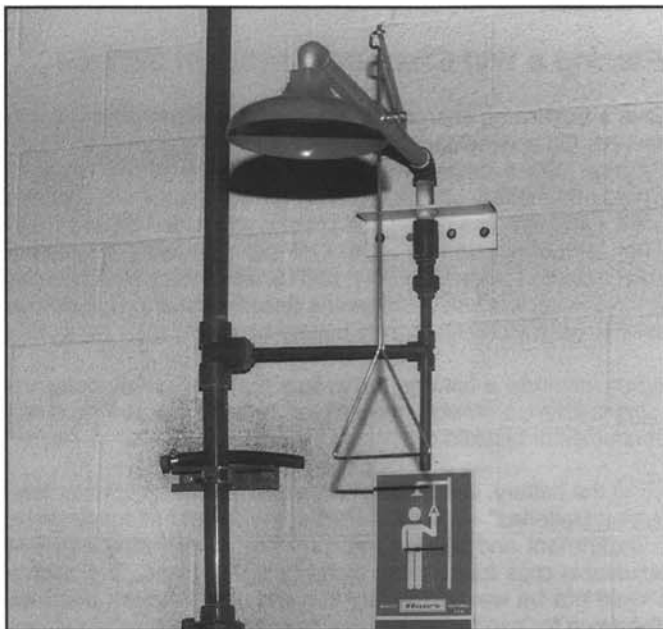


Fig. II-3

2. A deluge shower (Fig. II-3) should be used where high specific gravity acid (above 1.400) is handled. The shower uses a handle or foot treadle to turn on a powerful water stream that can wash acid from skin and clothes.



Fig. II-4

3. An eye wash fountain (Fig. II-4) should be used wherever batteries and/or acid is handled, regardless of the acid's specific gravity. This device produces two streams of water so that both eyes can be flushed simultaneously.

Neutralizing Acid and Electrolyte

For cleaning batteries, non-corrosive, water based battery cleaning products are all that should be used. For user safety and environmental regulatory compliance, the cleaning liquid should contain no hazardous chemical ingredients. Even some products labeled "Battery Cleaner" must be avoided because of hazardous ingredients and damage to batteries and related equipment.

Acid spills are common in battery rooms. When acid spills occur it is critical to minimize:

1. Health and safety risk to personnel and the environment.
2. Damage to batteries, equipment, and surrounding surfaces.
3. Time to neutralize, absorb, and clean-up.
4. Disposal costs of waste materials.
5. Regulatory compliance risks and fines.

Neutralizing acid absorbers and spill kits have the performance attributes required when dealing with acid spills. The pH neutral dry and non-hazardous waste is easy to sweep-up and dispose as non-hazardous waste.

SECTION II — BATTERY SAFETY (cont.)

Repairing Batteries

Keep in mind several safety points when repairing batteries:

1. Never work on a battery while on charge or discharge. Always disconnect it from the charger or truck first.
2. Always remove vent caps before beginning work.
3. Always remove gas from all battery cells before beginning work (see Gas Purging — Section VI).
4. Use caution when melting sealing compound. Melted compound is extremely hot and can cause severe burns if not properly handled (see Sealing Compound — Section VI).

5. To prevent possible short circuits, use insulated tools whenever you are working on a battery. If possible, cover the terminals and connectors with an insulating material such as plywood or heavy plastic, if the battery being worked on does not have intercell connector and terminal shrouds installed.

For more detailed information on safety battery repair procedures, see Section VI — Battery Repair.

SECTION III — INSTALLATION AND USE

Receiving a Battery

After receiving a battery, examine the crate and pallet for signs of damage. If you see any wet spots, the battery may have been tipped or damaged during transit. Be careful when handling a crate or packing material that's contaminated with spilled electrolyte. Chemical burns can result if skin or clothing comes in contact with the spillage. Follow the precautions listed under "Handling Acid" — Section II.

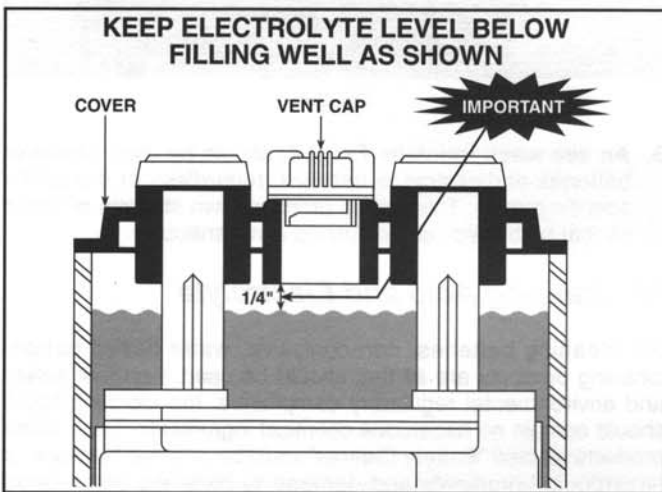


Fig. III-1

Every cell should be inspected to be sure that the electrolyte level is above the moss guard (Fig. III-1). If the electrolyte level is slightly below the moss guard in any cell, it can be raised by transferring a small amount of acid from higher level cells within the battery by using a syringe or hydrometer.

If a large amount of liquid is required to raise the level, the cell jar may be damaged. Inspect the packing material under the tray for signs of leakage. All damaged components should be inspected by your East Penn agent or representative.

Call your East Penn representative immediately. In the meantime, keep the damaged cell's vent cap tightly in place and protect the floor from acid leakage. Do not attempt to discharge or charge the battery.

Temporary Storage

When it is fully charged and the electrolyte is at the proper level, the battery can be stored for up to a year. It should be stored in a cool, dry, well-ventilated area away from direct sunlight. If the battery must be stored for several months or longer,

Temperature Effect on Specific Gravity of New Batteries Stored on Open Circuit

Temperature (Degrees Fahrenheit)	Maximum Loss of Specific Gravity Per Day
120	.004
100	.003
80	.001
50	.0005

a freshening charge (see "Placing a Wet Charged Battery in Service") should be given whenever the specific gravity falls below 1.240. If the average storage temperature is below 68°F (20°C), check the specific gravity at least once every two months. If the temperature is above 68°F (20°C), check it every month.

Batteries in steel trays without covers should be covered with a non-conductive material to protect them from dirt, moisture, etc. A flat sheet of rigid plastic or plywood will work well. Do not drape flexible plastic sheeting over batteries because it might trap explosive gases underneath.

Note: If batteries must be stored for more than one year, consult the manufacturer.

Placing a Wet Charged Battery in Service

Give a freshening charge to a new battery before putting it into service. On a relay-controlled charger, set the control to "Daily Charge." On a time-controlled charger, set it to "4 hours." Charge the battery until the specific gravity and all cell voltages have stabilized. The full charge specific gravity is 1.280 to 1.295 when temperature corrected to 77°F (25°C). Ideally, the battery should be cool; less than 90°F (32°C), when it's installed in the vehicle. Check the manufacturer's specifications for full charge specific gravity on high gravity battery types.

When installing a battery, make sure that the battery compartment is clean, corrosion-free and the ventilation openings aren't obstructed or blocked off.

To lift the battery, use a lifting beam and an overhead hoist (see "Lifting Batteries" — Section II). Set the battery securely in the compartment and block it into position. Some vehicles have adjustable clips for blocking the battery into place. The battery should not be wedged tightly into the compartment because clearance for expansion must be provided. However, clearance can't exceed 1/2" between the block or clip and the battery tray (Fig. III-2).

Lead Acid Battery Wet, Filled with Acid

SECTION I

Manufacturer's Name: East Penn Manufacturing Co., Inc. Deka Road, Lyon Station, PA 19536 Telephone Number for Information: (610) 682-6361 Emergency Telephone Number: CHEMTREC: 1-800-424-9300, In Washington D.C. or outside continental U.S., call 1-202-483-7616	Date: March 16, 2005 Trade Name: Electric Storage battery, SLI or Industrial battery Classification: Battery wet, filled with acid, electric storage UN2794
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SECTION II

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components Specific Chemical Identity (Common Name (s))	OSHA PEL	ACGIH TLV	Range Percent By Weight	Average
Lead, CAS #7439921	0.05 mg/m ³	0.05 mg/m ³	43-70	65
Sulfuric Acid, CAS #7664939	1.00 mg/m ³	1.00 mg/m ³	20-44	25
Antimony, CAS #7440360	0.50 mg/m ³	0.50 mg/m ³	0-4	<1
Arsenic, CAS #7440382	0.01 mg/m ³	0.01 mg/m ³	<.01	—
Polypropylene, CAS #9003070	—	—	5-10	8
Calcium, CAS #7440702	1.0 mg/m ³	1.0 mg/m ³	<1	<1

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

Electrolyte (Sulfuric Acid): Appearance and Odor: Clear, Odorless, Colorless Boiling Point: approximately 235 ^o F Evaporation Rate (Butyl Acetate=1): less than 1.0 Melting Point: N/A	Solubility in Water: Completely Specific Gravity (H2O=1): 1.220 – 1.325 Vapor Density (AIR=1): N/A Vapor Pressure (mm Hg): 13
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SECTION IV

FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): Non-Flammable Extinguishing Media: Class ABC extinguisher, CO ₂ Special Fire Fighting Procedures: Cool exterior of battery if exposed to fire to prevent rupture. The acid mist and vapors in a fire situation are corrosive. Wear special respiratory protection (SCBA) and clothing. Unusual Fire and Explosion Hazards: *Hydrogen gas, which may explode if ignited, is produced by this battery, especially when charging. Use adequate ventilation; avoid open flames, sparks, or other sources of ignition.	Flammable Limits: *Hydrogen Gas LEL: 4% UEL: 74%
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SECTION V

REACTIVITY DATA

Stability: Stable **Condition to Avoid:** Prolonged overcharging, sources of ignition

Incompatibility (Materials to Avoid): Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Hazardous Decomposition of By-Products: Sulfuric Acid: Excessive overcharging or fire may create Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen.

Lead Compounds: Contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

SECTION VI HEALTH HAZARD DATA

Route(s) of Entry: Not Applicable under normal use. (Inhalation, skin contact, and ingestion)

Health Hazards (Acute and Chronic): Do not open battery, avoid contact with internal components. Internal components are Oxide lead and electrolyte. Short term exposure: Sulfuric acid may cause irritation of eyes, nose, and throat. Prolonged contact may cause severe burns. Long term exposure: Repeated contact causes irritation and skin burns. Repeated exposure to mist may cause erosion of teeth, chronic eye irritation and/or chronic inflammation of the nose, throat, and bronchial tubes.

TARGET ORGAN: (Electrolyte) respiratory system, eyes, skin, and teeth

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Listed by National Toxicology Program (NTP), IARC, OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

Signs and Symptoms of Exposure: Acid contact may cause irritation of eyes, nose and throat. Breathing of mist may produce respiratory difficulty. Contact with eyes and skin causes irritation and skin burns. Sulfuric acid is a CORROSIVE chemical.

Medical Conditions Generally Aggravated by Exposure: Sulfuric Acid Mist exposure may aggravate medical conditions such as, pulmonary edema, bronchitis, emphysema, dental erosion, and traceobronchitis. Pregnant women and children must be protected from lead exposure.

Emergency and First Aid Procedures: (Sulfuric Acid)

- 1) Flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary. Eye wash and/or emergency shower should be readily available.
- 2) If swallowed, give large volumes of water. **DO NOT** induce vomiting, obtain medical treatment.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: *SULFURIC ACID:* Dilute spill cautiously with five to six volumes of water and gradually neutralize with sodium bicarbonate, soda ash or lime. When exposure level is not known, wear NIOSH approved positive pressure self-contained breathing apparatus. Reference North American Emergency Response Guidebook, #154.

Waste Disposal Method: Lead-acid batteries are completely recyclable. For information on returning batteries to East Penn for recycling, contact your East Penn Representative. Dispose of any collected material in accordance with local, state or applicable federal regulations.

Precautions to be Taken in Handling and Storing: Store away from reactive material as defined in Section V, Reactivity Data. Place cardboard between layers of stacked batteries to avoid damage and short circuit. Do not allow metallic materials to simultaneously contact both terminals.

Other Precautions: Sodium bicarbonate, soda ash, sand, or lime should be kept in same general area for emergency use. Keep away from sources of ignition during charging see Section IV on generation of hydrogen gas. If battery case is broken, avoid direct contact with internal components.

SECTION VIII CONTROL MEASURES

Respiratory Protection (Specific Type): Respirator required when PEL is exceeded or employee witnesses respiratory irritation. (see Section VI, Health Hazard Data).

Ventilation: Must be provided when charging in an enclosed area. (29CFR1910.178(g) and .305(j)(7))

Mechanical (general): Acceptable at 1 to 4 air exchanges/hour or to maintain air concentrations below the PEL.

Local Exhaust: Preferred

Other: Local building/fire codes may require explosion proof fans and equipment

Protective Gloves: Acid resistant

Eye Protection: Preferred, safety glasses, goggles, face shield

Other Protective Clothing or Equipment: Acid resistant aprons, boots, and protective clothing

Work Hygienic Practices: Good Personal hygiene and work practices are mandatory.

SECTION IX OTHER REGULATORY INFORMATION

NFPA Hazard Rating	Sulfuric Acid	Lead
Health (Blue)	3	3
Flammability (Red)	0	0
Reactivity (Yellow)	2	0

Note: Sulfuric acid is water-reactive if concentrated.

U.S. DOT: Battery Wet, Filled with Acid

Hazard Class/Division	8
ID Number	UN2794
Packing Group	III
Label Requirement	Corrosive

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste, EPA hazardous waste number D002 (corrosivity).

CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know ACT)

- a) Reportable Quantity (RQ) for spilled 100% sulfuric acid is 1000 lbs.
- b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA with a Threshold Planning Quantity (TPQ) of 1000 lbs.
- c) EPCRA Section 312 Tier II reporting required for batteries if sulfuric acid is present in quantities of 500 lbs or more and/or lead is present in quantities of 10,000 lbs or more.

California Proposition 65 Warning: Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Wash hands after handling.

For additional information concerning East Penn Manufacturing Co., Inc. products or questions concerning the content of this MSDS please contact your East Penn representative.

This information is accurate to the best of East Penn Mfg. Co.'s knowledge or obtained from sources believed by East Penn to be accurate. Before using any product, read all warnings and directions on the label.

Lead Acid Battery Wet, non-spillable (UN2800)

SECTION I

Manufacturer's Name:

East Penn Manufacturing Co., Inc.
Deka Road, Lyon Station, PA 19536

Telephone Number for Information: (610) 682-6361**Emergency Telephone Number:** CHEMTREC: 1-800-424-9300,

In Washington D.C. or outside continental U.S., call 1-202-483-7616

Date: March 16, 2005**Trade Name:** Gel; Absorbed Electrolyte,

Sealed Valve Regulated Non Spillable Battery

Classification: Battery wet, non-spillable, electric storage UN2800

SECTION II

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components Specific Chemical Identity (Common Name (s))	OSHA PEL	ACGIH TLV	Range Percent By Weight	Average
Lead, CAS #7439921	0.05 mg/m ³	0.05 mg/m ³	60-75%	67%
Sulfuric Acid, CAS #7664939	1.00 mg/m ³	1.00 mg/m ³	5-15%	10%
Antimony, CAS #7440360	0.50 mg/m ³	0.50 mg/m ³	0-0.1%	<0.1%
Arsenic, CAS #7440382	0.01 mg/m ³	0.01 mg/m ³	0.01 %	<0.1%
Polypropylene, CAS#9003070	N/A	N/A	2-10%	4%
Calcium, CAS#7440702	1.0 mg/m ³	1.0 mg/m ³	0-0.1%	<0.1%
Tin CAS #7440315	2.0 mg/m ³	2.0 mg/m ³	0-0.1%	<0.1%

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

Electrolyte (Sulfuric Acid):**Appearance and Odor:** Clear, Odorless, colorless liquid**Boiling Point:** 235 – 240° F**Evaporation Rate (Butyl Acetate=1):** less than 1.0**Melting Point:** N/A**Solubility in Water:** 100%**Specific Gravity (H₂O=1):** 1.270 – 1.330**Vapor Density (AIR=1):** Greater than 1**Vapor Pressure (mm Hg):** 10

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): Non-Flammable**Flammable Limits:** *Hydrogen Gas**Extinguishing Media:** Class ABC extinguisher**LEL:** 4% **UEL:** 74%**NOTE:** CO₂ may be used, but not directly on the cell. The thermal shock may cause cracking of the battery case and/or cases.

* Hydrogen gas may be generated during battery charging.

SECTION V

REACTIVITY DATA

Stability: Stable**Condition to Avoid:** Prolonged overcharging, sources of ignition

Incompatibility (Materials to Avoid): Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Hazardous Decomposition of By-Products: Sulfuric Acid: Excessive overcharging or fire may create Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen.

Lead Compounds: Contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

SECTION VI HEALTH HAZARD DATA

Route(s) of Entry: Not Applicable under normal use.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified “strong inorganic acid mist containing sulfuric acid” as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Listed by National Toxicology Program (NTP), IARC, OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

Signs and Symptoms of Exposure: Avoid contact, with absorbed electrolyte (sulfuric acid) may cause irritation of eyes, nose and throat. Contact with eyes and skin causes irritation and skin burns. Absorbed electrolyte is corrosive.

Medical Conditions Generally Aggravated by Exposure: Pregnant women and children must be protected from lead exposure.

Health Hazards (Acute and Chronic): Do not open battery, avoid contact with internal components. Internal components include lead and absorbed electrolyte. Electrolyte is corrosive and contact may cause skin irritation and chemical burns.

Emergency and First Aid Procedures: (contact with electrolyte)

- 1) Flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary. Eye wash and/or emergency shower should be readily available.
- 2) If swallowed, give large volumes of water. **DO NOT** induce vomiting, obtain medical treatment.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: Electrolyte material is corrosive. Contains sulfuric acid. Neutralize any spilled material. Reference 1996 North American Emergency Response Guidebook, #154.

Waste Disposal Method: Lead-acid batteries are completely recyclable. For information on returning batteries to East Penn for recycling, contact your East Penn Representative. Dispose of any collected material in accordance with local, state or applicable federal regulations.

Precautions to be Taken in Handling and Storing: Store away from reactive material as defined in Section V, Reactivity Data. Place cardboard between layers of stacked batteries to avoid damage and short circuit. Do not allow metallic materials to simultaneously contact both terminals.

Other Precautions: If battery case is broken, avoid direct contact with internal components. Keep away from ignition sources during charging.

SECTION VIII CONTROL MEASURES

Respiratory Protection (Specific Type): N/A

Ventilation: Must be provided when charging in an enclosed area.

Protective Gloves: Recommended

Eye Protection: Recommended

Other Protective Clothing or Equipment: N/A

Work Hygienic Practices: Good Personal hygiene and work practices are recommended.

SECTION IX OTHER REGULATORY INFORMATION

NFPA Hazard Rating	Sulfuric Acid	Lead
Health (Blue)	3	3
Flammability (Red)	0	0
Reactivity (Yellow)	2	0

Note: Sulfuric acid is water-reactive if concentrated.

U.S. DOT: Batteries, wet, non-spillable, electric storage

Hazard Class/Division	8
ID Number	UN2800
Packing Group	III
Label Requirements	Corrosive

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste, EPA hazardous waste number D002 (corrosivity).

CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know ACT)

- a) Reportable Quantity (RQ) for spilled 100% sulfuric acid is 1000 lbs.
- b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA with a Threshold Planning Quantity (TPQ) of 1000 lbs.
- c) Batteries are subject to EPCRA reporting requirements under sections 302/304, 311/312, and 313.

Reporting quantities are as follows:

Lead: Section 311/312 = 10,000 lbs.

Sulfuric Acid: Section 311/312 = 500 lbs.

Title III Section 313 = 100 lbs.

Title III Section 313 = 500 lbs.

California Proposition 65 Warning: Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Wash hands after handling.

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OSHA Regulation 1910.178

(g)- changing and charging storage batteries

1. Battery charging installations shall be located in areas designated for that purpose.
2. Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protections for protecting charging apparatus from damage by trucks and for adequate ventilation for dispersal of fumes from gassing batteries.
3. (Reserved)
4. A conveyor, overhead hoist or equivalent material handling equipment shall be provided for handling batteries.
5. Reinstalled batteries shall be properly positioned and secured in the truck.
6. A carboy tilter or siphon shall be provided for handling electrolyte.
7. When charging batteries, acid shall be poured into water; water shall not be poured into acid.
8. Truck shall be properly positioned and brake applied before attempting to change or charge batteries.
9. Care shall be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat.
10. Smoking shall be prohibited in the charging area.
11. Precautions shall be taken to prevent open flames, sparks or electric arcs in battery charging areas.
12. Tools and other metallic objects shall be kept away from the top of uncovered batteries.

OSHA Regulation 1926.441

Battery rooms and battery charging

(a)-general requirements

1. Batteries of the unsealed type shall be located in enclosures with outside vents or in well-ventilated rooms and shall be arranged so as to prevent the escape of fumes, gases or electrolyte spray into other areas.
2. Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulations of an explosive mixture.
3. Racks and trays shall be substantial and shall be treated to make them resistant to the electrolyte.
4. Floors shall be of acid resistant constructions unless protected from acid accumulations.
5. Face shields, aprons and rubber gloves shall be provided for workers handling acids or batteries.
6. Facilities for quick drenching of the eyes and body shall be provided with 25 feet (7.62m) of battery handling areas.

(b)-charging

1. Battery charging installations shall be located in areas designated for that purpose.
2. Charging apparatus shall be protected from damage by trucks.
3. When batteries are being charged, the vent caps shall be kept in place to avoid electrolyte spray. Vent caps shall be maintained in functioning condition.