

## SAFETY DATA SHEET

| Power/Full Solutions  |                            |  | ECO #: 1002195                   |  |  |
|---|----------------------------|--|----------------------------------|--|--|
| I. PRODUCT IDENTIFICATION                                     |                            |  |                                  |  |  |
| Chemical Trade Name (as used on la                            | bel):                      | Chemical Family/Classification:  |                                  |  |  |
| Non-Spillable Lead Acid Battery                               |                            | Electric Storage Battery   |                                  |  |  |
| Synonyms:   |                            |  |                                  |  |  |
| Industrial Battery, Traction Battery, Sta                     | ationary Battery,          | <b>Telephone:</b>  |                                  |  |  |
| Deep Cycle Battery  |                            | For information and emergencies, contact En  | erSys'                           |  |  |
| Manufacturer's Name/Address:                                  |                            | Environmental, Health & Safety Dept. at 610-208-1996   |                                  |  |  |
| EnerSys   | Canada Corporate Office    |  |                                  |  |  |
| P.O. Box 14145  | 3-61 Parr Boulevard        | 24-Hour Emergency Response Contact:  |                                  |  |  |
| 2366 Bernville Road   | Bolton, Ontario            | CHEMTREC DOMESTIC: 800-424-9300  | CHEMTREC INT'L: 703-527-3877     |  |  |
| Reading, PA 19612-4145  | L7E 4E3                    |  |                                  |  |  |
| II GHS HAZARDS IDENTIFICATIO                                  | ON                         |  |                                  |  |  |
| HEALTH  |                            | ENVIRONMENTAL  | PHYSICAL                         |  |  |
| Acute Toxicity  | ~ .                        | Aquatic Chronic 1  | Explosive Chemical, Division 1.3 |  |  |
| (Oral/Dermal/Inhalation)                                      | Category 4                 | Aquatic Acute 1  |                                  |  |  |
| Skin Corrosion/Irritation                                     | Category 1A                |  |                                  |  |  |
| Eye Damage  | Category 1                 |  |                                  |  |  |
| Reproductive  | Category 1A                |  |                                  |  |  |
| Carcinogenicity (lead compounds)<br>Carcinogenicity (arsenic) | Category 1B<br>Category 1A |  |                                  |  |  |
| Carcinogenicity (acid mist)                                   | Category 1A<br>Category 1A |  |                                  |  |  |
| Specific Target Organ   | Category 2                 |  |                                  |  |  |
| Toxicity (repeated exposure)                                  | Category 2                 |  |                                  |  |  |
| GHS LABEL:  |                            |  |                                  |  |  |
| HEALTH  |                            | ENVIRONMENTAL  | PHYSICAL                         |  |  |
|   |                            | ¥  |                                  |  |  |
| Hazard Statements   |                            | Precautionary Statements   |                                  |  |  |
| DANGER!   |                            | Wash thoroughly after handling.  |                                  |  |  |
| Causes severe skin burns and serious e                        |                            | Do not eat, drink or smoke when using this product.  |                                  |  |  |
|   |                            | Wear protective gloves/protective clothing, eye protection/face protection.                              |                                  |  |  |
| inhaled.  |                            | Avoid breathing dust/fume/gas/mist/vapors/spray.   |                                  |  |  |
|   | 4                          | Use only outdoors or in a well-ventilated area.  |                                  |  |  |
|   |                            |  |                                  |  |  |
|   |                            | Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid. |                                  |  |  |
|   |                            | Irritating to eyes, respiratory system, and skin.  |                                  |  |  |
|   |                            | Obtain special instructions before use.  |                                  |  |  |
|   |                            | Do not handle until all safety precautions have been read and understood                                 |                                  |  |  |
| May cause harm to breast-fed children                         |                            | Avoid contact during pregnancy/while nursing   |                                  |  |  |
| Harmful if swallowed, inhaled, or contact with skin           |                            | Leep away from heat./sparks/open flames/hot surfaces. No smoking   |                                  |  |  |
| Causes skin irritation, serious eye dama                      |                            |  |                                  |  |  |
| Causes skill initiation, serious eye uana                     | age.                       |  |                                  |  |  |
| III. COMPOSITION/INFORMATIO                                   |                            |  |                                  |  |  |

| Components                               | CAS Number | Approximate % by |
|--|------------|------------------|
|  |            | Wt.              |
| Inorganic Lead Compound:                 |            |                  |
| Lead                                     | 7439-92-1  | 45-60            |
| Lead Dioxide                             | 1309-60-0  | 15-25            |
| * Antimony                               | 7440-36-0  | 2                |
| * Arsenic                                | 7440-38-2  | 0.2              |
| * Calcium                                | 7440-70-2  | 0.04             |
| * Tin                                    | 7440-31-5  | 0.2              |
| Electrolyte (Sulfuric Acid (H2SO4/H2O))  | 7664-93-9  | 10-30            |
| Case Material:                           |            | 5-10             |
| Polypropylene                            | 9003-07-0  |                  |
| Polystyrene                              | 9003-53-6  |                  |
| Styrene Acrylonitrile                    | 9003-54-7  |                  |
| Acrylonitrile Butadiene Styrene          | 9003-56-9  |                  |
| Styrene Butadiene                        | 9003-55-8  |                  |
| Polyvinylchloride                        | 9002-86-2  |                  |
| Polycarbonate, Hard Rubber, Polyethylene | 9002-88-4  |                  |



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| 1   | Power/Full Solutions   |  |   | ECO #: 100  | 2195 |  |  |
|---|--|--|---|---|------|--|--|
| Other:  |  |  |   |   |      |  |  |
|   | Silicon Dioxide (Gel batteries only)   | 7631-86-9  | 1-5   |   |      |  |  |
|   | Sheet Molding Compound   |  | 10  |   |      |  |  |
|   | (Glass reinforced polyester)   |  |   |   |      |  |  |
|   | Inorganic lead and electrolyte (sulfuric acid) are the pr  | momi components of a   | uami hattami manufaatu  | red by Energy   |      |  |  |
|   |  |  |   |   |      |  |  |
| *** **** OF   | Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.  |  |   |   |      |  |  |
|   | Γ AID MEASURES   |  |   |   |      |  |  |
| Inhalation:   |  |  | C   |   |      |  |  |
|   | Sulfuric Acid: Remove to fresh air immediately. If br  |  |   | ysician.  |      |  |  |
|   | Lead: Remove from exposure, gargle, wash nose and  | ips; consult physician.  |   |   |      |  |  |
| Ingestion:  |  |  |   |   |      |  |  |
|   | Sulfuric Acid: Give large quantities of water; do not in   | iduce vomiting or aspi   | ration into the lungs m   | ay occur and can cause permanent injury or death;   |      |  |  |
|   | consult a physician.   |  |   |   |      |  |  |
|   | Lead: Consult physician immediately.   |  |   |   |      |  |  |
| Skin:   |  |  |   |   |      |  |  |
|   | Sulfuric Acid: Flush with large amounts of water for a   | t least 15 minutes; rem  | nove contaminated cloth   | hing completely, including shoes.   |      |  |  |
|   | If symptoms persist, seek medical attention. Wash con  | taminated clothing bef   | ore reuse. Discard cont   | aminated shoes.   |      |  |  |
|   | Lead: Wash immediately with soap and water.  |  |   |   |      |  |  |
| Eyes:   |  |  |   |   |      |  |  |
|   | Sulfuric Acid and Lead: Flush immediately with large   | amounts of water for a   | a least 15 minutes while  | e lifting lids  |      |  |  |
|   | Seek immediate medical attention if eyes have been ex  | posed directly to acid.  |   |   |      |  |  |
| V. FIRE F   | FIGHTING MEASURES  | × •  |   |   |      |  |  |
| Flash Point   |  | Flammable Limits:  | LEL = 4.1% (Hydroger  | n Gas) UEL = 74.2%  |      |  |  |
| Extinguish  | ing Media: CO2; foam; dry chemical. Do not use carbo   |  |   |   |      |  |  |
|   | re Fighting Procedures:  |  | 8   | -f8888  |      |  |  |
| Special I II  | If batteries are on charge, shut off power. Use positiv  | e pressure self-contain  | ed breathing apparatus  | Water applied to electrolyte generates  |      |  |  |
|   | heat and causes it to spatter. Wear acid-resistant cloth   |  |   | . When applied to electrolyte generates   |      |  |  |
|   | But note that strings of series connected batteries may  |  | · •   | arcing aquinment is shut down   |      |  |  |
| Linnen al E   |  | sun pose risk of cleen   | ie sliber even when ena   | inging equipment is shut down.  |      |  |  |
| <u>Ullusual FI</u>  | ire and Explosion Hazards:<br>Highly flammable hydrogen gas is generated during ch   | arging and oppration of  | f hottorios To avoid ri   | sk of fire or explosion keep sperks or other  |      |  |  |
|   |  |  |   |   |      |  |  |
|   | sources of ignition away from batteries. Do not allow  |  | multaneously contact n  | legative and positive terminals of cells and  |      |  |  |
|   | batteries. Follow manufacturer's instructions for instal   | lation and service.  |   |   |      |  |  |
|   | DENTAL RELEASE MEASURES  |  |   |   |      |  |  |
| Spill or Lea  | ak Procedures:   |  |   |   |      |  |  |
|   | Stop flow of material, contain/absorb small spills with  | •  |   | · ·   |      |  |  |
|   | neutralize spilled electrolyte with soda ash, sodium bio   |  |   |   |      |  |  |
|   | allow discharge of unneutralized acid to sewer. Acid n   | ust be managed in acc  | ordance with local, stat  | te, and federal requirements.   |      |  |  |
|   | Consult state environmental agency and/or federal EPA  | Α.   |   |   |      |  |  |
| VII. HANI   | DLING AND STORAGE  |  |   |   |      |  |  |
| Handling:   |  |  |   |   |      |  |  |
| Unless invo   | ess involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping,   |  |   |   |      |  |  |
| which may   | allow electrolyte leakage. There may be increasing risk of   | of electric shock from s   | trings of connected bat   | teries.   |      |  |  |
| Var   | p containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.  |  |   |   |      |  |  |
| reep contai   | iners tightly closed when not in use. If battery case is br  | oken, avoid contact wi   | th internal components  | •   |      |  |  |
| *   |  |  | *   |   |      |  |  |
| Keep vent c   | caps on and cover terminals to prevent short circuits. Pla   | ce cardboard between   | layers of stacked auton   | notive batteries to avoid damage and short circuits.  |      |  |  |
| Keep vent c<br>Keep away  |  | ce cardboard between   | layers of stacked auton   | notive batteries to avoid damage and short circuits.  |      |  |  |
| Keep vent c<br>Keep away s<br>shipping.   | caps on and cover terminals to prevent short circuits. Pla   | ce cardboard between   | layers of stacked auton   | notive batteries to avoid damage and short circuits.  |      |  |  |
| Keep vent c<br>Keep away :<br>shipping.<br>Storage:   | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing  | ce cardboard between<br>g substances, metals, st   | layers of stacked auton<br>rong oxidizers and wat   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for   |      |  |  |
| Keep vent c<br>Keep away<br>shipping.<br>Storage:<br>Store batter   | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co   | layers of stacked auton<br>rong oxidizers and wat   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should  |      |  |  |
| Keep vent c<br>Keep away<br>shipping.<br>Store batteri<br>also be store   | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con  | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from   | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only  |      |  |  |
| Keep vent c<br>Keep away<br>shipping.<br>Store batteri<br>also be store<br>in areas with  | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep  | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only  |      |  |  |
| Keep vent c<br>Keep away :<br>shipping.<br>Storage:<br>Store batter<br>also be store<br>in areas with<br>bridge the te  | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag<br>terminals on a battery and create a dangerous short-circui   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep  | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only  |      |  |  |
| Keep vent c<br>Keep away :<br>shipping.<br>Storage:<br>Store batteri<br>also be store<br>in areas with<br>bridge the te<br>Charging:  | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag<br>terminals on a battery and create a dangerous short-circui   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep<br>t.  | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material<br>away from fire, sparks   | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only<br>and heat. Keep away from metallic objects could   |      |  |  |
| Keep vent c<br>Keep away :<br>shipping.<br>Storage:<br>Store batteri<br>also be store<br>in areas with<br>bridge the te<br>Charging:<br>There is a p                                | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag<br>terminals on a battery and create a dangerous short-circuit<br>possible risk of electric shock from charging equipment a   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep<br>t.<br>nd from strings of serie                            | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material<br>away from fire, sparks<br>es connected batteries,                            | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only<br>and heat. Keep away from metallic objects could<br>whether or not being charged. Shut-off power to  |      |  |  |
| Keep vent c<br>Keep away is<br>shipping.<br>Storage:<br>Store batteri<br>also be store<br>in areas with<br>bridge the te<br>Charging:<br>There is a p<br>chargers wh                | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag<br>terminals on a battery and create a dangerous short-circui<br>boossible risk of electric shock from charging equipment a<br>henever not in use and before detachment of any circuit of | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep<br>t.<br>nd from strings of serio<br>onnections. Batteries b | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material<br>away from fire, sparks<br>es connected batteries,<br>peing charged will gene | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only<br>and heat. Keep away from metallic objects could<br>whether or not being charged. Shut-off power to<br>erate and release flammable hydrogen gas. |      |  |  |
| Keep vent c<br>Keep away is<br>shipping.<br>Storage:<br>Store batteri<br>also be store<br>in areas with<br>bridge the te<br>Charging:<br>There is a p<br>chargers wh<br>Charging sp | caps on and cover terminals to prevent short circuits. Pla<br>from combustible materials, organic chemicals, reducing<br>ries in cool, dry, well-ventilated areas with impervious su<br>red under roof for protection against adverse weather con<br>th adequate water supply and spill control. Avoid damag<br>terminals on a battery and create a dangerous short-circuit<br>possible risk of electric shock from charging equipment a   | ce cardboard between<br>substances, metals, st<br>rfaces and adequate co<br>ditions. Separate from<br>e to containers. Keep<br>t.<br>nd from strings of serio<br>onnections. Batteries b | layers of stacked auton<br>rong oxidizers and wat<br>ontainment in the event<br>incompatible material<br>away from fire, sparks<br>es connected batteries,<br>peing charged will gene | notive batteries to avoid damage and short circuits.<br>er. Use banding or stretch wrap to secure items for<br>of spills. Batteries should<br>s. Store and handle only<br>and heat. Keep away from metallic objects could<br>whether or not being charged. Shut-off power to<br>erate and release flammable hydrogen gas. |      |  |  |



## SAFETY DATA SHEET

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|   | S/PERSONAL PROTECTION           | 1   |   |   |  |                   |
|---|---------------------------------|---|---|---|--|-------------------|
| Exposure Limits (mg/m3) Note  | : N.E.= Not Established         |   |   |   | 1  |                   |
| NGREDIENTS  | OSHA PEL                        | ACGIH   | US NIOSH  | Quebec PEV  | Ontario OEL  | EU OEL            |
| Chemical/Common Names)  |                                 |   |   |   |  |                   |
| ead and Lead Compounds  |                                 |   |   |   |  |                   |
| norganic)   | 0.05                            | 0.05  | 0.05  | 0.05  | 0.05   | 0.15 (b)          |
| ntimony   | 0.5                             | 0.5   | 0.5   | 0.5   | 0.5  | 0.5 (b,e)         |
| rsenic  | 0.01                            | 0.01  | 0.002   | 0.2   | 0.01   | N.E               |
| alcium  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| in  | 2                               | 2   | 2   | 2   | 2  | N.E               |
| lectrolyte (Sulfuric Acid)  | 1                               | 0.2   | 1   | 1   | 0.2  | 0.05 (c)          |
| olypropylene  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| olystyrene  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| tyrene Acrylonitrile  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| crylonitrile Butadiene  | 1112                            | 1112  | 1112  | 1112  | 1 112  | 1112              |
| tyrene  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| tyrene Butadiene  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| Polyvinylchloride   | N.E                             | N.E   | N.E   | N.E   | 1  | N.E               |
|   | 14.12                           | 11.15   | 11.15   | 11.15   | 1  | 14.15             |
| Polycarbonate, Hard   | <b>X T</b>                      |   |   |   |  | NE                |
| Rubber, Polyethylene  | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| Silicon Dioxide   |                                 |   |   |   |  |                   |
| Gel Batteries Only)   | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
|   |                                 |   |   |   |  |                   |
| Sheet Molding Compound  |                                 |   |   |   |  |                   |
| Glass reinforced polyester)   | N.E                             | N.E   | N.E   | N.E   | N.E  | N.E               |
| OTES:   |                                 |   |   |   | 1  |                   |
| Handle batteries cau<br>clothing, eye and fa<br>positive and negativ<br>Respiratory Protection (NIOSI<br>None required unde<br>respiratory protection<br>If battery case is da<br>Cye Protection:<br>If battery case is da<br>Dther Protection:<br>In areas where sulfu | er normal conditions. When cond | rtain vent caps are on se<br>ing or handling batterie:<br>rge the batteries in areas<br>centrations of sulfuric ac<br>l-resistant gloves with e<br>face shield.<br>ions greater than 1%, er | ecurely. Avoid contact v<br>s. Do not allow metallic<br>s with adequate ventilati<br>cid mist are known to ex<br>lbow-length gauntlet, ac | with internal component<br>materials to simultane<br>ion. General dilution vo<br>cceed the PEL, use NIC<br>id-resistant apron, clot | ously contact both the<br>entilation is acceptable.<br>OSH or MSHA-approved<br>hing and boots. |                   |
|   | ended when adding water or ele  | <u>^</u>  |   | fear acid-resistant ciou  | ing and boots.   |                   |
| X. PHYSICAL AND CHEMIC  | *                               |   |   |   |  |                   |
| roperties Listed Below are for  |                                 |   |   |   |  |                   |
| Boiling Point:  | ······                          | 203 - 240° F  | Specific Gravity (H2  | (0 = 1):  | 1.215 to 1.350   |                   |
| Melting Point:  |                                 | N/A   | Vapor Pressure (mm  |   | 10   |                   |
| Solubility in Water   | r:                              | 100%  | Vapor Density (AIR  |   | Greater than 1   |                   |
| ·   | (Butyl Acetate = 1)             | Less than 1   | % Volatile by Weigh   |   | N/A  |                   |
| Evaporation Kate:   |                                 | -   |   | 11.   |  | / 1 1 ×           |
|   | •                               | <b>H:</b> ~1 to 2   | Flash Point:  |   | Below room temperature   | (as hydrogen gas) |
| LEL (Lower Explo  | osive Limit)                    | 4.1% (Hydrogen)   | UEL (Upper Explosi  | ve Limit)   | 74.2% (Hydrogen)   |                   |
| Appearance and O  | dor:                            | Manufactured article<br>Electrolyte is a clear  | ; no apparent odor.<br>liquid with a sharp, pen   | etrating, pungent odor  |  |                   |



| Power/Full Solutions  | ECO #: | 1002195 |
|---|--------|---------|
| X. STABILITY AND REACTIVITY   |        |         |
| Stability: Stable X_ Unstable   |        |         |
| This product is stable under normal conditions at ambient temperature   |        |         |
| Conditions To Avoid: Prolonged overcharge; 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 agent   | š,     |         |
| metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable   |        |         |
| hydrogen gas.   |        |         |
| Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen  |        |         |
| and reducing agents.  |        |         |
| Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas-arsine.  |        |         |
|   |        |         |
| Hazardous Decomposition Products:<br>Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.   |        |         |
| Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent   |        |         |
|   |        |         |
| hydrogen may generate highly toxic arsine gas.  |        |         |
| Hazardous Polymerization:   |        |         |
| Will not occur  |        |         |
| XI. TOXICOLOGICAL INFORMATION   |        |         |
| Routes of Entry:  |        |         |
| Sulfuric Acid: Harmful by all routes of entry.  |        |         |
| Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vap  | or     |         |
| or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.   |        |         |
| Inhalation:   |        |         |
| Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.  |        |         |
| Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.   |        |         |
| Ingestion:  |        |         |
| Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.   |        |         |
| Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to syste  | nic    |         |
| toxicity and must be treated by a physician.  |        |         |
| Skin Contact:   |        |         |
| Sulfuric Acid: Severe irritation, burns and ulceration.   |        |         |
| Lead Compounds: Not absorbed through the skin.  |        |         |
| Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.  |        |         |
| Eye Contact:  |        |         |
| <u>Sulfuric Acid:</u> Severe irritation, burns, cornea damage, and blindness.   |        |         |
| Lead Components: May cause eye irritation.  |        |         |
| Effects of Overexposure - Acute:  |        |         |
| Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.  |        |         |
|   |        |         |
| Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep  |        |         |
| disturbances and irritability.  |        |         |
| Effects of Overexposure - Chronic:  |        |         |
| <u>Sulfuric Acid</u> : Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.  |        |         |
| Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and   |        |         |
| females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abno  |        |         |
| conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system d   | amage, |         |
| encephalopathy and damage to the blood-forming (hematopoietic) tissues.   |        |         |
| Carcinogenicity:  |        |         |
| Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as   | i.     |         |
| Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric   |        |         |
| acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of  | he     |         |
| product, such as overcharging, may result in the generation of sulfuric acid mist.  |        |         |
| Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910   | .1200  |         |
| Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.  |        |         |
| Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, the   | is is  |         |
| approximately equivalent to GHS Category 1A.  |        |         |
| Approximately equivalent to GHS Category IA.<br>Medical Conditions Generally Aggravated by Exposure:  |        |         |
| medical Conditions Generally Aggravated by Exposure:  |        |         |
| Overexposure to sufficie acid mist may cause lung damage and aggregate pulmonery conditions. Contact of sufficie acid with skin way aggregate   |        |         |
| Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggrave diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases. | ite    |         |

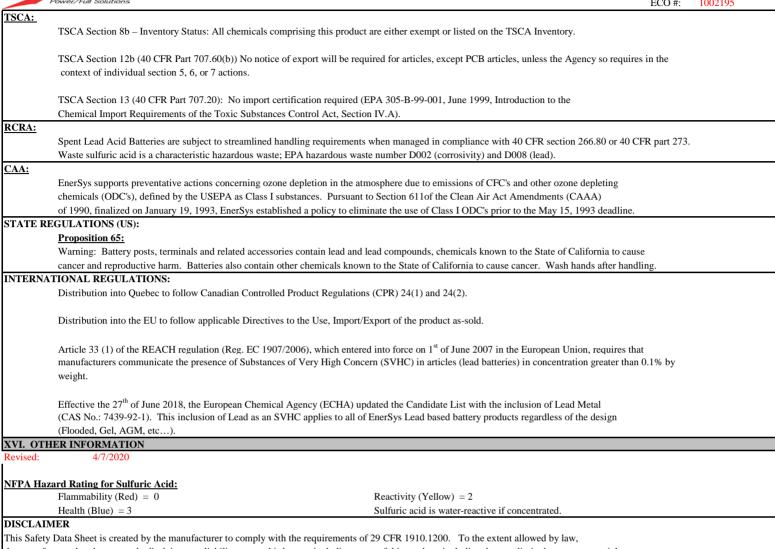


| Power/Full Solution  | ECO#:   | 1002195 |  |  |
|--|---|---------|--|--|
| Acute Toxicity:  |   |         |  |  |
| Inhalation LD50:   |   |         |  |  |
| Electrolyte: LC50 rat: 375 n   | ng/m3; LC50: guinea pig: 510 mg/m3  |         |  |  |
| Elemental Lead: Acute Toxi   | icity Point Estimate = 4500 ppmV (based on lead bullion)  |         |  |  |
| Elemental Arsenic: No data   |   |         |  |  |
|  |   |         |  |  |
| Oral LD50:   |   |         |  |  |
| Electrolyte: rat: 2140 mg/kg   |   |         |  |  |
| . 00   |   |         |  |  |
|  | icity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)  |         |  |  |
| Elemental Arsenic: LD50 m  |   |         |  |  |
| Elemental Antimony: LD50   | ) rat: 100 mg/kg  |         |  |  |
|  |   |         |  |  |
| Additional Health Data:  |   |         |  |  |
| All heavy meta   | als, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.                                  |         |  |  |
| Most inhalatio   | n problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.                                    |         |  |  |
| Follow good p  | ersonal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the                       |         |  |  |
| worksite. Keer   | o contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food,                  |         |  |  |
|  | osmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and                        |         |  |  |
|  | me or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from                     |         |  |  |
|  | heir environment.   |         |  |  |
|  |   |         |  |  |
| The 10 <sup>th</sup> Amer  | ndment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.                               |         |  |  |
|  |   |         |  |  |
|  | : May cause harm to the unborn child, applies to lead compounds, especially soluble forms.  |         |  |  |
| XII. ECOLOGICAL INFO   | DRMATION  |         |  |  |
| Environmental Fate:  |   |         |  |  |
| • •  | ersistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow.                 |         |  |  |
| Bioaccumulati  | on of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain.                                 |         |  |  |
|  | nclude lead compounds and not elemental lead.   |         |  |  |
| <b>Environmental Toxicity:</b> A   | xquatic Toxicity:   |         |  |  |
| Sulfuric acid:   | 24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L  |         |  |  |
|  | 96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L   |         |  |  |
| Lead:  | 48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion  |         |  |  |
| Arsenic:   | 24 hr LC50, freshwater fish (Carrassisus auratus) >5000 g/L.  |         |  |  |
| Additional Information:  |   |         |  |  |
|  | fects on stratospheric ozone depletion.   |         |  |  |
|  | nic compounds: 0% (by Volume)   |         |  |  |
| -  | gering Class (WGK): NA  |         |  |  |
|  |   |         |  |  |
|  | DERATIONS (UNITED STATES)<br>econdary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of |         |  |  |
|  |   |         |  |  |
|  | met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental                                |         |  |  |
| agency and/or federal EPA.   |   |         |  |  |
| Electrolyte:   |   |         |  |  |
| Place neutralized slurry into  | sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after  |         |  |  |
| neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental |   |         |  |  |
| agency and/or federal EPA.   |   |         |  |  |
| Following local State/Provi  | ncial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.                             |         |  |  |
| 1 Onowing local, State/110VI.  |   |         |  |  |



| Power/Full Solutions                                     |  | ECO #: 1002195   |  |  |  |  |
|--|--|--|--|--|--|--|
| XIV. TRANSPORT INFORMATION                               |  |  |  |  |  |  |
| S. DOT:  |  |  |  |  |  |  |
| Excepted from the hazardous materials regulations ( H    | Excepted from the hazardous materials regulations (HMR) because the batteries meet the requirements of 49 CFR 173.159(f) and 49 CFR 173.159a |  |  |  |  |  |
| of the U.S. Department of Transportation/s HMR. Batt     | of the U.S. Department of Transportation/s HMR. Battery and outer package must be marked "NONSPILLABLE" or "NONSPILLABLE BATTERY"            |  |  |  |  |  |
| Battery terminals must be protected against short circu  | Battery terminals must be protected against short circuits.  |  |  |  |  |  |
| ATA Dangerous Goods Regulations DGR:                     |  |  |  |  |  |  |
|  | e the batteries meet the re  | equirements of Packing Instruction 872 and Special Provisions A67 of           |  |  |  |  |
|  |  | lations and International Civil Aviation Organization (ICAO) Technical         |  |  |  |  |
| Instructions. Battery Terminals must be protected agai   |  | autons and international ervin reviation organization (terror) reennear        |  |  |  |  |
| instructions. Battery reminals must be protected agai    | list short circuits.   |  |  |  |  |  |
|  |  | 1. 1   |  |  |  |  |
| The words " NOT RESTRICTED", SPECIAL PROVIS              | SION A67 must be provid  | ded on an airway bill when air waybill is issued.                              |  |  |  |  |
| MDG:   |  |  |  |  |  |  |
|  |  | batteries meet the requirements of Special Provision 238 of the                |  |  |  |  |
| International Maritime Dangerous Goods( IMDG COD         | E). Battery terminals mu   | st be protected against short circuits.  |  |  |  |  |
| V. REGULATORY INFORMATION                                |  |  |  |  |  |  |
| NITED STATES:  |  |  |  |  |  |  |
| PA SARA Title III:                                       |  |  |  |  |  |  |
| ection 302 EPCRA Extremely Hazardous Substances (EHS):   |  |  |  |  |  |  |
| Sulfuric acid is a listed "Extremely Hazardous Substan   | ce" under EPCRA, with a  | Threshold Planning Quantity (TPQ) of 1,000 lbs.                                |  |  |  |  |
| EPCRA Section 302 notification is required if 1000 lbs   | s or more of sulfuric acid   | is present at one site (40 CFR 370.10). For more information consult           |  |  |  |  |
| 40 CFR Part 355. The quantity of sulfuric acid will var  | y by battery type. Contact   | your EnerSys representative for additional information.                        |  |  |  |  |
| ection 304 CERCLA Hazardous Substances:                  |  |  |  |  |  |  |
| Reportable Quantity (RQ) for spilled 100% sulfuric aci   | d under CERCLA (Super  | fund) and  |  |  |  |  |
| EPCRA (Emergency Planning and Community Right to         | o Know Act) is 1,000 lbs.  | State and local reportable quantities for spilled sulfuric acid may vary.      |  |  |  |  |
| ection 311/312 Hazard Categorization:                    | · · · ·  |  |  |  |  |  |
| EPCRA Section 312 Tier Two reporting is required for     | non-automotive batteries   | if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is |  |  |  |  |
| present in quantities of 10,000 lbs or more. For more in |  |  |  |  |  |  |
| ection 313 EPCRA Toxic Substances:                       |  |  |  |  |  |  |
|  | s present in an article at a   | covered facility, a person is not required to consider the quantity of the     |  |  |  |  |
|  | ·  | hreshold has been met under § 372.25, § 372.27, or § 372.28 or                 |  |  |  |  |
| <u>^</u>   |  |  |  |  |  |  |
|  |  | n applies whether the person received the article from another person          |  |  |  |  |
| or the person produced the article. However, this exem   | ption applies only to the c  | juantity of the toxic chemical present in the article.                         |  |  |  |  |
| Supplier Notification:                                   |  |  |  |  |  |  |
| **   | The second se                              | 1. (i.e. 212 Terris Chamies I Palaces Instances (Terres P) and instances (     |  |  |  |  |
|  | •  | Section 313 Toxic Chemical Release Inventory (Form R) requirements.            |  |  |  |  |
| If you are a manufacturing facility under SIC codes 20   | through 39, the following  | information is provided to enable you to complete the required reports:        |  |  |  |  |
|  | GLONE 1  |  |  |  |  |  |
| Toxic Chemical   | CAS Number   | Approximate % by Wt.   |  |  |  |  |
| Lead   | 7439-92-1  | 60   |  |  |  |  |
| Electrolyte  | 7664 02 0  | 10 - 30  |  |  |  |  |
| (Sulfuric Acid (H2SO4/H2O))                              | 7664-93-9  | 10 - 50  |  |  |  |  |
| * Antimony   | 7440-36-0  | 2  |  |  |  |  |
| * Arsenic  | 7440-38-2  | 0.2  |  |  |  |  |
|  |  |  |  |  |  |  |
| Tin  | 7440-31-5  | 0.2  |  |  |  |  |
| See 40 CRG Part 370 for more details.                    |  |  |  |  |  |  |
| If you distribute this product to other manufacturers in | SIC Codes 20 through 39  | , this information must be provided with the first shipment                    |  |  |  |  |
| of each calendar year.                                   |  |  |  |  |  |  |
| The Section 313 supplier notification requirement does   | s not apply to batteries, wl   | nich are "consumer products".  |  |  |  |  |
|  |  |  |  |  |  |  |
| * Not present in all battery types. Contact your EnerS   | ys representative for addit  | ional information.   |  |  |  |  |





the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or

other damages, arising out of the use of, or reliance on, this Safety Data Sheet.