

SECTION I:		PRODUCT			
Product Identity:	BAE OPzV, OGiV and PVV - Sealed (Gel) Lead Acid Battery				
Other Name:	Lead Calcium VRLA Station Battery - Sealed Gel Electrolyte				
Manufacturer Name:	BAE Batterien GmbH				
Manufacturer Address:	Wilhelminenhofstrasse 69 / 70- D-12459 Berlin, Germany				
24-Hour Emergency Response Contacts:	CHEMTREC DOMESTIC: (800) 424-9300 CHEMTREC INT'L: (703) 527-3877				
SECTION II:		COMPONENTS			
		Air Exposure Limits (µg/m <sup>3</sup> )			
Components	CAS NUMBER	Approximate% by Wt.	OSHA PEL	ACGIH TLV	NIOSH
<b>Inorganic Lead Compounds:</b>					
Lead, Lead Components	7439-92-1	60-64%	50	150	100
• Calcium	7440-70-2	<1%	--	--	--
• Tin	7440-31-5	<1%	2000	2000	--
<b>Electrolyte (Dilute Sulfuric Acid Suspended in Silicon Gel)</b>	7664-93-9	26%	1000	1000	1000
<b>Non-Hazardous</b>					
Water	7732-18-5	14-16%	N/A	N/A	N/A
Silicon Dioxide (Gel Batteries)	7631-86-9	<2%	N/A	N/A	N/A
Container & Cover- Styrol-Acrylic-Nitrile (SAN) or ABS	N/A	8%	N/A	N/A	N/A
Paper or plastic separator	N/A	2%	N/A	N/A	N/A
SECTION III:		HAZARD RATINGS			
WHMIS:	CONTROLLED	NFPA	RATING	HMIS	RATING
CLASS	D1A - Very Toxic (acute)	HEALTH	3	HEALTH	3
	D2B - Very Toxic (chronic)	FLAMMABILITY	0	FLAMMABILITY	0
	E - Corrosive to skin	REACTIVITY	2	PHYSICAL HAZARD	2
		SPECIFIC HAZARD	Acid	PERSONAL PROTECTION®	C
SECTION IV:		HEALTH HAZARDS DATA/IDENTIFICATION			
<b>Routes of Entry:</b>					
<u>Sulfuric Acid:</u>	Harmful by all routes of entry.				
<u>Lead Compounds:</u>	Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fumes.				
<b>Inhalation:</b>					
<u>Sulfuric Acid:</u>	Acidic vapors are colorless and are generated only when charging or when electrolyte is hot. Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation and are caustic to upper respiratory tissues.				
<u>Lead Compounds:</u>	Inhalation of lead dust or fumes may cause irritation of the upper respiratory track and lungs.				
<b>Eye Contact:</b>					
<u>Sulfuric Acid:</u>	Severe irritation, burns, cornea damage and blindness can all occur.				
<u>Lead Compounds:</u>	May cause eye irritation				
<b>Skin Contact:</b>					
<u>Sulfuric Acid:</u>	Severe irritation, burns and ulcerations				
<u>Lead Compounds:</u>	Not absorbed through the skin				
<b>Ingestion:</b>					
<u>Sulfuric Acid:</u>	May cause severe irritation of mouth, throat, esophagus and stomach.				
<u>Lead Compounds:</u>	Acute ingestion of lead compounds may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.				

SECTION VI:		FIRST AID MEASURES	
<b>Inhalation:</b>			
<u>Sulfuric Acid:</u>	Remove to fresh air immediately, if breathing is difficult give oxygen and consult a physician.		
<u>Lead Compounds:</u>	Remove from area of exposure, gargle and wash nose and lips with water, consult physician.		
<b>Eye Contact:</b>			
<u>Sulfuric Acid:</u>	Flush immediately with large amounts of salinized water for at minimum 15 minutes; consult physician.		
<u>Lead Compounds:</u>	Flush with salinized water for at minimum 15 minutes; consult physician.		
<b>Skin Contact:</b>			
<u>Sulfuric Acid:</u>	Flush immediately with large amounts of water for at minimum 15 minutes. Remove contaminated clothing completely, including shoes. If irritation occurs consult physician.		
<u>Lead Compounds:</u>	Not absorbed through the skin		
<b>Ingestion:</b>			
<u>Sulfuric Acid:</u>	May cause severe irritation of mouth, throat, esophagus and stomach.		
<u>Lead Compounds:</u>	Acute ingestion of lead compounds may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.		
<b>Medical Conditions Generally Aggravated by Exposure:</b>	Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.		
SECTION VII:		FIRE AND EXPLOSION HAZARD DATA	
<b>Flash Point:</b>	N/A	<b>Flammable Limits (Hydrogen Gas):</b>	LEL = 4.1% UEL = 74.2%
<b>Extinguishing Media:</b>	CO <sub>2</sub> ; foam; dry chemical or Halon. If no chemicals are available, deluge with water from a safe distance. Beware of high voltage potential!		
<b>Special Fire Fighting Procedures:</b>	If batteries are on charge, shut off power. Fire protective and acid resistant clothing, protective eyewear, face shield and positive pressure self-contained breathing apparatus should be worn by emergency responders.		
<b>Unusual Fire and Explosion Hazards:</b>	<ul style="list-style-type: none"> <li>Highly flammable hydrogen gas is generated during charging and operation of batteries as such hydrogen gas may be present in the immediate area of the battery and battery room.</li> <li>Water applied to electrolyte can generate heat and causes it to splatter.</li> <li>Lead acid batteries and cells have large amounts of stored chemical electrical energy and high short circuit currents available even when off charge. Do not allow metallic materials to simultaneously contact the negative and positive terminals of cells and batteries. Short circuits can result in large explosions, heat and fire.</li> </ul>		
SECTION VIII:		PHYSICAL DATA	
<b>Electrolyte:</b>			
<b>Specific Gravity:</b>	1.24 +/- .150	<b>Boiling Point:</b>	235°F (105 °C)
<b>Vapor Density:</b>	Greater > 1	<b>Vapor Pressure(mm HG):</b>	10
<b>Evaporation Rate (Butyl Acetate = 1):</b>	Less than < 1	<b>Solubility in Water:</b>	100%
<b>Melting Point:</b>	N/A	<b>% Volatile by Weight:</b>	N/A
<b>Appearance and Odor:</b>	Electrolyte is a clear liquid/Gel with a sharp, penetrating, pungent odor		
SECTION IX:		STABILITY AND REACTIVITY	
<b>Stability:</b>	The battery and its contents are stable.		
<b>Conditions to Avoid:</b>	Overheating and or overcharging which can result in acid mist and increased hydrogen generation. Spillage of electrolyte and sources of ignition.		
<b>Incompatibility: (Materials to avoid)</b>			
<u>Sulfuric Acid:</u>	Contact with combustibles and organic materials may cause fire and explosion. Reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.		
<u>Lead Compounds:</u>	Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.		
<b>Hazardous Decomposition Products:</b>			
<u>Sulfuric Acid:</u>	Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide and hydrogen.		
<u>Lead Compounds:</u>	High temperatures likely to produce toxic metal fumes, vapor or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.		
<b>Hazardous Polymerization:</b>	Will not occur.		

SECTION X:		PRECAUTIONS FOR SAFE HANDLING AND USE	
<b>Spill or Leak Procedures:</b>	In the event of a spill or leak stop the flow of material and contain/absorb small spills with dry sand, earth, and vermiculite. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, or other acid neutralization agent. Do not allow neutralized acid to enter sewer system. Wear all recommended and required PPE during the cleanup process. (See Section XI Below)		
<b>Handling and Storage:</b>	Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Do not install batteries in sealed, unventilated areas and keep away from fire, sparks and heat.		
Section XI:		WORK PRACTICES/ENGINEERING CONTROLS/PERSONAL PROTECTION	
<b>Safe Work Practices:</b>	Handle all batteries with care to avoid spills and or breakage, batteries are fragile. Prior to working on batteries ensure all flame arrestor vent caps are tight and in good condition. Always use non-conductive or insulated tools when working on batteries. Avoid contact with internal components and avoid short circuits. Always wear the proper PPE when working on batteries. (see below)		
<b>Personal Protective Equipment:</b>			
<u>Eye Protection:</u>	Chemical goggles or safety glasses with side shields and full face shield should be worn.		
<u>Protective Gloves:</u>	Rubber, plastic or neoprene gloves with elbow-length gauntlets should be worn.		
<u>Respirator Protections:</u>	No respiratory protection is required under normal conditions. When concentration of sulfuric acid mists are known or suspected to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.		
<u>Other Protections:</u>	Acid-resistant apron and under severe exposure emergency conditions acid-resistant clothing and boots should be worn.		
<b>Engineering Controls:</b>			
<u>Room Ventilation:</u>	Batteries emit hydrogen gas during normal operations. Batteries shall be installed and handled in well ventilated areas. If mechanical ventilations is used ventilation should be such that hydrogen concentrations of no more than 2% are allowed. Note hydrogen gas becomes explosive at levels greater than 4% concentrations. (See Section VI)		
<u>Emergency Flushing:</u>	In areas where lead acid batteries are operated and stored emergency eyewash station and showers shall be provided.		
<u>Emergency Disconnect:</u>	Emergency power disconnect switch shall be well labeled and visible at point of entry to battery room/location.		
<u>Additional Recommendations:</u>	Fire extinguisher, neutralizing media and emergency communications signs shall be available and clearly labeled in work area.		
SECTION XII:		ECOLOGICAL AND DISPOSAL CONSIDERATIONS	
<b>Ecological Information:</b>	Lead and its compounds can pose a threat to the environment if not disposed of properly.		
<b>Waste Disposal Methods:</b>	These batteries are fully recyclable and contains no cadmium or mercury compounds. Send to secondary lead smelter for proper recycling. Note is illegal to dispose of lead-acid batteries by any means other than recycling. Consult state environmental agencies along with the federal EPA for full details.		
SECTION XIII:		TRANSPORTATION CONSIDERATIONS AND REGULATORY INFORMATION	
<b>U.S. DOT:</b>	The transportation of wet and moist charged batteries with the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (CFR49). These regulations may classify these types of batteries as hazardous materials.		
<b>IATA:</b>	The international transportation of wet and moist charged batteries is regulated by the International Air Transport Association (IATA). These regulations classify these types of batteries as hazardous materials. The batteries must be packaged according to IATA packing instruction 870.		
<b>IMDG:</b>	The international transportation of wet and moist charged batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations classify these types of batteries as hazardous materials. The batteries must be packaged according to IMDG code 4.1 pages 801.		
<b>RCRA:</b>	Spend lead-acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulation may vary.		
<b>Proper Shipping information is as follows:</b>			
<b>Proper Shipping Name:</b>	Batteries, wet, non-spillable, electric storage		
<b>Packing Group:</b>	III	<b>Hazardous Class:</b>	8
<b>UN identification:</b>	UN2800	<b>Label/Placard Required:</b>	Corrosive

SECTION XIII:	TRANSPORTATION CONSIDERATIONS AND REGULATORY INFORMATION (Cont.)
<p><b>CERCLA (Superfund) and EPCRA:</b></p>	<ul style="list-style-type: none"> <li>A) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. (c) EPCRA Section 302 notification is required if 1,000 lbs. or more of sulfuric acid is present at one site. The quantity of sulfuric acid will vary by battery type.</li> <li>B) EPCRA Section 312 Tier 2 reporting is required for 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.</li> <li>C) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.</li> <li>D) Supplier Notification: This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements.</li> </ul>