INFORMATION ONLY – PLEASE READ SECTION X

Material Safety Data Sheet (MSDS)

PRODUCT IDENTITY:	**POWERMASTER PERFORMANCE BATTERY Sealed, Non Spillable Design, Valve Regulated**

Section I – Contact Information

Manufacturer's Name **Key Components, Inc.** **d/b/a Powermaster**	**Emergency Telephone Number** **1- (865) 688-5953**
Address **7501 Strawberry Plains Pike** **Knoxville, TN 37924**	**Telephone Number for Information** **Powermaster, Engineering Dept.** **1 (865) 688-5953**
Transportation Emergencies:	**CHEMTREC** **American Chemistry Council** **1300 Wilson Blvd.** **Arlington, VA 22209**
	1-800-262-8200

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	Air Exposure Limits:	OSHA PEL	ACGIH TLV	NIOSH REL
Lead and Lead Compounds CAS # 7439-92-1		**50 μg/m^3**	**150 μg/m^3**	**100 μg/m^3**
Lead Dioxide CAS # 1309-60-0		**50 μg/m^3**	**150 μg/m^3**	**100 μg/m^3**
Other metals in lead alloys at less than 2% by weight in cell component:				
Antimony CAS # 7440-36-0 in lead components as antimony		**500 μg/m^3**	**500 μg/m^3**	**500 μg/m^3**
Cadmium CAS # 7440-43-9 in lead components as cadmium		**5 μg/m^3**	**2 μg/m^3 (Respirable Fraction)**	**Ca***
***Any substance that NIOSH considers to be a potential occupational carcinogen is designated by the notation "Ca".**				
Tin, metal CAS # 7440-31-5 in lead components as tin		**2000 μg/m^3**	**2000 μg/m^3**	**2000 μg/m^3**

Sulfuric Acid Electrolyte (35%) **CAS # 7664-93-9** **Common Name:** **Battery Electrolyte (Acid)**	**1 μg/m^3**	**1 mg/m^3** **STEL** **3 mg/m^3** **15 minute maximum per 8-hour shift**
Acrylonitrile-butadiene-styrene copolymer; CAS # 009003-56-9		
Common Name: ABS Case Material		
Air Exposure Limits N/A		
Glass, Oxide, Chemicals; CAS# 65997-17-3		
Common Name: Absorptive Glass Mat (AGM) Separator		
Air Exposure Limits N/A		

Section III - Physical/Chemical Characteristics: Product is a solid with the liquid electrolyte absorbed in a solid glass mat under normal conditions.

Boiling Point at 760 mm Hg: **Lead** **Battery Electrolyte (35% Acid):**	**1755 ^{0}C** **110-112 ^{0}C**	**Specific Gravity at 25 ^{0}C:** **Battery Electrolyte (28 to 44% Acid) depending on battery state of charge**	**(H_2O = 1)** **1.210-1.335 depending on battery state of charge**
Vapor Density (AIR = 1) **Battery Electrolyte:**	**3.4**	**Melting Point** **Lead:**	**327.4 ^{0}C**
% Volatile by weight	**N/A**	**Evaporation Rate (Butyl Acetate = 1)**	**N/A**
Solubility in Water: Battery Electrolyte (acid) is 100% soluble in water.			
Appearance and Odor: Battery electrolyte (acid) is a clear to cloudy liquid with slight acidic odor. Acid-saturated lead oxide is a dark reddish-brown to gray solid with slight acidic odor.			

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used) **N/A**	**Flammable Limits** **N/A**	**LEL** **N/A**	**UEL** **N/A**
Extinguishing Media: Multipurpose Dry chemical, CO_2, or water spray			
Special Fire Fighting Procedures:			
Cool Battery exterior to prevent rupture. ABS case material is not flame			

retardant. Vapors and acid mists in a fire are toxic and corrosive.
Unusual Fire and Explosion Hazards:
Hydrogen gas may be produced and may explode if ignited. Remove all sources of ignition.

Section V - Reactivity Data and Shipping/Handling Electrical Safety

		Conditions to Avoid:
		Avoid shorting. High levels of short circuit current can be developed across the battery terminals. Do not rest tools or cables on the battery. Avoid over-charging. Use only approved charging methods. Do not charge in gas tight containers.
		Requirements for Safe Shipping and Handling of Valve-Regulated Lead Batteries:
		Warning – Electrical Fire Hazard – Protect Against Shorting • **Terminals can short and cause a fire if not insulated during shipping.** • **Valve-regulated lead battery product must be labeled "NONSPILLABLE" during shipping. Follow all federal shipping regulations. See section IX of this sheet and CFR 49 Parts 171 through 180, available anytime online at www.gpoaccess.gov.** • **Batteries must have short circuit protection during shipping.** • **Exposed terminals, connectors, or lead wires must be insulated with a durable inert material to prevent exposure during shipping.**

Section VI - Health Hazard Data

Route(s) of Entry:	**N/A**	**Health Hazards (Acute and Chronic)**	**N/A**
Emergency First Aid Procedures:			
Battery contains acid electrolyte which is absorbed in the separator material. If battery case is punctured, completely flush any released material from skin or eyes with water.			
Proposition 65:			

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals know to the State of California to cause cancer. Wash hands after handling.
Section VII - Precautions for Safe Handling and Use:
Steps to Be Taken in Case Material is Released or Spilled:
Avoid contact with acid materials. Use soda ash or line to neutralize. Flush with water.
Waste Disposal Method:
Dispose of in accordance with Federal, State, and Local Regulations. Do not incinerate. Batteries should be shipped to a reclamation facility for recovery of the metal and plastic components as the proper methods of waste management. Contact distributor for appropriate product return procedures.
Precautions to Be taken in Handling and Storing:
Do not remove vent valves.
Avoid prolonged storage in high-temperature environments.
Section VIII - Control Measures – N/A
Section IX – Transportation, Shipping and Handling
A valve-regulated lead-acid battery (VRLA) is a starved-electrolyte battery, which means that the electrolyte is absorbed in the separator material. The batteries are also sealed with a one-way pressure relief valve that prevents internal pressures from exceeding the limits of the battery encasement. These batteries are classified as "non-spillable", and as such are not subject to the full requirements of 49 CFR ξ 173.159. "Non-spillable" batteries are excepted from the regulation's comprehensive packaging requirements if the following conditions are satisfied: (1) The battery is protected against short circuits and is securely packaged. (2) The battery and outer packaging must be plainly and durably marked "NONSPILLABLE" or "NONSPILLABLE BATTERY". (3) The battery is capable of withstanding vibration and pressure differential tests specified in 49 CFR ξ 173.159(d). (4) At a temperature of 55 deg. C (131 deg F), the battery must not contain any unabsorbed free-flowing liquids, and is designed so that the electrolyte will not flow from a ruptured or cracked case.

Battery shipments from location will be properly labeled in accordance with applicable DOT regulations. Packaging changes performed at other locations may require additional labeling, since in addition to the battery itself containing the required marking, the outer packaging of the battery must also contain the required marking: "NONSPILLABLE" OR "NONSPILLABLE BATTERY". Because these batteries are classified as "Nonspillable" and meet the three conditions above [from ξ 173.159(d)] they do not have an assigned UN number nor do they require additional DOT hazard labeling.

This battery has been tested and determined to be in compliance with the DOT Hazardous Material Regulations, the International Civil Aeronautics Organization (ICAO), and the International Air Transport Association (IATA) Packing Instruction 806 and Special Provision A67, and therefore excepted from all other requirements of the regulations and classified as a "non-spillable battery".

Per 42 USC Section 14322 (US Code Title 42 – The Public Health and Welfare), packaging must be marked with the following: "Contains Sealed Lead Battery" and "Battery Must Be Recycled."

SECTION X – Additional Information

The Powermaster Performance Battery is determined to be an "article" to the OSHA Hazard Communication Standard and is thereby excluded from any requirements of the standard. The Material Safety Data Sheet is therefore supplied for informational purposes only.

The information and recommendations contained herein have been compiled from sources believed to be reliable and represent current opinion on the subject. No warranty, guarantee, or representation is made by Key Components, Inc. d/b/a Powermaster or other parties as to the absolute correctness or sufficiency of any representation contained herein and Key Components, Inc. d/b/a Powermaster and other parties assume no responsibility in connection therewith, nor can it be assumed that all acceptable safety measures are contained herein, or that additional measures may not be required under particular or exceptional conditions or circumstances.

N/A or Not applicable– Not applicable for finished product used in normal conditions.

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