



# MATERIAL SAFETY DATA SHEET

MSDS - Environmental Management System Form

N° DIL46E12

**Batterie Industriali**  
Industrial Batteries

Page 1 / 4

Title : **VALVE REGULATED LEAD ACID BATTERY**

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name & Use: Valve regulated lead acid battery for stationary applications as stand by energy, immobilised electrolyte.  
Company Identification: FIAMM S.p.A.  
Viale Europa, 63 I - 36075 Montecchio Maggiore (Vicenza) Italy  
Telephone +39 0444 709311; Telex 480295 FIAMM Fax +39 0444 699237  
Production Plant:  
a) FIAMM S.p.A.  
Via Dovaro, 8 I - 36045 Almisano di Lonigo (Vicenza) Italy  
b) FIAMM ENERTECH CO., LTD.  
Hannan Road 458, Shamao Town, Hannan District  
Wuhan City, Hubei Province, P.R.China  
c) FIAMM Technologies, Inc.  
One FIAMM Way  
Waynesboro, GA 308830 – USA  
d) AKUMA – AKUMA, a.s.  
Nadrazni 84  
293 62 Mlada Boleslav - Czech Republic

MSDS Responsible: Alberto Chilese c/o FIAMM S.p.A. (vedi sopra) – [alberto.chilese@fiamm.com](mailto:alberto.chilese@fiamm.com)

## 2. HAZARDS IDENTIFICATION

### Danger of Explosion

A mixture of explosive gases, containing hydrogen, can be produced inside the battery during charging. Naked flames, lit cigarettes, sparks or incandescent materials must be avoided in the immediate vicinity of the battery. Avoid short circuits between the terminals. Use antistatic materials when cleaning. Do not store the product in sealed container; maintain a fresh, well-ventilated environment protected from direct sunlight and away from heat sources.

### Contact Danger

The dilute sulphuric acid solution, density 1.22 - 1.30 kg/l contained in the battery is corrosive and irritant to the eyes and skin.

### Health Risks

Under normal conditions of use there is no danger, however, inside the battery are lead parts that could be harmful if ingested or breathed-in.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	% Weight	EINECS# - CAS#	Danger - Symbol	R/S Phrases	EU Limits
Metallic lead and lead compounds	60-70	Lead and lead compounds (active mass) 231-100-4/74439-92-1	Toxic - T	R20/22 R33 R61 R62 R52/53 S53 S45 S60 S61	Lead in Air: 0,15 mg/m <sup>3</sup> Lead in Blood: 60 µg/dl (Italy) 70 µg/dl (EU)
Sulphuric Acid solution	20-30	231-639-5 7664-93-9	Corrosive - C	R35 S2 S26 S30 S45	
Glass felt separator		266-046-0/ 65997-17-3	Harmful - Xn	R40 R36/37/38	
Thermoplastic Polymer	6-9				

## 4. FIRST AID MEASURES

Data Prima Emissione: **15/03/02**      Indice di Revisione: 8      Data Ultima Revisione: **15/05/08**  
*First Issue Date*      *Revision Index*      *Last Revision Date*

Il presente Documento è RISERVATO. E' vietata la riproduzione non autorizzata da FIAMM S.p.A.  
*This Document is CONFIDENTIAL. Unauthorized reproduction is prohibited.*



# MATERIAL SAFETY DATA SHEET

MSDS - Environmental Management System Form

N° DIL46E12

**Batterie Industriali**  
Industrial Batteries

Page 2 / 4

Title : **VALVE REGULATED LEAD ACID BATTERY**

The first aid measures described below are concerned with sulphuric acid exposure; the other components are solid and do not present substantial risk under normal conditions of use.

- a) Inhalation  
Inhalation is not considered to be likely for this product. Remove the patient from the contaminated zone, to an area of fresh air. In the case of breathing difficulties seek medical advice.
  - b) Skin contact  
Wash the effected zone immediately with copious amounts of water. Remove contaminated clothing. If the irritation persists seek medical advice.
  - c) Eye Contact  
Wash with copious amount of water, while keeping the eyelid open. Seek medical advice immediately
  - d) Swallowing  
Rinse the mouth with water. Give water to drink. Do not induce vomiting. Seek medical advice immediately.
- First aid resources for specific treatment to keep available: Eye wash bottles or emergency eye wash fountains, Shower.

## 5. FIRE FIGHTING MEASURES PREVENTION

The lead batteries are weakly combustible due to their construction that includes polymeric thermoplastic comprising 6-9% of the total weight. In instances of fire wear adequate means of respiratory protection.

- a) APPROPRIATE EXTINGUISHING MEDIA.  
Use dry powder, foam extinguisher, CO2.
- b) INAPPROPRIATE EXTINGUISHING MEDIA  
Water, which in contact with acid can develop heat.

## 6. ACCIDENTAL RELEASE MEASURES

- a) Personal Precautions  
In the case of electrolyte leak prevent contact with skin and eyes by wearing appropriate protective equipment. Rubber gloves, rubber boots, safety goggles/face shield and acid resistant clothing.
- b) Environmental precautions  
Keep the electrolyte and possible lead powder away from drains or surface water.
- c) Procedure for containment and collection  
Neutralise with Caustic Soda or Calcium Carbonate  
Contain the spill with sand, earth or other absorbent material.  
Do not use Water (sulphuric acid solution can react exothermically with water).

## 7. HANDLING AND STORAGE

Keep away from heat sources, sparks and open flames.  
Do not store the product in sealed containers; maintain a in a well ventilated area away from direct sunlight and well away from sources of heat.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

With the exception of safety shoes, the other means of personal protection are all related to preventing contact with electrolyte. The solid components do not represent an appreciable risk factor (apart from voluntary or accidental ingestion of lead components).

Personal Protection:

Rubber gloves resistant to sulphuric acid. Safety Glasses (mask or visor), acid resistant clothing, rubber boots.

Data Prima Emissione: **15/03/02**  
First Issue Date

Indice di Revisione: 8  
Revision Index

Data Ultima Revisione: **15/05/08**  
Last Revision Date

Il presente Documento è RISERVATO. E' vietata la riproduzione non autorizzata da FIAMM S.p.A.  
*This Document is CONFIDENTIAL. Unauthorized reproduction is prohibited.*



# MATERIAL SAFETY DATA SHEET

MSDS - Environmental Management System Form

N° DIL46E12

**Batterie Industriali**  
Industrial Batteries

Page 3 / 4

Title : **VALVE REGULATED LEAD ACID BATTERY**

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid state prismatic type  
Electrolyte: Sulphuric Acid in aqueous Solution  
Corrosive  
Density 1.22 - 1.30 kg/l  
Odourless  
Non-flammable.

## 10. STABILITY AND REACTIVITY

The product is normally stable and inert.  
A minute quantity of hydrogen and oxygen gas are produced when the units are left in a stable environment, avoid open flame sources and sparks in the proximity of the product.

## 11. TOXICOLOGICAL INFORMATION

Inapplicable to the finished product 'lead acid battery', applicable to its constituents (in normal condition of batteries there is no contact with this material):

### Sulphuric Acid:

Acute toxicity data:

- LD50(oral, rat) 2140 mg/Kg
- LC50 (inhalation, rat) 510 mg/mc/2h

Acts intensely corrosive on skin and mucous membranes. The inhalation of mists may cause damage to the respiratory tract.

### Lead and its inorganic compounds:

Exposure to lead and its compounds may cause damage to blood, nerves (central nervous system) and kidneys. Lead compounds are considered hazardous to reproduction (pregnant women should be protected from excessive exposure).

### Glass felt separator:

This product has not been tested as a whole entity. Information on components of this product is provided below:

Acute: glass fibre is an irritant of the upper respiratory tract, skin and eyes.

Chronic: based on the data from the artificial exposure studies in animals, IARC (International Agency for Research on Cancer) classified glass wool as possibly carcinogenic to humans Group 2B (Car, Cat. 3 EEC Directive 97/69 CE 13<sup>th</sup> dec.1997).

## 12. ECOLOGICAL INFORMATION

The electrolyte solution reacts with water and organic substances causing damage to flora and fauna. The Batteries also contain soluble components of lead than can be harmful to aquatic environments.

## 13. DISPOSAL CONSIDERATIONS

Lead batteries are classified "dangerous waste" and the user is obliged by law to arrange for their disposal or recycling. It is prohibited to abandon this type of refuse to the environment. For additional information and to locate your nearest collection centre contact the local consortium for the disposal of used and scrap lead containing batteries. FIAMM Batteries are 100% recyclable.

## 14. TRANSPORT INFORMATION

### **Land Transport (ADR/RID, U.S. DOT)**

UN N°:	UN2800
Classification ADR/RID:	Class 8
Proper Shipping Name:	BATTERIES, WET, NON SPILLABLE electric storage
Packing Group ADR:	-
Label required:	Corrosive

Data Prima Emissione: **15/03/02**  
First Issue Date

Indice di Revisione: 8  
Revision Index

Data Ultima Revisione: **15/05/08**  
Last Revision Date

Il presente Documento è RISERVATO. E' vietata la riproduzione non autorizzata da FIAMM S.p.A.  
*This Document is CONFIDENTIAL. Unauthorized reproduction is prohibited.*

Title : **VALVE REGULATED LEAD ACID BATTERY**

ADR/RID: New batteries are excepted from all ADR/RID (special provision 598).  
U.S. DOT: Batteries which have met the test requirements for "non spillable wet electric storage batteries", as provided in 49 CFR 173.159(d), are non regulated by DOT when protected against short circuits and securely packaged.

**Sea Transport (IMDG Code)**

UN N°: UN2800  
Classification: Class 8  
Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage  
Packing Group: -  
EmS-FIRE: F-A  
EmS-SPILL: S-B  
Label required: Corrosive  
If non-spillable batteries meet the Special Provision 238, they are excepted from all IMDG Code provided that the batteries' terminals are protected against short circuits.

**Air Transport (IATA-DGR)**

UN N°: UN2800  
Classification: Class 8  
Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage  
Packing Group: -  
Label required: Corrosive  
If non-spillable batteries meet the Special Provision A67, they are excepted from all IATA DGR provided that the batteries' terminals are protected against short circuits.

**15. REGULATORY INFORMATION**

Symbols



Explosive Gas

**16. OTHER INFORMATION**

R/S Phrases (indicative since this is not directly applicable to the product, but the electrolyte contained therein which represents the major risk of the product):

R35 Can produce severe chemical burns.

S2 Keep out of reach of Children.

S16 Keep away from sparks or naked flame - No smoking.

S26 In case of contact with eyes wash immediately with abundant quantity of water and seek medical advice.

S30 Do not put water on the product.

S45 In case of accident or if you feel unwell, seek medical advice immediately.

Read the instructions for use contained in the guarantee/warranty certificate.



The information contained herein is accurate to the best of our knowledge as of the date of writing given above. The references refer only to the product indicated and do not constitute a guarantee of quality. The user is held responsible and must ensure the maintenance and completeness of such information with respect to the products specific final application.

Data Prima Emissione: **15/03/02**  
First Issue Date

Indice di Revisione: 8  
Revision Index

Data Ultima Revisione: **15/05/08**  
Last Revision Date

Il presente Documento è RISERVATO. E' vietata la riproduzione non autorizzata da FIAMM S.p.A.

*This Document is CONFIDENTIAL. Unauthorized reproduction is prohibited.*