TEMPEST Material Safety Data Sheet

Issuance Date 20-December-2022 **Effective Date** 1-January-2023 **Expiration Date**: 31-December-2025 **Revision Number 11**

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Valve Regulated Lead-Acid Battery (Non-spillable)

Supplier Address

UR Fog S.r.l.
Via Toscana 38
10099 San Mauro T.se (Turin) - Italy
Phone: +39 011 0133037
Contact: Alberto Mori
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Models:

1) 4V1.2Ah,4V2Ah,4V2.5Ah,4V3Ah,4V3.5Ah,4V4Ah,4V4.5Ah,4V5Ah,4V6Ah,4V9Ah,4V10Ah,4V12Ah
2) 6V1.2Ah,6V1.3Ah,6V2Ah,6V2.8Ah,6V3Ah,6V3.5Ah,6V4Ah,6V4.5Ah,6V5Ah,6V5.5Ah,6V6Ah,6V6.5Ah,6V7Ah, 6V7.2Ah,6V7.5Ah,6V8Ah,6V8.5Ah,6V9Ah,6V10Ah,6V11Ah,6V12Ah,6V13Ah,6V14Ah,6V20Ah,6V36Ah, 6V42Ah, 6V180Ah,6V200Ah, 6V220Ah, 6V225Ah.
3) 8V3.2Ah,8V4Ah,8V5Ah,8V5.5Ah,8V7Ah,8V8Ah,8V12Ah,8V14Ah,8V180Ah,8V200Ah
4) 12V0.8Ah,12V1.2Ah,12V1.3Ah,12V1.4Ah,12V2Ah,12V2.2Ah,12V2.3Ah,12V2.4Ah,12V2.6Ah,12V2.8Ah, 12V2.9Ah,12V3Ah, 12V3.2Ah,12V3.5Ah,12V4Ah,12V4,5Ah,12V5Ah,12V6Ah,12V6.5Ah, 12V7Ah,12V7.2Ah, 12V7.5Ah, 12V8Ah,12V9Ah,12V10Ah,12V12Ah,12V13Ah,12V14Ah,12V15Ah,12V17Ah,12V18Ah,12V20Ah, 12V22Ah,12V24Ah, 12V26Ah,12V28Ah,12V30Ah,12V32Ah,12V33Ah,12V35Ah,12V36Ah,12V38Ah,12V40Ah, 12V42Ah,12V45Ah,12V50Ah,12V55Ah,12V60Ah,12V65Ah,12V70Ah,12V75Ah,12V80Ah,12V90Ah, 12V95Ah,12V100Ah,12V110Ah,12V120Ah,12V135Ah,12V140Ah,12V150Ah,12V160Ah,12V180Ah, 12V200Ah,12V220Ah,12V230Ah,12V250Ah
5) 18V4Ah,18V4.5Ah,18V5Ah,18V7Ah,18V9Ah
6) 24V1.2Ah,24V1.3Ah,24V3.5Ah,24V5Ah,24V4.5Ah,24V5Ah,24V5.5Ah.24V7Ah,24V8Ah,24V9Ah,24V10Ah 24V12Ah,24V14Ah
7) 2V100Ah,2V150Ah,2V200Ah,2V300Ah,2V350Ah,2V400Ah,2V500Ah,2V600Ah,2V800Ah,2V1000Ah, 2V1200Ah,2V1500Ah,2V2000Ah,2V2500Ah,2V3000Ah

8）6-EVF-35(12V35Ah/20Hr);6-EVF-40(12V40Ah/20Hr);6-EVF-50(12V50Ah/20Hr);6-EVF-55(12V55Ah/10Hr); 6-EVF-75(12V75Ah/10Hr); 6FM60G(12V60Ah/20Hr)

2.HAZARDS IDENTIFICATION

Emergency Overview

NOTE: **Under normal conditions of battery use, internal components will not present a health hazard.**

The following information is provided for battery acid and lead exposure that may occur during battery production or container break ageor under extreme heat conditions such as fire In case of rupture: Corrosive The product causes burns of eyes, skin and mucous membranes.

Appearance Black | **Physical State** Bonded, fibrous glass web, Solid. | **Odor** None

Potential health Effects

Principle Routes of Exposure Skin contact.

Acute Toxicity

Eyes Corrosive to the eyes and may cause severe damage including blindness.

Skin Causes burns.

Inhalation harmful by inhalation. Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns.

Ingestion harmful if swallowed. Can burn mouth, throat, and stomach.

Chronic Effects Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Avoid repeated exposure.

Main Symptoms Severe exposures can lead to shock, circulatory collapse, and death Lead poisoning is characterized by a metallic taste in the mouth, loss of appetite indigestion, nausea, vomiting, constipation, sleep disturbances and overall weakness

Aggravated Medical Conditions None known.

Environmental hazard See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight %	CAS No	Air Exposure Limits(μg/m³)			LD50 0RAL (mg/kg)
			ACGIh TLV	OShA	NIOSh	
Lead	57	7439-92-1	50	30	10	500
Lead Oxide	22	1309-60-0	50	30	10	500
Electrolyte (Sulfuric Acid)	14	7664-93-9	1000	1000	1000	2140
Battery Pack	7	9003-56-9	-	-	-	--

4. FIRST AID MEASURES

General Advice First aid is upon rupture of sealed battery.

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation	Move to fresh air. Call a physician or Poison Control Center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Ingestion	Immediate medical attention is required. Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down.
Notes to Physician	Treat symptomatically.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Not flammable.
Flash Point	Not determined.
Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Uniform Fire Code	• Corrosive: Acid-Liquid • Toxic: Solid
hazardous Combustion Products	hazardous metal fumes and oxides.

Explosion Data

Sensitivity to Mechanical Impact	No.
Sensitivity to Static Discharge	No.
Specific hazards Arising from the Chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MShA/NIOSh (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not get in eyes, on skin, or on clothing.
Environmental Precautions	Refer to protective measures listed in Sections 7 and 8.
Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	In case of rupture: Use personal protective equipment. Dam up. Soak up with inert absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly.
Other Information	Refer to protective measures listed in Sections 7 and 8.

7.HANDLING AND STORAGE

handling	In case of rupture: Wear personal protective equipment. handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Appearance	Black.	**Odor**	None.
Odor Threshold	No information available	**Physical State**	Bonded, fibrous glass web Solid
ph	No information available		
Flash Point	No information available.	**Autoignition Temperature**	No information available
Decomposition Temperature	No information available	**Boiling Point/Range**	No information available
Melting Point/Range	No information available		
Flammability Limits in Air	No information available	**Explosion Limits**	No information available

Chemical Name	ACGIh TLV	OShA PEL	NIOSh IDLh
Lead 7439-92-1	TWA: 0.05 mg/m^3	TWA: 50 Âµg/m^3 Action Level: 30 Âµg/m^3 Poison, See 29 CFR 1910.1025	IDLh: 100 mg/m^3 TWA: 0.050 mg/m^3
Sulfuric acid 7664-93-9	TWA: 0.2 mg/m^3 thoracic fraction	TWA: 1 mg/m^3 (vacated) TWA: 1 mg/m^3	IDLh: 15 mg/m^3 TWA: 1 mg/m^3

ACGIh TLV: American Conference of Governmental Industrial hygienists - Threshold Limit Value. OShA PEL: Occupational Safety and health Administration - Permissible Exposure Limits. NIOSh IDLh: Immediately Dangerous to Life or health.

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OShA, 965 F.2d 962 (11th Cir., 1992).

Engineering Measures Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin and Body Protection Wear protective gloves/clothing.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

hygiene Measures handle in accordance with good industrial hygiene and safety practice.

9. PhYSICAL AND CHEMICAL PROPERTIES

Water Solubility	Immiscible in water	**Solubility**	No information available
Evaporation Rate	No information available	**Vapor Pressure**	No data available
Vapor Density	No data available	**Partition Coefficient: n-octanol/water**	

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions.

Incompatible Products Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Conditions to Avoid Exposure to air or moisture over prolonged periods.

hazardous Decomposition Products Thermal decomposition can lead to release of toxic/corrosive gases and vapors

hazardous Polymerization hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information In case of rupture:

LD50 Oral VALUE 8699.186 mg/kg (rat) estimated
LC50 Inhalation (DUST) VALUE 4.1463 mg/L (mist) (dust) mg/m^3 estimated

Chronic Toxicity

Chronic Toxicity Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Avoid repeated exposure.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIh	IARC	NTP	OShA
Lead	A3	Group 2A	Reasonably Anticipated	X
Sulfuric acid	A2	Group 1	Known	X

ACGIh: (American Conference of Governmental Industrial hygienists)
A2 - Suspected human Carcinogen
A3 - Animal Carcinogen
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to humans
Group 2A - Probably Carcinogenic to humans
Group 3 - Not Classifiable as to Carcinogenicity in humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a human Carcinogen

OShA: (Occupational Safety & health Administration)

Reproductive Toxicity Product is or contains a chemical which is a known or suspected reproductive hazard.

Developmental Toxicity Contains ingredients that have suspected developmental hazards

Target Organ Effects Blood. Reproductive system. Damage to fetus possible Central nervous system (CNS). Eyes. Gastrointestinal tract (GI). Gingival Tissue. Kidney. Respiratory system. Skin. Teeth.

12. ECOLOGICAL INFORMATION

Ecotoxicity

harmful to aquatic organisms. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Chemical Name	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)	severe marine pollutant
Lead	LC50: 0.44 mg/L (96 h semi- static) Cyprinus carpio LC50: 1.17 mg/L (96 h flow- through) Oncorhynchus mykiss LC50: 1.32 mg/L 96 h static) Oncorhynchus mykiss		EC50: 600 Âµg/L (48 h) water flea	N/A
Sulfuric acid	LC50: > 500 mg/L (96 h static) Brachydanio rerio		EC50: 29 mg/L (24 h) Daphnia magna	N/A

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Should not be released into the environment.

Contaminated Packaging Do not re-use empty containers.

US EPA Waste Number D002
D008

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Lead - 7439-92-1	(hazardous constituent - no waste number)	Included in waste streams: F035, F037, F038, F039,K048, K049, K051, K052, K002, K003, K005, K046,K061, K062, K064, K065, K066, K069, K086, K100,K176	= 5.0 mg/L regulatory level	

California hazardous Waste Codes 792

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California EhW	California Carc	California hazardous Waste	California Waste - Part 2
Lead			Toxic	TCLP (for CA Toxicity): 5.0 mg/L
Sulfuric acid			Toxic Corrosive	

14. TRANSPORT INFORMATION

Transportation Information shipping name

Batteries, Wet, Non-spillable, Electric storage

TEMPEST batteries are Non-spillable batteries. They meet the requirements of Special Provision 238 .

The substance is not subject to IMO IMDG Code according to the special provision 238 (Amdt.40-20).

TEMPEST batteries have measures to prevent short circuits. They meet the requirements of Special Regulation 961.

The substance is not subject to IMO IMDG Code according to the special provision 961.

U.S. DOT：

DOT-Our Non-spillable batteries are Not subject to DG regulations , since they meet the requirements of 49 CFR 173.159(d). They do not have an assigned UN number nor do they require additional DOT hazard labeling.

IATA / ICAO：

IATA/ICAO- TEMPEST batteries are exempt from DG regulations, and classified as a “Non-Spillable battery”.

Our Non-spillable batteries are Not subject to DG regulations , since they meet the requirements of Packing Instructions 872 of Special Provision A67 (IATA 2023 64rd edition).

The TEMPEST batteries are securely packaged, protected from short circuits and labeled “Non-Spillable”. They are good for transportation on either passenger aircraft or cargo aircraft.

IMDG:

TEMPEST batteries are Non-spillable batteries. They are not subject to the IMO International Maritime Dangerous Goods code (2020 edition) according to the Special Provision 238.

ADR/RID :

TEMPEST batteries are Non-spillable batteries. They are not subject to the RID regulations for Train shipment and the European

Agreement on the International Transport of Dangerous Goods by Rail according to the Special Provision 238.

For all modes of transportation, each battery and outer package must be labeled：

“Non-Spillable” or “Non-Spillable Battery”. This label must be visible during transportation.

DOT	NOT REGULATED
TDG	Not regulated
MEX	Not regulated
ICAO	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated (as a hazardous Material)

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Not determined

U. S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Lead	7439-92-1	60-100	0.1
Sulfuric acid	7664-93-9	15-40	1.0

SARA 311/312 hazard Categories

Acute health hazard	Yes
Chronic health hazard	Yes
Fire hazard	No
Sudden Release of Pressure hazard	No
Reactive hazard	No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - hazardous Substances
Lead		X	X	
Sulfuric acid	1000 lb			X

Clean Air Act, Section 112 hazardous Air Pollutants (hAPs) (see 40 CFR 61)
This product contains the following substances which are listed hazardous air pollutants (hAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	hAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Lead	7439-92-1	60-100				

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	hazardous Substances RQs	Extremely hazardous Substances RQs
Lead	10 lb	
Sulfuric acid	1000 lb	1000 lb

U.S. State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Lead	7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive
Sulfuric acid	7664-93-9	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Lead	X	X	X	X	X
Sulfuric acid	X	X	X	X	X

International Regulations

Mexico - Grade Minimum risk, Grade 0

Chemical Name	Carcinogen Status	Exposure Limits
Lead	A3	Mexico: TWA= 0.15 mg/m^3
Sulfuric acid	A2	Mexico: TWA 1 mg/m^3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WhMIS hazard Class
D2A Very toxic materials
E Corrosive material
D1B Toxic materials



Chemical Name	NPRI
Lead	X
Sulfuric acid	X

Legend
NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Proper Shipping Name: **BATTERIES, WET NON-SPILLABLE ELECTRIC STORAGE**

Packing Group: **NONE**

General Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet