

SAFT AMERICA INC ADVANCED BATTERY SYSTEMS DIVISION -- LITHIUM SULFUR DIOXIDE
BATTERY -- 6135-01-071-4923

=====
Product Identification
=====

Product ID:LITHIUM SULFUR DIOXIDE BATTERY

MSDS Date:09/19/1988

FSC:6135

NIIN:01-071-4923

MSDS Number: BJMHT

=== Responsible Party ===

Company Name:SAFT AMERICA INC ADVANCED BATTERY SYSTEMS DIVISION

Address:313 CRESCENT ST

Box:280

City:VALDESE

State:NC

ZIP:286

90

Country:US

Info Phone Num:704-874-4111

Emergency Phone Num:704-874-4111

CAGE:7X634

=== Contractor Identification ===

Company Name:SAFT AMERICA INC ADVANCED BATTERY SYSTEMS DIVISION

Address:313 CRESCENT ST NE

Box:City:VALDESE

State:NC

ZIP:28690-9643

Country:US

Phone:828-874-4111/912-245-2806

CAGE:7X634

=====
Composition/Information on Ingredients
=====

Ingred Name:LITHIUM METAL

CAS:7439-93-2

RTECS #:OJ5540000

Fraction by Wt: 4%

Ingred Name:SULFUR DIOXIDE (SARA III)

CAS:74

46-09-5
RTECS #:WS4550000
Fraction by Wt: 30%
OSHA PEL:5 PPM/5 STEL
ACGIH TLV:2 PPM/5 STEL; 9293

Ingred Name:ACETONITRILE (SARA III)
CAS:75-05-8
RTECS #:AL7700000
Fraction by Wt: 10%
OSHA PEL:40PPM/60 STEL
ACGIH TLV:40PPM/60STEL; 9192
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:HNDL/STOR PREC:SPRINKLER-PROT, NON-COMBUST STRUCTURE W/ADEQ
CLEARANCE BETWN WALL/BATTERY STACK.BATTERY SHLD BE(SEE ING 5)
RTECS #:9999999ZZ

Ingred Name:ING 4:SEPARATED FROM OTHR MATL.AIR-CONDITIONING/COOL
ING IS
NOT REQUIRED UNLESS EXCESSIVELY HIGH TEMPS WILL BE(SEE ING 6)
RTECS #:9999999ZZ

Ingred Name:ING 5:ENCOUNTERED BUT BATTERIES SHOULD BE KEPT AS COOL AS
POSSIBLE TO MAXIMIZE SHELF LIFE. TEMP ABOVE 160F (SEE ING 7)
RTECS #:9999999ZZ

Ingred Name:ING 6:SHLD BE AVOIDED.HERMETICALLY SEALED LITHIUM CELLS DO
NOT OUTGAS.BUT IF EXPOSED TO EXTREME TEMP OR ROUGH(SEE ING 8)
RTECS #:9999999ZZ

Ingred Name:ING 7:HANDLNG,THEY MAY RELEASE SO*2 GAS IF VENT IS
ACTIVATED OR BATTERY DAMAGED. A
WELL-VENTED STORAGE AREA (SEE ING
9)
RTECS #:9999999ZZ

Ingred Name:ING 8:SHLD BE USED TO PREVNT INADVERTENT CONC OF GAS IF
EXTREMES ARE ANTICIPATED.IF LG QUANTITY OF BATTERIES(SEE ING 10)
RTECS #:9999999ZZ

Ingred Name:ING 9:STORED, IT MAY BE ADVISABLE TO INSTALL ALARM DEVICES
IN STORAGE AREA TO DETECT SMOKE OR ACCUMULATION OF GASES.
RTECS #:9999999ZZ

Ingred Name:PHYS/CHEM CHAR:PHYSICAL AND CHEMICAL CHARACTERISTICS ARE
FOR LITHIUM METAL, INGREDIENT 1.
RTECS #:9999999ZZ

=====

=====
Hazards Identification
=====

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.

Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO

Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO

Health Hazards Acute and Chronic:ACUTE EXPOSURE TO SULFUR DIOXIDE IS DANGEROUS TO EYES, NOSE, THROAT, SKIN, UPPER RESPIRATORY TRACT AND BRONCHI. CAN PRODUCE EDEMA OF LUNGS AND GLOTTIS. RESPIRATORY PARALYSIS MAY BE FATAL. LITHIUM MAY DAMAGE SKIN.

Explanation of Carc

inogenicity:NOT RELEVANT

Effects of Overexposure:IRRITATION OF NOSE, THROAT, EYES AND SKIN. SUFFOCATING ODOR.

Medical Cond Aggravated by Exposure:ASTHMA AND OTHER RESPIRATORY DISEASES.

=====
First Aid Measures
=====

First Aid:IF CELL VENTS, PERSONNEL SHOULD BE EVACUATED FROM CONTAMINATED AREAS. ARTIFICIAL RESPIRATION SHOULD BE GIVEN IF BREATHING STOPS. SUMMON MEDICAL HELP. EXPOSURE TO SULFUR DIOXIDE IS PARTICULARLY DANGEROUS TO PERSONS SUFFERING FROM ASTHMA & OTHER RESPIRATORY DISEASES.

=====
Fire Fighting Measures
=====

Flash Point:42.0F,(CH*3CN)

Lower Limits:4.4%

Upper Limits:16%

Extinguishing Media:LITH-X FOR LITHIUM FIRE. USE WATER TO KEEP CELLS COOL.

Fire Fighting Procedures:USE NIOSH/MSHA APPROVED SCBA.

Unusual Fire/Explosion Hazard:BATTERIES CAN VENT WHEN SUBJECT TO EXCESSIVE HEAT, EXPOSING CELL CONTENTS.

=====
Accidental Release Measures
=====

=

Spill Release Procedures:KEEP OUT OF AREA UNLESS A NIOSH/MSHA APPROVED FULL FACE SCBA, IMPERVIOUS CLOTHING AND GLOVES ARE USED. PROVIDE MAXIMUM VENTILATION TO CLEAR OUT TOXIC GASES.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

=====
Handling and Storage
=====

Handling and Storage Precautions:THE LI/SO*2 CELL IS CAPABLE OF LONG TERM STORAGE AT TEMPERATURES AS HIGH AS 160F COMPARED TO A MAXIMUM OF ABOUT 130F FOR MOST PRIMARY (SEE SUPP D

ATA)

Other Precautions:DO NOT REMOVE OR BYPASS ELECTRICAL OR THERMAL FUSES.
DO NOT HEAT ABOVE 200F.

=====
===== Exposure Controls/Personal Protection =====

Respiratory Protection:USE NIOSH/MSHA APPROVED SELF-CONTAINED BREATHING APPARATUS.

Ventilation:IN EVENT OF VENTS, PROVIDE MAXIMUM POSSIBLE AMOUNT OF VENTILATION.

Protective Gloves:IMPERVIOUS

Eye Protection:CHEMICAL WORKERS GOGGLES .

Other Protective Equipment:NONE SPECIFIED BY MANUFACTURER.

Work Hygienic Practices:NO

NE SPECIFIED BY MANUFACTURER.

Supplemental Safety and Health

HNDLG/STOR PREC:BATTERY SYSTEMS. STORAGE FOR MORE THAN ONE YEAR AT 160F HAS BEEN DEMONSTRATED. STORAGE AT LOWER TEMPS WILL IMPROVE CAPACITY RETENTION OF BATTERY. FOR EXAMPLE, A SHELF LIFE OF 10 YEARS IS PROJECTED FOR STORAGE AT 70F. LI/SO*2 CELLS AND BATTERIES SHOULD BE STORED IN A WELL-VENTILATED, (SEE INGRED 4)

=====
===== Physical/Chemical Properties =====

Boiling Pt:B.P. Text:2400F,1316C

Mel

t/Freeze Pt:M.P/F.P Text:357F,181C

Spec Gravity:0.5

Appearance and Odor:SILVERY-WHITE SOFT METALLIC SOLID; ODORLESS. (SEE INGREDIENT 11).

=====
===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES

Stability Condition to Avoid:BATTERY CNTNS HERMETICALLY SEALED CELLS,& IS NONREACTIVE PROVIDED BATTERY INTEGRITY IS MAINTAINED/CELL SEAL IS INTACT.

Conditions to Avoid Polymerization:HEATING,MECHANICAL ABUSE THAT MAY PRODUCE VENTING

,ELECTRICAL ABUSE SUCH AS RECHARGING VOLTAGE REVERSAL/SHORT-CIRCUITING.

=====
===== Disposal Considerations =====

Waste Disposal Methods:CELLS ARE CONSIDERED TO BE A HAZARDOUS WASTE BECAUSE OF REACTIVITY. LAND DISPOSAL IS PROHIBITED UNLESS CELLS ARE TREATED SO AS TO RENDER THEM NON-REACTIVE. DISPOSE I/A/W FEDERAL, STATE AND LOCAL REGUL ATIONS .

Disclaimer (provided with this information by the compiling agencies):

This information is formulated for

use by elements of the Department of Defense. The United States of America in no manner whatsoever, expressly or implied, warrants this information to be accurate and disclaims all liability for its use. Any person utilizing this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.