

SAFT AMERICA INC TRANSPORTATION DIV -- NICKEL CADMIUM AIRCRAFT BATTERY --
6140-01-110-3855

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

Product ID:NICKEL CADMIUM AIRCRAFT BATTERY

MSDS Date:07/05/1999

FSC:6140

NIIN:01-110-3855

Status Code:A

MSDS Number: CKWHM

=== Responsible Party ===

Company Name:SAFT AMERICA INC TRANSPORTATION DIV

Address:711 INDUSTRIAL BLVD

Box:1886

City:VALDOSTA

State:GA

ZIP:31601-1886

Country:US

Info Phone Num:912-245-2824

Emergency Phone Num:912-247-2331

Chemtrec Ind/Phone:(800)424-9300

CAGE:09052

=== Contractor Identification ===

Company Name:SAFT AMERICA INC.

Address:711 INDUSTRIAL BLVD

Box:1886

City:VALDOSTA

State:GA

ZIP:31602

Country:US

Phone:912-247-2331

Contract Num:SP0430-01-M-G433

CAGE:09052

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

Ingred Name:CADMIUM

CAS:7440-43-9

RTECS #:EU9800000

= Wt:8.

OSHA PEL:SEE 1910.1027

EPA Rpt Qty:10 LBS

DOT R

pt Qty:10 LBS

Ingred Name:CADMIUM HYDROXIDE
CAS:21041-95-2
RTECS #:EV1260000
= Wt:8.
ACGIH TLV:0.05 MG/M3 C. FUME

Ingred Name:CADMIUM OXIDE
CAS:1306-19-0
RTECS #:EV1925000
= Wt:8.

Ingred Name:NICKEL
CAS:7440-02-0
RTECS #:QR5950000
< Wt:36.
OSHA PEL:1 MG/M3
ACGIH TLV:1 MG/M3

Ingred Name:NICKEL HYDROXIDE
CAS:12054-48-7
RTECS #:QR7040000
< Wt:36.
OSHA PEL:1 MG/M3
ACGIH TLV:1 MG/M3
EPA Rpt Qty:10 LBS
DOT Rpt Qty:10 LBS

Ingred Name:NICKEL OXIDE
CAS:1313-99-1
RTECS #:QR8400000
< Wt:36.

Ingred Name:ELECTROLYTE SOLUTION (18-28% POTASSIUM HYDROXIDE)
CAS:1310-58-3
RTECS #:TT2100000
= Wt:19.
ACGIH STEL:C2 MG/M3
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:COBALT HYDROXIDE AS COBALT METAL
CAS:7440-48-4
RTECS #:GF8750000
= Wt:1.
OSHA PEL:0.1 MG/M3
ACGIH TLV:0.02 MG/M3

Ingred Name:STEEL
= Wt:34.
OSHA PEL:NONE ESTABLISHED

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

LD50 LC50 Mixture:NO DATA PROVIDED BY MANUFACTURER
Health Hazards Acute and Chronic:

EYES: ELECTROLYTE CAUSES VERY

RAPID, SEVERE DAMAGE. CORROSIVE, MAY CAUSE BLINDNESS. NICKEL OXIDE MAY CAUSE IRRITATION. SKIN: MAY CAUSE SERIOUS BURNS. CONTACT WITH NICKEL COMPOUNDS MAY CAUSE SKIN SENSITIZATION (CHRONIC ECZEMA, NICKEL ITCH). INGESTION: MIST FROM ACTIVATION MAY CAUSE IRRITATION OF NASAL MUCOUS MEMBRANES & RESPIRATORY TRACT TISSUE. INHALATION OF CADMIUM OXIDE MAY CAUSE DRY THROAT, HEADACHE, COUGH, VOMITING, CHILLS, CHEST PAINS, PULMONARY EDEMA, BREATHING DIFFICULTY, PROSTRATION, KIDNEY

DAMAGE. INGESTION: MAY CAUSE TISSUE DAMAGE TO THROAT &

GASTRO/INTESTINAL TRACT. INGESTION OF CADMIUM & NICKEL COMPOUNDS CAUSE NAUSEA & INTERNAL DISORDERS.

Explanation of Carcinogenicity: NIOSH RECOMMENDS THAT NICKEL AND CADMIUM BE TREATED AS OCCUPATIONAL CARINOGENS.

Effects of Overexposure: EYES: BLINDNESS, IRRITATION. SKIN: SERIOUS BURNS, CHRONIC ECZEMA, NICKEL ITCH. INGESTION: TISSUE DAMAGE TO THROAT & GASTRO/RESPIRATORY TRACT, NAUSEA, INTESTINAL DISORDERS.

INHALATION: IRRITATION OF NASAL MUCOUS MEMBRANES & RESPIRATORY TRACT, DRY THROAT, COUGH, HEADACHE, VOMITING, CHEST PAIN, CHILLS, EXCESSIVE, PULMONARY EDEMA, BREATHING DIFFICULTY, PROSTRATION, KIDNEY DAMAGE.

Medical Cond Aggravated by Exposure: NO DATA PROVIDED BY MANUFACTURER

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

First Aid: BATTERY ELECTROLYTE: EYE: FLUSH WITH PLENTY OF WATER FOR AT LEAST 20 MINUTES. GET IMMEDIATE MEDICAL ATTENTION. SKIN: REMOVE

CONTAMINATED CLOTHING AND FLUSH AFFECTED AREAS WITH PLENTY OF WATER FOR AT LEAST 20 MINUTES. INGESTION: DO NOT INDUCE VOMITING. DILUTE BY GIVING LARGE VOLUMES OF WATER OR MILK. GET IMMEDIATE MEDICAL ATTENTION. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. INHALATION: REMOVE TO FRESH AIR. GIVE OXYGEN OR ARTIFICIAL RESPIRATION IF NEEDED. GET IMMEDIATE MEDICAL ATTENTION. NICKEL OXIDE: SKIN: WASH WITH COLD WATER AND SOAP.

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

Extinguishing Media: CO2, SAND

Fire Fighting Procedures: USE SELF CONTAINED BREATHING APPARATUS TO AVOID BREATHING TOXIC FUMES. WEAR PROTECTIVE CLOTHING AND EQUIPMENT TO PREVENT POTENTIAL BODY CONTACT WITH ELECTROLYTE SOLUTION OR MIXTURE OF WATER AND ELECTROLYTE SOLUTION. DISCONNECT OR CUT ALL CABLES TO AND FROM BATTERY - ESPECIALLY GROUND CONNECTION.

Unusual Fire/Explosion Hazard: ELECTROLYTE SOLUTION IS CORROSIVE TO ALL TISSUES. IT WILL REAC

T VIOLENTLY WITH ORGANIC CHEMICALS, ESPECIALLY NITROCARBONS & CHLOROCARBONS. ELECTROLYTE REACTS WITH ZINC, ALUMINUM, TIN & OTHER ACTIVE MATERIALS, RELEASING FLAMMABLE HYDROGEN GAS. CADMIUM FUMES MAY BE RELEASED WHEN BATTERIES ARE SUBJECT TO HIGH TEMPERATURES

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

Spill Release Procedures: ELECTROLYTE SOLUTION SPILLS: SMALL (UP TO 5 GAL): FLUSH WITH WATER AND NEUTRALIZE WITH DILUTE CITRIC ACID. LARGE: CONTAIN MATERIAL IN SUITABLE CONTAINERS OR HOLDING AREA. DO NOT ALLOW MATERIAL TO ENTER SEWERS, STREAMS, OR STORM CONDUITS. RECOVER MATERIAL WITH VACUUM TRUCK AND DISPOSE OF PROPERLY. REPORTABLE QUANTITY: 1000 POUNDS, 40CFR 117.13
Neutralizing Agent: NEUTRALIZE WITH DILUTE CITRIC ACID.

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

Handling and Storage Precautions: PERFORM BATTERY CHARGING PROCEDURES IN A WELL-VENTILATED AREA. BATTERY OPERATING AREAS MUST BE VENTILATED TO REMOVE NORMAL GASES GENERATED. THESE CELLS & THE BATTERIES CONSTRUCTED FROM THEM MAY BE HIGHLY CHARGED & ARE CAPABLE OF HIGH ENERGY DISCHARGE.
Other Precautions: CARE SHOULD BE TAKEN TO HANDLE CELLS PROPERLY TO AVOID SHORTING OR MISUSE WHICH WILL RESULT IN A RAPID, UNCONTROLLED ELECTRICAL, CHEMICAL OR HEAT ENERGY RELEASE. DO NOT SHORT CIRCUIT-MAY CAUSE BURNS OR FIRE. DO NOT TRANSPORT ACTIVATED BATTERIES WITHOUT VENT CAP.

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

Respiratory Protection: USE NIOSH APPROVED MIST RESPIRATOR DURING ACTIVATION AND ACTUAL USAGE TO MAINTAIN EXPOSURE LEVELS BELOW THE TWA.
Ventilation: PERFORM BATTERY CHARGING PROCEDURES IN A WELL VENTILATED AREA. BATTERY OPERATING AREAS MUST BE WELL VENTILATED TO REMOVE NORMAL GASES GENERATED.
Protective Gloves: USE ANY WATER-INSOLUBLE, NON-PERMEABLE GLOVE (I.E. SYNTHETIC RUBBER)
Eye Protection: SPLASH GOGGLES OR FACE SHIELD WHENEVER HANDLING A

BATTERY.

Other Protective Equipment:NO NOT USE EATHER OR WOOL GLOVES. RUBBER BOOTS, RUBBER APRON OR RAINWEAR, OR EQUIVALENT IF EXPOSURE TO ELECTROLYTE SOLUTION IS LIKELY.

Work Hygienic Practices:NO DATA PROVIDED BY MANUFACTURER.

Supplemental Safety and Health

WHEN REMOVING BATTERY FROM SERVICE, VISUALLY INSPECT FOR LEAKAGE PRIOR TO HANDLING. IF LEAKAGE HAS OCCURRED FOLLOW SPILL MANAGEMENT PROCEDURES. DO NOT ALLOW AN EXPOSED FLAME OR SPARK TO COME NEAR THE CELLS. DO NOT BREAK THE CELLS OPEN.

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Physical/Chemical Properties
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HCC:B1

Vapor Pres:2 MM HG AT 68 DEG F

Spec Gravity:1.170-1.250(ELECTROLYTE)

Evaporation Rate & Reference:NOT DETERMINED

Solubility in Water:SOLUBLE (ELECTROLYTE)

Appearance and Odor:NO DATA PROVIDED BY MANUFACTURER

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Stability and Reactivity Data
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ALUMINUM, ZINC, TIN AND OTHER ACTIVE METALS, ACID, CHLORINATED AND AROMATIC HYDROCARBONS, NITROCARBONS, HALOCARBONS
. TRICHOLORETHYLENE

WILL REACT WITH ELECTROLYTE SOLUTION TO FORM DICHLORACETYLENE WHICH IS SPONTANEOUSLY COM

Stability Condition to Avoid:NO DATA PROVIDED BY MANUFACTURER. CAUTION: NEVER ACTIVATE OR TOP OFF WITH ACID!

Hazardous Decomposition Products:NICKEL OXIDE, CADMIUN, CADIUM OXIDE AND POTASSIUM HYDROXIDE

Conditions to Avoid Polymerization:WILL NOT OCCUR

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Toxicological Information
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Toxicological Information:NO DATA PROVIDED BY MANUFACTURER

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Ecological Information
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Ecological:NO DATA PROVIDED BY MANUFACTURER

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Disposal Considerations
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Waste Disposal Methods:THE STORAGE BATTERY IS A UNIVERSAL WASTE UNDER RCRA. IT MAY BE RETURNED TO SAFT FOR RECYCLING. BATTERY IS TCLP TOXIC. BATTERY AND ELECTROLYTE SOLUTION ARE CORROSIVE. IF NOT RECYCLED, MUST BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

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MSDS Transport Information
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Transport Information:NO DATA PROVIDED BY MANUFACTURER

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Regulatory Information
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SARA Title III Information:NO DATA PROVIDED BY MANUFACTURER

Federal Regulatory Information:NO DATA PROVIDED BY MANUFACTURER

State Regulatory Information:NO DATA PROVIDED BY MANUFACTURER

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Other Information
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