

ROBERT W. FLANAGAN

PITTSBURGH OFFICE, 6AB

DR. H. DEAN BELK

PITTSBURGH OFFICE, 6AB

*Hazardous
Materials
Control
Committee*

1980 November 20

RE: ALCOA MATERIAL SAFETY DATA SHEETS

Enclosed are two drafts of Alcoa Material Safety Data Sheets on cadmium chloride and barium carbonate which are being distributed for final review by the Hazardous Materials Control Committee. I would appreciate it if you would review the first aid instructions in Section VI - Health Hazards. These seem to go well beyond the general definition of first aid as assistance until medical help arrives. I am particularly dubious about using sulfuric acid as a first aid measure for barium carbonate.

COPIES

ROBERT W. FLANAGAN

RWF:lmn

cc ☒ Robert M. James, Pittsburgh

Enc.

PLAINTIFF'S
EXHIBIT
AL-1117



ALCOA

411538 0220

MATERIAL SAFETY DATA SHEET

No. 132



HAZARD CHARACTERISTICS

- | | | |
|---|--|-----------|
| ☐ Flammable | ☐ Combustible | Toxic By: |
| ☐ Corrosive | ☐ Explosive | |
| ☐ Water Reactive | ☐ Radioactive | |
| ☐ Oxidizer | ☐ Chemically Reactive | |
| | | |

Toxic By:

☐ Ingestion

☒ Inhalation

☐ Absorption

PRODUCT

BARIUM CARBONATE

Phone No.

Date:

Section I. MATERIAL DESCRIPTION

Chemical Name & Formula: Barium carbonate; BaCO₃

Other Designation: Witherite

Corporate Stock No.:

Manufacturer:

Section II. INGREDIENTS

Barium carbonate
Mol. Wt. 197.35

Reagent grade.....	99.0
Ceramic grade.....	99.1-99.3
Chemical grade.....	99.3
Glass grade.....	98.8
Electronic ceramic grade.....	99.6

%

HAZARD DATA

OSHA PEL

Ba 0.5 mg/m³

ORL-RAT

LD50: 630 mg/kg

Section III. PHYSICAL DATA

Physical Form: Powder

Boiling Temp.: Decomposes

Freeze-Melt Temp.: 3164F (1740C) at 90 atm.

Vapor Pressure:

Evaporation Rate:

Specific Gravity:

Density: 4.43

"Solubility in H₂O": Insoluble

Color: White

Odor: None

Section IV. FIRE AND EXPLOSION DATA

Flashpoint

Not combustible

Auto-Ignition Temp.

NA

Flammability Limits in Air

NA

Lower

Upper

Use fire extinguishing agents appropriate for the surrounding fire. Fire fighters should use NIOSH approved self-contained breathing apparatus.

Section V. REACTIVITY DATA

This material is not reactive with water or other common materials. It is stable during storage & transport.

For Internal Company Use Only -
Not To Be Distributed Outside The Company

411538 0221

Section VI. HEALTH HAZARD INFORMATION	TLV	OSHA PEL	0.5 mg/m ³
---------------------------------------	-----	----------	-----------------------

Ingestion produces excessive salivation, vomiting, severe abdominal pain and violent purging with watery and bloody stool; a slow and often irregular pulse and a transient elevation in arterial blood pressure; tinnitus, giddiness and vertigo; muscle twitchings, progressing to convulsions and/or paralysis; dilated pupils with impaired accommodation; confusion and increasing somnolence, with coma; collapse and death from respiratory failure and cardiac arrest.

FIRST AID: Rapid oral administration of soluble sulfate in water, such as magnesium or sodium sulfate (2 oz.) or alum (4 gm) or very dilute sulfuric acid (30 ml of 10% solution diluted to 1 qt). These agents precipitate barium as the insoluble sulfate. Gastric lavage or induced emesis. Get medical attention.

Section VII. SPILL, LEAK & DISPOSAL PROCEDURES

Isolate spill. Inform environmental control personnel. Collect spilled material. Treat spilled material with soda or slaked lime. Dispose of waste sludge via approved chemical waste landfill. Permissible concentration of barium in domestic water supplies and effluents to storm sewers or streams should not exceed 1.0 ppm of barium.

Section VIII. SPECIAL PROTECTION INFORMATION

Use adequate ventilation to meet the TLV requirements. Where the TLV concentration is or may be exceeded, use NIOSH approved respiratory protection. The selection of appropriate respiratory protection (dust respirator, supplied air respirator, self-contained breathing apparatus, etc) should be based upon the actual or potential airborne concentration of the contaminant present.

Section IX. SPECIAL PRECAUTIONS & COMMENTS

D.O.T. Requirements POISON B

Section X. REFERENCES

ASTM No.:
CAS No.: 513-77-9

Other: CHRIS (1974)

CMA Chemical Safety Data Sheet No.:

NFPA Guides

NSC Data Sheets:

Supplier Product Literature:



MATERIAL SAFETY DATA SHEET No. 130

HAZARD CHARACTERISTICS

- ☐ Flammable ☐ Combustible
☐ Corrosive ☐ Explosive
☐ Water Reactive ☐ Radioactive
☐ Oxidizer ☐ Chemically Reactive

Toxic By:
☒ Ingestion
☒ Inhalation
☐ Absorption

PRODUCT

CADMIUM CHLORIDE

Phone No.
Date:

Section I. MATERIAL DESCRIPTION

Chemical Name & Formula: Cadmium Chloride CdCl_2

Other Designation:

Corporate Stock No.:

Manufacturer: Allied Chemical; Chemetron Corp.; Mallinckrodt.

Section II. INGREDIENTS

CdCl_2 Mol. Wt. 183.32

or $\text{CdCl}_2 \cdot 2\text{H}_2\text{O}$ Mol. Wt. 219.32

BASED ON THE FOLLOWING ANALYSIS:
ANALYSIS OF THE SAMPLE SHOWS IT TO BE
A MIXTURE OF CADMIUM CHLORIDE AND
WATER. THE ANALYSIS IS AS FOLLOWS:
CADMIUM CHLORIDE 99.99%
WATER 0.01%

%

HAZARD DATA

TLV ACGIH - 1980

Inhalation: mg/m^3

Cd TWA 0.05

STEL 0.2

OSHA PEL

Cd 0.2 mg/m^3 (8 hr TWA)

0.6 mg/m^3 Ceiling

ORL RAT LD₅₀: 88 mg/kg

Section III. PHYSICAL DATA

Physical Form: Solid crystals

CdCl_2

$\text{CdCl}_2 \cdot 2\text{H}_2\text{O}$

Boiling Temp.: 1582-1749F (861-954C)

Freeze-Melt Temp.: 1054F (568C)

Vapor Pressure: @ 656C. 10 mm

Evaporation Rate:

Specific Gravity: 4.05 3.327

Density:

"Solubility In H_2O ":

Color: White

Odor: None

Section IV. FIRE AND EXPLOSION DATA

Flashpoint

Not Flammable

Auto-Ignition Temp.

Flammability Limits In Air

NA

Lower

Upper

Fire extinguishing agent: Not pertinent. Use whatever is appropriate for surrounding fire.

(FIRE FIGHTING AGENTS ARE)

Fire fighters should be equipped with NIOSH

APPROVED SELF-CONTAINED BREATHING APPARATUS.

Section V. REACTIVITY DATA

Not reactive with water or other common materials.

Stable during storage and shipment. Does not polymerize.

Section VI. HEALTH HAZARD INFORMATION TLV 0.05 mg/m³ TWA 0.2 mg/m³ STEL

The NIOSH Criteria Document on Occupational Exposure to Cadmium lists the effects on humans as: 1. Pulmonary effects (acute dyspnea, cough, constriction in the chest; chronic emphysema) 2. Renal effects - proteinuria. 3. Olfactory effects - loss of smelling acuity. 4. Hematopoietic System - anemia. 5. Cardiovascular effects - hypertension. 6. Skeletal effects in both bones and teeth. 7. Liver effects. 8. Gonadal effects. 9. Teratogen effects and 10. Carcinogenic effects both in animals and humans.

FIRST AID:

Ingestion: Induce vomiting and follow with gastric lavage, a saline cathartic and demulcents. Consider using atropine, opiates, and fluid therapy. CaNa₂ EDTA has been effective in acutely poisoned animals and in a few humans. BAL has been found sufficiently effective in animal experiments to justify its use in human intoxicification. Since BAL-cadmium complex has a nephrotoxic action, physician will have to decide whether or not to use the drug.

Section VII. SPILL, LEAK & DISPOSAL PROCEDURES

Isolate and clean-up spilled material. Because of toxic nature of this material, it should be disposed via an approved landfill facility. Cadmium is extremely toxic to fish and other aquatic life.

Section VIII. SPECIAL PROTECTION INFORMATION

Ventilation should be used to meet the TLV requirements. Where the TLV concentration is or may be exceeded, use NIOSH approved respiratory protection. The selection of appropriate respiratory protection (dust respirator, supplied air respirator, self-contained breathing apparatus, etc) should be based upon the actual or potential airborne concentration of the contaminant present.

Section IX. SPECIAL PRECAUTIONS & COMMENTS*D.O.T. Requirements*

POISON B

Section X. REFERENCES

ASTM No.:
CAS No.: 10108-64-2
CMA Chemical Safety Data Sheet No.:
NFPA Guides
NSC Data Sheets:
Supplier Product Literature:

Other: Toxic metals - Pollution control
& worker protection.
M. Settig (1976)