

ALBRIGHT

Chemwatch Material Safety Data Sheet
For Workplace - Small Volume Use Only.
Issue Date: 5-Sep-2006
NC317TLP

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
ALBRIGHT

SYNONYMS

"aluminium brightener"

PROPER SHIPPING NAME
CORROSIVE LIQUID, TOXIC, N.O.S.
(contains sulfuric acid and ammonium bifluoride)

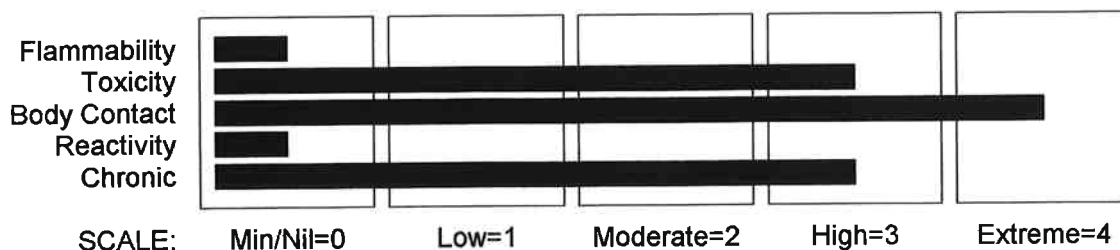
PRODUCT USE
Surface cleaner and brightener.

SUPPLIER

Company: Callington Haven Pty Ltd
Address:
PO Box 144
Rydalmere
NSW, 2116
AUS

Company: Callington Haven Pty Ltd
Address:
30 South Street
Rydalmere
NSW, 2116
AUS
Telephone: +61 2 9898 2788
Emergency Tel: 1800 039 008 (24 hours)
Emergency Tel: +61 3 9573 3112
Fax: +61 2 9684 4215

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC,
and the ADG Code.

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Section 2 - HAZARDS IDENTIFICATION



POISONS SCHEDULE S6

RISK

Harmful if swallowed.
Toxic by inhalation.
Causes severe burns.

Risk of serious damage to eyes.

May cause CANCER by inhalation.
Skin contact may produce health damage*.

Cumulative effects may result following exposure*.

May be harmful to the foetus/ embryo*.
May possibly affect fertility*.

* (limited evidence).

SAFETY

Keep locked up.
Keep container in a well ventilated place.
Avoid exposure - obtain special instructions before use.
To clean the floor and all objects contaminated by this material, use water.
Keep container tightly closed.
This material and its container must be disposed of in a safe way.
Keep away from food, drink and animal feeding stuffs.
Take off immediately all contaminated clothing.
In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).
This material and its container must be disposed of as hazardous waste.
In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
sulfuric acid	7664-93-9	10-30
ammonium bifluoride	1341-49-7	1-5
ethylene glycol monobutyl ether	111-76-2	<10
performance additives		<10
water	7732-18-5	30-60
NOTE: hydrogen fluoride (may occur in head space of container)	7664-39-3	

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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Section 4 - FIRST AID MEASURES

- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

EYE

- If this product or its vapours come in contact with the eyes,
- **DO NOT DELAY:** Immediately irrigate continuously by holding the eyelids apart and washing with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids
 - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
 - Transport to hospital, eye clinic or eye specialist, ophthalmologist without delay.

SKIN

- If there is evidence of severe skin irritation or skin burns:
- Avoid further contact. Immediately remove contaminated clothing, including footwear.
 - Flush skin under running water for 15 minutes.
 - Avoiding contamination of the hands, massage calcium gluconate gel into affected areas, pay particular attention to creases in skin.
 - Contact the Poisons Information Centre.
 - Continue gel application for at least 15 minutes after burning sensation ceases.
 - If pain recurs, repeat application of calcium gluconate gel or apply every 20 minutes.
 - If no gel is available, continue washing for at least 15 minutes, using soap if available. If patient is conscious, give six calcium gluconate or calcium carbonate tablets in water by mouth.
 - Transport to hospital, or doctor, urgently.

INHALED

For massive exposures:

- If dusts, vapours, aerosols, fumes or combustion products are inhaled, remove from contaminated area.
- Lay patient down.
- Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- If victim is conscious, give six calcium gluconate or calcium carbonate tablets in water by mouth.
- Transport to hospital, or doctor, urgently.

NOTES TO PHYSICIAN

Following acute or short term repeated exposure to hydrofluoric acid:

- Subcutaneous injections of Calcium Gluconate may be necessary around the burnt area. Continued application of Calcium Gluconate Gel or subcutaneous Calcium Gluconate should then continue for 3-4 days at a frequency of 4-6 times per day. If a "burning" sensation recurs, apply more frequently.
- Systemic effects of extensive hydrofluoric acid burns include renal damage, hypocalcaemia and consequent cardiac arrhythmias. Monitor haematological, respiratory, renal, cardiac and electrolyte status at least daily. Tests should include FBE, blood gases, chest X-ray, creatinine and electrolytes, urine output, Ca ions, Mg ions and

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Section 4 - FIRST AID MEASURES

phosphate ions. Continuous ECG monitoring may be required.

· Where serum calcium is low, or clinical, or ECG signs of hypocalcaemia develop, infusions of calcium gluconate, or if less serious, oral Sandocal, should be given.

Hydrocortisone 500 mg in a four to six hourly infusion may help.

· Antibiotics should not be given as a routine, but only when indicated.

· Eye contact pain may be excruciating and 2-3 drops of 0.05% pentocaine hydrochloride may be instilled, followed by further irrigation

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B, NS, SQ

B: Background levels occur in specimens collected from subjects NOT exposed.

NS: Non-specific determinant; Also seen after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

Hydrofluoric acid is produced by reaction in the product.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Consider evacuation (or protect in place).
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered to be a significant fire risk.
 - Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
 - Heating may cause expansion or decomposition leading to violent rupture of containers.
 - Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
 - May emit acrid smoke. May emit corrosive fumes.
- Other decomposition products include: sulfur oxides (SO_x) and fluorides.

FIRE INCOMPATIBILITY

Reacts vigorously with water and alkali.

Avoid reaction with strong acids, strong alkalis, oxidisers, alcohols, organic

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Section 5 - FIRE FIGHTING MEASURES

materials / compounds.

HAZCHEM: 2XE

Personal Protective Equipment

- Breathing apparatus.
- Gas tight chemical resistant suit.
- Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

sulfuric acid	30 mg/m ³
ammonium bifluoride	3.5 mg/m ³
water	500 mg/m ³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

sulfuric acid	10 mg/m ³
ammonium bifluoride	3.5 mg/m ³
water	500 mg/m ³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

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Section 6 - ACCIDENTAL RELEASE MEASURES

sulfuric acid	2 mg/m ³
ammonium bifluoride	3.5 mg/m ³
water	500 mg/m ³

The threshold concentration below which most people will experience no appreciable risk of health effects:

sulfuric acid	1 mg/m ³
ammonium bifluoride	3.5 mg/m ³
water	500 mg/m ³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X X + X X +

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

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Section 7 - HANDLING AND STORAGE

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Avoid storage with oxidisers and alkalis.
Avoid contact with glass.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC
Australia Exposure Standards	sulfuric acid (Sulphuric acid)		1		3			
Australia Exposure Standards	ammonium bifluoride (Fluorides (as F))		2.5					
Australia Exposure Standards	ethylene glycol monobutyl ether (2- Butoxyethanol)	20	96.9	50	242			
Australia Exposure Standards	hydrogen fluoride (Hydrogen fluoride (as F))					3	2.6	

The following materials had no OELs on our records

- water: CAS:7732-18-5

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
sulfuric acid	15	
ethylene glycol monobutyl ether		700 [Unch]
hydrogen fluoride		30 [Unch]

ODOUR SAFETY FACTOR (OSF)

OSF=71 (ammonium bifluoride)

Exposed individuals are reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class A or B.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV- TWA for example) is being reached, even when distracted by working activities
B	26- 550	As " A" for 50- 90% of persons being distracted
C	1- 26	As " A" for less than 50% of persons being distracted
D	0.18- 1	10- 50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As " D" for less than 10% of persons aware of being tested

MATERIAL DATA

None assigned. Refer to individual constituents.

INGREDIENT DATA

SULFURIC ACID:

NOTE: Detector tubes for sulfuric acid, measuring in excess of 1 mg/m³, are commercially available.

Based on controlled inhalation studies the TLV-TWA is thought to be protective against the significant risk of pulmonary irritation and incorporates a margin of safety so as to prevent injury to the skin and teeth seen in battery workers acclimatised to workplace concentrations of 16 mg/m³. Experimental evidence in normal unacclimated humans indicates the recognition, by all subjects, of odour, taste or irritation at 3 mg/m³ or 5 mg/m³. All subjects reported these levels to be objectionable but to varying degrees.

AMMONIUM BIFLUORIDE:

Based on a study in which the threshold for minimum increase in bone density due to fluoride exposure was 3.38 mg/m³ (as fluoride), the present TLV-TWA has been adopted to prevent irritant effects and disabling bone changes. There is also support for the proposition that occupational exposure below the TLV will have no adverse effect on pregnant women or off-spring. IARC has classified fluorides in drinking water as Group 3 carcinogens; i.e. Not classifiable as to its carcinogenicity to humans. Equivocal evidence of carcinogenic activity (osteosarcoma) has been found in male rats administered sodium fluoride in drinking water. (0-175 ppm) Evidence was not found in female rats or in male or female mice.

ETHYLENE GLYCOL MONOBUTYL ETHER:

Odour Threshold Value: 0.10 ppm (detection), 0.35 ppm (recognition)

Although rats appear to be more susceptible than other animals anaemia is not uncommon amongst humans following exposure. The TLV reflects the need to maintain exposures below levels found to cause blood changes in experimental animals. It is concluded that this limit will reduce the

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

significant risk of irritation, haematologic effects and other systemic effects observed in humans and animals exposed to higher vapour concentrations. The toxic effects typical of some other glycol ethers (pancytopenia, testis atrophy and teratogenic effects) are not found with this substance.

WATER:

No exposure limits set by NOHSC or ACGIH.

HYDROGEN FLUORIDE:

Odour Threshold: 0.042 ppm

NOTE: Detector tubes for hydrogen fluoride, measuring in excess of 1.5 ppm, are available commercially. Long-term measurements (8 hrs) may be conducted to detect concentrations exceeding 0.25 ppm.

Hydrogen fluoride is a primary irritant which as a gas causes severe respiratory irritation and as a liquid which causes severe and painful burns to the skin and eyes. The recommendation for TLV-TWA is based on the results of controlled inhalation studies in human volunteers. The limit is thought to minimise the potential for occurrence of dental and/or osteofluorosis (systemic fluorosis) and to prevent the risk of primary irritation to the eyes, nose, throat and lower respiration system. At concentrations exceeding 3 ppm there have been reports of skin reddening and burning of the nose and eyes.

PERSONAL PROTECTION



EYE

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.
- Wear safety gumboots, eg. Rubber.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	ABE- AUS P	-
1000	50	-	ABE- AUS P
5000	50	Airline *	-
5000	100	-	ABE- 2 P
10000	100	-	ABE- 3 P
	100+		Airline**

* - Continuous Flow

** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25- 0.5 m/s (50- 100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5- 1 m/s (100- 200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

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Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear colourless strongly acidic liquid with fragrant odour; mixes with water.

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Acid.

Toxic or noxious vapours/gas.

Molecular Weight: Not applicable.

Melting Range (°C): Not available.

Solubility in water (g/L): Miscible

pH (1% solution): Not available

Volatile Component (%vol): Not available.

Relative Vapour Density (air=1): Not available.

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not available.

State: LIQUID

Boiling Range (°C): Not available.

Specific Gravity (water=1): 1.14- 1.16

pH (as supplied): < 1

Vapour Pressure (kPa): Not available.

Evaporation Rate: Not available

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not Available

Viscosity: Not Available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

The liquid is highly corrosive and may rapidly cause severe burns to the gastro-intestinal tract and may be fatal if swallowed in quantity.
Considered an unlikely route of entry in commercial/industrial environments.

EYE

The liquid is extremely corrosive to the eyes and any contact may cause rapid tissue destruction and is capable of causing severe damage with loss of sight.
The mist is highly corrosive and contact may cause rapid tissue destruction.
The vapour is extremely discomforting to the eyes.

SKIN

The liquid is highly corrosive to the skin and any contact may cause rapid tissue destruction with severe burns.
The mist is highly discomforting to the skin and may cause deep ulceration to body tissue.
Toxic effects may result from skin absorption.
Fluorides are easily absorbed through the skin and cause death of soft tissue and erode bone. Healing is delayed and death of tissue may continue to spread beneath skin.

INHALED

The mist is corrosive to the upper respiratory tract.
The vapour is highly discomforting to the upper respiratory tract and is capable of causing severe mucous membrane irritation, upper respiratory tract inflammation.
High concentrations cause inflamed airways and watery swelling of the lungs with oedema.
The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

CHRONIC HEALTH EFFECTS

Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva.
Strong inorganic acid mists containing sulfuric acid can cause cancer.
Extended exposure to inorganic fluorides causes fluorosis, which includes signs of joint pain and stiffness, tooth discolouration, nausea and vomiting, loss of appetite, diarrhoea or constipation, weight loss, anaemia, weakness and general unwellness. There may also be frequent urination and thirst. Redness, itchiness and allergy-like inflammation of the skin and mouth cavity can occur. The central nervous system may be involved.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

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Section 11 - TOXICOLOGICAL INFORMATION

SULFURIC ACID:

TOXICITY

Oral (rat) LD50: 2140 mg/kg
Inhalation (rat) LC50: 510 mg/m³/2h
Inhalation (human) TClO: 3 mg/m³/24w

IRRITATION

Eye (rabbit): 1.38 mg SEVERE
Eye (rabbit): 5 mg/30sec SEVERE

WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS.

Occupational exposures to strong inorganic acid mists of sulfuric acid:

AMMONIUM BIFLUORIDE:

as fluoride anion

Oral (human) LDLo: 50 mg/kg
Oral (human) TDLo: 3 mg/kg
Inhalation (rat) LC50: 1276 ppm/1hr*
Inhalation (mouse) LC50: 342 ppm/1hr*

Eye (-): corrosive*
Skin (-): corrosive*

*[Bayer]

ETHYLENE GLYCOL MONOBUTYL ETHER:

TOXICITY

Oral (rat) LD50: 470 mg/kg
Dermal (rabbit) LD50: 220 mg/kg
Inhalation (human) TClO: 100 ppm
Inhalation (human) TClO: 195 ppm/8h
Inhalation (rat- male) LC50: 486 ppm *
Inhalation (rat- female) LC50: 450 ppm *

IRRITATION

Skin (rabbit): 500 mg, open; Mild
Eye (rabbit): 100 mg/24h- Moderate
Eye (rabbit): 100 mg SEVERE
* [Union Carbide]

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

NOTE: Changes in kidney, liver, spleen and lungs are observed in animals exposed to high concentrations of this substance by all routes.

WATER:

No significant acute toxicological data identified in literature search.

HYDROGEN FLUORIDE:

TOXICITY

Inhalation (human) LCLo: 50 ppm/30 m
Inhalation (man) TClO: 100 mg/m³/1 m
Inhalation (rat) LC50: 1276 ppm/1 h

IRRITATION

Eye (human): 50 mg - SEVERE

MATERIAL	CARCINOGEN	REPROTOXIN	SENSITISER	SKIN
ethylene glycol monobutyl ether	IARC:3			

CARCINOGEN

IARC: International Agency for Research on Cancer (IARC) Carcinogens: ethylene glycol monobutyl ether Category: 3

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