Minoxidil (U-10858)

sc-200984

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Minoxidil (U-10858)

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA


SUPPLIER
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ChemWatch
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SYNONYMS
C9-H15-N5-O, "pyrimidine, 2, 4-diamino-6-piperidino-, 3-oxide", "6-amino-1, 2-dihydro-1-hydroxy-2-imino-4-piperidinopyrimidine", "2, 4-diamino-6-piperidinilpirimidina-3-osside", "2, 4-diamino-6-piperidinopyrimidine-3-oxide", "2, 3-dihydro-3-hydroxy-2-imino-6-(1-piperidinyl)-4-pyrimidinamine", "6-piperidino-2, 4-diaminopyrimidine-3-oxide", "6-(1-piperidinyl)-2, 4-pyrimidinediamine-3-oxide", "2, 4-pyrimidinediamine, 6-(1-piperidinyl)-, 3-oxide", Alopexil, Alostil, Loniten, Lonolox, Minossidile, Minoximen, Prexidil, Regaine, Rogaine, Tricoxidil, "U-10, 858", "substituted pyrimidine oxide", "antihypertensive/ hypertrichosis agent"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	2		
Body Contact:	2		
Reactivity:	0		
Chronic:	0		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Harmful if swallowed.
Irritating to eyes, respiratory system and skin.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
■ Considered an unlikely route of entry in commercial/industrial environments.

EYE

■ This material can cause eye irritation and damage in some persons.
■ Irritating to eyes.

SKIN

■ This material can cause inflammation of the skin oncontact in some persons.
■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
■ Irritating to skin.
■ Toxic effects may result from skin absorption.

INHALED

■ If inhaled, this material can irritate the throat andlungs of some persons.
■ Although inhalation is not thought to produce harmful effects, the material may still produce health damage, especially where pre-existing organ (e.g. liver, kidney) damage is evident.
■ Irritating to respiratory system.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

■ Principal routes of exposure are usually by skin contact/absorption and inhalation of generated dust.
Cardiotoxicity has been associated with long-term administration of high doses of minoxidil to dogs. Right atrial lesions have been found in dogs treated with minoxidil at doses as low as 0.5 mg/kg/day. Similar lesions have been reported with the 4-hydroxy metabolite (20 mg/kg/day) in beagles. In addition haemorrhagic lesions of the coronary artery were observed in the right atrium of dogs and the left atrium of mini-pigs.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
minoxidil	38304-91-5	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

EYE

■ If this product comes in contact with the eyes: · Wash out immediately 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.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

■ Treat symptomatically.
Minoxidil is readily absorbed from the gastrointestinal tract and is excreted, mainly as metabolites, in the urine. Its duration of action is longer than predicted from plasma half-life (4 hours), possibly because of accumulation at its site of action. Minoxidil is dialysable.
If exaggerated hypotension is encountered, it is most likely to occur in association with residual sympathetic nervous blockade (guanethidine-like effects of alpha-adrenergic blockade). Recommended treatment is intravenous administration of normal saline. Sympathomimetic drugs such as noradrenaline, should be avoided because of their excessive cardiac-stimulating action.

Section 5 - FIRE FIGHTING MEASURES

Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	0.8-0.85
Lower Explosive Limit (%):	Not available
Relative Vapor Density (air=1):	>1

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Use water delivered as a fine spray to control fire and cool adjacent area.
· DO NOT approach containers suspected to be hot.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Solid which exhibits difficult combustion or is difficult to ignite.
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
Combustion products include: carbon monoxide (CO) and nitrogen oxides (NOx).

FIRE INCOMPATIBILITY
■ Avoid contamination with strong oxidizing agents as ignition may result.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up all spills immediately.
· Avoid contact with skin and eyes.
MAJOR SPILLS
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Limit all unnecessary personal contact.
· Wear protective clothing when risk of exposure occurs.
· Use in a well-ventilated area.
· When handling DO NOT eat, drink or smoke.
· Always wash hands with soap and water after handling.
· Avoid physical damage to containers.
· Use good occupational work practice.
· Observe manufacturer's storing and handling recommendations.

RECOMMENDED STORAGE METHODS
· Polyethylene or polypropylene container.

· Packing as recommended by manufacturer.

STORAGE REQUIREMENTS

· Keep dry.
· Store in original containers.
· Keep containers securely sealed.
· No smoking, naked lights or ignition sources.
· Store in a cool, dry, well-ventilated area.
· Store away from incompatible materials.
· Protect containers against physical damage.
· Check regularly for leaks.
· Observe manufacturer's storing and handling recommendations.

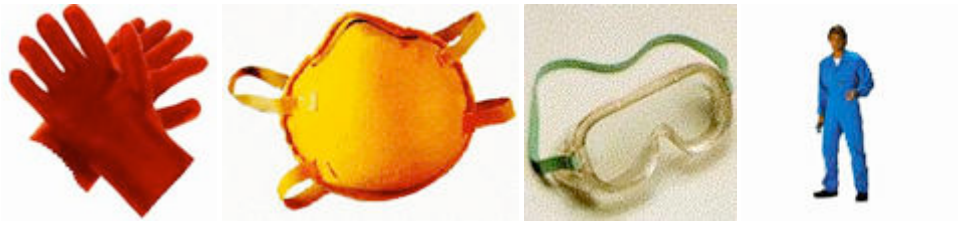
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• minoxidil: CAS:38304-91-5

PERSONAL PROTECTION



RESPIRATOR

Particulate
Consult your EHS staff for recommendations

■ EYE

No special equipment needed when handling small quantities of substance.
For bulk handling wear:
Chemical goggles or
Face shield.

HANDS/FEET

Rubber gloves
PVC gloves
Protective shoe covers
Head covering.

OTHER

No special equipment when handling small quantities of substance otherwise:
Coveralls
For Emergencies:
Vinyl suit
Safety shower

ENGINEERING CONTROLS

■ Enclosed local exhaust ventilation is required at points of dust, fume or vapor generation.
HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapors.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Floats on water.

State	Divided solid	Molecular Weight	209.29
Melting Range (°F)	437 (decomposes)	Boiling Range (°F)	Not available
Solubility in water (g/L)	Partly miscible	Flash Point (°F)	Not available
pH (1% solution)	Not applicable	Decomposition Temp (°F)	>437
pH (as supplied)	Not applicable	Autoignition Temp (°F)	Not available

Vapour Pressure (mmHG)	Negligible	Upper Explosive Limit (%)	Not available.
Specific Gravity (water=1)	0.8-0.85	Lower Explosive Limit (%)	Not available
Relative Vapor Density (air=1)	>1	Volatile Component (%vol)	Negligible
Evaporation Rate	Not applicable		

APPEARANCE
White to off-white crystalline solid; does not mix well with water (1:500), Soluble in alcohol, propylene glycol.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
■ Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

minoxidil

TOXICITY AND IRRITATION
MINOXIDIL:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (woman) TDLo: 0.2 mg/kg	Nil Reported
Oral (man) TDLo: 0.107 mg/kg/3d-I	
Oral (human) LDLo: 69 mg/kg/34w - I	
Oral (rat) LD50: 1321 mg/kg	
Intraperitoneal (rat) LD50: 759 mg/kg	
Intravenous (rat) LD50: 49 mg/kg	
Oral (mouse) LD50: >1000 mg/kg	
Intraperitoneal (mouse) LD50: 560 mg/kg	
Intravenous (mouse) LD50: 51 mg/kg	

Nausea, vomiting, lowered blood pressure, pericarditis, arrhythmias changes in heart weight, changes in kidney, ureter, bladder, changes in spleen weight, changes in erythrocyte count, changes in lung weight, cardiac changes, maternal effects, effects on newborn, specific developmental abnormalities (musculoskeletal changes) recorded.

Section 12 - ECOLOGICAL INFORMATION

No data

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.
· Consult manufacturer for recycling options and recycle where possible .
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

minoxidil (CAS: 38304-91-5) is found on the following regulatory lists;
"Canada Domestic Substances List (DSL)"

Section 16 - OTHER INFORMATION

ND
Substance CAS Suggested codes minoxidil 38304- 91- 5 Xn; R22 R43

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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