Bromacil

sc-257186

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Bromacil

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

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C9-H13-Br-N2-O2, 5-bromo-3-sec-butyl-6-methyluracil, 5-bromo-6-methyl-3(1-methylpropyl)uracil, "5-bromo-6-methyl-3(1-methylpropyl)-2, 4(1H, 3H)-pyrimidinedione", Borea, Bromazil, Cynogan, "Krovar II", "Herbicide 976", Nalkil, Uragan, Uragon, "Du Pont Herbicide 976", "Urox B", "Urox HX Granular Weedkiller", "Eerex Water Soluble Concentrate", Hyvarex, "Hyvar X weedkiller", "Hyvar X-L", "Hyvar X-WS", "Urox B Water Soluble Concentrate Weedkiller"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	2		
Body Contact:	2		
Reactivity:	1		
Chronic:	3		

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.
Very toxic to aquatic organisms.

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.
■ In a feeding study rats given diets containing up to 2500 ppm bromacil showed no signs of clinical toxicity after 6 weeks.
The level of dietary intake was raised to 5000 ppm and then after a further 10 weeks was raised to 6000 ppm for 1 week and then to 7500 ppm for 2 weeks.

EYE

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

SKIN

■ This material can cause inflammation of the skin oncontact in some persons.
■ The material may accentuate any pre-existing dermatitis condition.
■ Bromacil is mildly irritating to guinea pig skin.
Rabbits showed no clinical signs when the substance was applied at 5000 mg/kg body weight the maximum feasible dose under test conditions.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Rats tolerated 4 hour exposures at a concentration of 4800 mg/m3.
Higher concentrations were impractical under test conditions.
■ 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

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.
Animal (rat) experiments show evidence of thyroid effects and body weight retardation at very high ingestion levels (1250 ppm bromacil). [Manufacturer]
No-effect dietary concentrations in a 2-year feeding study are greater than 250 ppm but less than 1250 ppm for rats and dogs. Male and female rats fed 1250 mg bromacil in this study showed very slight hyperplasia of thyroid tissue cells but this with other evidence was taken to suggest a very marginal manifestation of cumulative toxicity. In a follow up study in mice an increased incidence of hepatocellular adenomas plus carcinomas was observed in males fed bromacil in the diet at a dose level of 871 mg/kg/day for 78 weeks.
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
Chronic intoxication with ionic bromides, historically, has resulted from medical use of bromides but not from environmental or occupational exposure; depression, hallucinosis, and schizophreniform psychosis can be seen in the absence of other signs of intoxication. Bromides may also induce sedation, irritability, agitation, delirium, memory loss, confusion, disorientation, forgetfulness (aphasias), dysarthria, weakness, fatigue, vertigo, stupor, coma, decreased appetite, nausea and vomiting, diarrhoea, hallucinations, an acne like rash on the face, legs and trunk, known as bronchoderma (seen in 25-30% of case involving bromide ion), and a profuse discharge from the nostrils (coryza). Ataxia and generalised hyperreflexia have also been observed. Correlation of neurologic symptoms with blood levels of bromide is inexact. The use of substances such as brompheniramine, as antihistamines, largely reflect current day usage of bromides; ionic bromides have been largely withdrawn from therapeutic use due to their toxicity. Several cases of foetal abnormalities have been described in mothers who took large doses of bromides during pregnancy.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bromacil	314-40-9	>95

Section 4 - FIRST AID MEASURES

SWALLOWED
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

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 fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ for poisons (where specific treatment regime is absent):
----------BASIC TREATMENT

· Establish a patent airway with suction where necessary.
· Watch for signs of respiratory insufficiency and assist ventilation as necessary.
Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	1.58
Lower Explosive Limit (%):	0.16 g/l

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 100 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Combustible solid which burns but propagates flame with difficulty.
· 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), carbon dioxide (CO_2), nitrogen oxides (NOx), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY
■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Type AB-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Remove all ignition sources.
· Clean up all spills immediately.
· Avoid contact with skin and eyes.
· Control personal contact by using protective equipment.
· Use dry clean up procedures and avoid generating dust.
· Place in a suitable, labelled container for waste disposal.
Environmental hazard - contain spillage.
MAJOR SPILLS
■ Environmental hazard - contain spillage.
Moderate hazard.
· CAUTION: Advise personnel in area.

· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.
Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
· Do NOT cut, drill, grind or weld such containers.
· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

■ Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	bromacil (Bromacil)		10						
Canada - British Columbia Occupational Exposure Limits	bromacil (Bromacil)		10						
US ACGIH Threshold Limit Values (TLV)	bromacil (Bromacil)		10						TLV Basis: thyroid effects
US NIOSH Recommended Exposure Limits (RELs)	bromacil (Bromacil)	1	10						
US - Minnesota Permissible Exposure Limits (PELs)	bromacil (Bromacil)	1	10						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	bromacil (Bromacil)	1	10						
US - California Permissible Exposure Limits for Chemical Contaminants	bromacil (Bromacil)	1	10						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	bromacil (Bromacil)	1	10						
US - Hawaii Air Contaminant Limits	bromacil (Bromacil)	1	10	2	20				
US - Alaska Limits for Air Contaminants	bromacil (Bromacil)	1	10						

US - Washington Permissible exposure limits of air contaminants	bromacil (Bromacil)	1		3		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	bromacil (Bromacil)		10		20	
US - Michigan Exposure Limits for Air Contaminants	bromacil (Bromacil)	1	10			
Canada - Prince Edward Island Occupational Exposure Limits	bromacil (Bromacil)		10			TLV Basis: thyroid effects
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	bromacil (Bromacil)		10			
Canada - Northwest Territories Occupational Exposure Limits (English)	bromacil (Bromacil)	1	10	2	21	
Canada - Nova Scotia Occupational Exposure Limits	bromacil (Bromacil)		10			TLV Basis: thyroid effects

ENDOELTABLE

PERSONAL PROTECTION




RESPIRATOR

Type AB-P Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE

· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
· polychloroprene
· nitrile rubber

· butyl rubber
· fluorocaoutchouc
· polyvinyl chloride
Gloves should be examined for wear and/ or degradation constantly.

OTHER
· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS
· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
· Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Solid.
Does not mix with water.
Sinks in water.

State	Divided solid	Molecular Weight	261.15
Melting Range (°F)	314.6.5 - 320.0	Viscosity	Not Applicable
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)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	806	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	1.58
Lower Explosive Limit (%)	0.16 g/l	Relative Vapor Density (air=1)	9.0
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

BROMACIL		
	log Kow (Sangster 1997):	2.11

APPEARANCE
White to light tan crystalline solid, odourless. Insoluble in water. Moderately soluble in strong aqueous alkalies, acetone, ethanol.

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

BROMACIL

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

TOXICITY	IRRITATION
Oral (rat) LD50: 641 mg/kg	Nil Reported
Oral (rat) LD50: 2000 mg/kg (male)*	
Oral (rat) LD50: 1300 mg/kg (female)*	
Dermal (rabbit) LD50: >5000 mg/kg*	
Inhalation (rat) LC50: >4.8 mg/L/4hr*	
Inhalation (rat) TCLo: 38 mg/m³/2h	

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic

condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
For bromacil
Acute toxicity: Liquid formulations of bromacil are moderately toxic, while dry formulations are practically non-toxic The herbicide is irritating to the skin, eyes, and respiratory tract. When 100 mg/kg of the herbicide was fed to dogs, it caused vomiting, watering of the mouth, muscular weakness, excitability, diarrhea, and dilation of the pupils. Rats that were fed single doses of bromacil experienced initial weight loss, paleness, exhaustion, and rapid breathing. Within 4 hours of being given 250 mg/kg, sheep became bloated and walked with stilted gaits. Bromacil caused mild dermal irritation when it was applied to the skin of guinea pigs. When bromacil was administered to the eyes of rabbits, there was irritation in the conjunctiva (the mucous membrane lining of the eye), but there was no injury to the cornea.
Chronic toxicity: Enlarged livers were revealed in autopsies on rats that died after 5 days of repeated doses of bromacil at 1500 mg/kg/day. Sheep that died after being given 250 mg/kg/day of bromacil on 4 successive days showed the following: inflammation of the mucous membrane that lines the stomach and intestines, congestion and enlargement of the liver, weakened appearance of the adrenal glands, bleeding of the heart, and swollen, bleeding lymph nodes . Consumption of bromacil at high levels over a long period of time has been shown to cause damage to the testes, liver, and thyroid of laboratory animals . In another study, female rats fed 62.5 mg/kg/day for 2 years, the highest dose level, exhibited decreased weight gain. No other toxic effects were observed . No evidence of toxicity was detected in dogs fed up to 31.2 mg/kg/day for 2 years . In an 18-month study in which mice were given dietary doses of 12.5, 62.5, or 250 mg/kg/day, changes in the liver and testes were observed at the 62.5 mg/kg/day dosage. Chickens given 500 mg/kg/day bromacil did show a decrease in weight gain.
Reproductive effects: Bromacil did not affect the reproduction of rats fed 12.5 mg/kg/day for three generations. This suggests that bromacil does not cause reproductive effects.
Teratogenic effects: There was no evidence of birth defects in the offspring of rats that were given dietary doses of 12.5 mg/kg/day bromacil, nor in rabbits that were given 7.5 mg/kg/day on days 8 through 16 of pregnancy. However, toxic effects and developmental abnormalities of the musculoskeletal system were seen in the embryos or foetuses of rats which inhaled very high bromacil doses of 38 mg/L for 2 hours daily, during days 7 to 14 of pregnancy . Toxic effects and developmental abnormalities were observed in the fetuses of pregnant rats repeatedly exposed by inhalation to bromacil. These data suggest that humans are unlikely to suffer teratogenic effects from bromacil under normal circumstances.
Mutagenic effects: Several mutagenic screening tests indicate that bromacil is not mutagenic.
Carcinogenic effects: There is limited evidence that bromacil causes cancer in animals receiving high doses over the course of their lifetimes. There was no evidence of carcinogenicity in rats fed 12.5 mg/kg/day for 2 years of bromacil, but at 62.5 mg/kg/day, there was at slight increase in hyperplasia of the thyroid, and one rat developed benign liver tumors. An increased incidence of malignant tumors was observed in the livers of male mice given 250 mg/kg/day of bromacil for 78 weeks. No effect on liver tumor incidence was observed in female mice. Based on these results, it is not possible to determine bromacil's carcinogenic potential.
Organ toxicity: Animal studies have shown the liver, heart, and lymph nodes to be affected.
Fate in humans and animals: A number of studies show that uracils, the class of compounds to which bromacil belongs, are absorbed into the body from the gut and excreted primarily in the urine. Small amounts of bromacil were detected in the milk of lactating cows that were given 5 mg/kg in their food. No bromacil was found in the urine or feces of these cows.
*[Dupont]
ADI: 0.1 mg/kg/day
NOEL: 10 mg/kg/day

CARCINOGEN

BROMACIL	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	OPP-CAN
BROMINE COMPOUNDS (ORGANIC OR INORGANIC)	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
bromacil			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
· Recycle wherever possible.
· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: G Hazard class or Division: 9
Identification Numbers: UN3077 PG: III
Label Codes: 9 Special provisions: 8, 146,
335, B54,
IB8, IP3,
N20, T1,
TP33
Packaging: Exceptions: 155 Packaging: Non- bulk: 213
Packaging: Exceptions: 155 Quantity limitations: No limit
Passenger aircraft/rail:
Quantity Limitations: Cargo No limit Vessel stowage: Location: A
aircraft only:
Vessel stowage: Other: None
Hazardous materials descriptions and proper shipping names:
Environmentally hazardous substance, solid, n.o.s

Air Transport IATA:

ICAO/IATA Class: 9 ICAO/IATA Subrisk: None
UN/ID Number: 3077 Packing Group: III
Special provisions: A97
Cargo Only
Packing Instructions: 911 Maximum Qty/Pack: 400 kg
Passenger and Cargo Passenger and Cargo
Packing Instructions: 911 Maximum Qty/Pack: 400 kg
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: Y911 Maximum Qty/Pack: 30 kg G
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. *(CONTAINS BROMACIL)

Maritime Transport IMDG:

IMDG Class: 9 IMDG Subrisk: None
UN Number: 3077 Packing Group: III
EMS Number: F-A , S-F Special provisions: 179 274 335 909
Limited Quantities: 5 kg Marine Pollutant: Yes
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Section 15 - REGULATORY INFORMATION

bromacil (CAS: 314-40-9) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Environmental Persistent or Chronic Hazardous Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada Domestic Substances List (DSL)","Canada Environmental Quality Guidelines (EQGs) Water: Aquatic life","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","US - Alaska Limits for Air Contaminants","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California Permissible Exposure Limits for Chemical Contaminants","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US -

Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US EPCRA Section 313 Chemical List","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US NIOSH Recommended Exposure Limits (RELs)"

Section 16 - OTHER INFORMATION

ND
Substance CAS Suggested codes bromacil 314- 40- 9

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ 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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