Buspirone hydrochloride

sc-202982

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Buspirone hydrochloride

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
C21-H31-N5-O2.HCl, "8-azaspiro[4, 5]decane-7, 9-dione, ", "8-(4-(4-(2-pyrimidinyl)-1-piperazinyl)butyl)-, monohydrochloride", "1, 1-cyclopentanediacetimide, N-(4-(4-(2-pyrimidinyl)-1-", piperazinyl)butyl)-, hydrochloride, "8-(4-(4-(2-pyrimidinyl)-1-piperazinyl)butyl)-8-azaspiro[4, 5]decane-", "7, 9-dione hydrochloride", Azapirone, Bespar, Buspar, Buspinol, Censpar, Lucelan, "MJ 9022-1", Travin, "tranquilliser/ antipsychotic/ neuroleptic/ ataractic/ anxiolytic"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

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

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Toxic if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
■ Exposure to the anxiolytic sedatives, hypnotics and neuroleptics may produce drowsiness or sedation.
Depression of the central nervous system may occur early.

EYE

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).
Slight abrasive damage may also result.

SKIN

■ The material is not thought to be a skin irritant (as classified using animal models).
Abrasive damage however, may result from prolonged exposures.
■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
■ 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 is not thought to produce respiratory irritation (as classified using animal models).
Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
■ Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
■ 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

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
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.
The anxiolytic sedatives, hypnotics and neuroleptics may produce dependence in susceptible individuals; dependency is characterized by a strong need to continue taking the drug; a tendency to increase the dose, a psychic dependence on the effects of the drug, and a physical dependence on the effects of the drug for the maintenance of homeostasis, with a characteristic abstinence syndrome on withdrawal.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
buspirone hydrochloride	33386-08-2	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK. · At least 3 tablespoons in a glass of water should be given.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with 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

■ Following recent ingestion or overdose of anxiolytic sedatives, hypnotics and neuroleptics, the stomach may be emptied by gastric lavage and aspiration. Patients should be managed with intensive symptomatic and supportive therapy with particular attention being paid to the maintenance of cardiovascular, respiratory and renal functions and to the maintenance of electrolyte balance.
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.
Rapidly absorbed and undergoes extensive first pass metabolism. Half-life ranges from 2 to 33 hours. Extensively bound to plasma proteins (95%) with 29% to 63% of the dose excreted in the urine within 24 hours primarily as metabolites. Faecal excretion accounts for 18%-to 38% of the dose.
Metabolised primarily by oxidation to hydroxylated derivatives and a pharmacologically active metabolite, 1-pyrimidinylpiperazine (1-PP).

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

· Foam.
· Dry chemical powder.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 800 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), hydrogen chloride, phosgene, nitrogen oxides (NOx), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.

FIRE INCOMPATIBILITY

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

PERSONAL PROTECTION

Glasses:
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up waste regularly and abnormal spills immediately.
· Avoid breathing dust and contact with skin and eyes.
· Wear protective clothing, gloves, safety glasses and dust respirator.
· Use dry clean up procedures and avoid generating dust.
· Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
· Dampen with water to prevent dusting before sweeping.
· Place in suitable containers for disposal.
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

· 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

■ Glass container.
· Lined metal can, Lined metal pail/drum
· Plastic pail.
For low viscosity materials
· Drums and jerricans must be of the non-removable head type.
· Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

· Store in original containers.
· Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• buspirone hydrochloride: CAS:33386-08-2

PERSONAL PROTECTION




RESPIRATOR

Particulate
Consult your EHS staff for recommendations

EYE

■ For laboratory, larger scale or bulk handling or where regular exposure in an occupational setting occurs:
· Chemical goggles
· Face shield. 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

■ 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.

· Rubber gloves (nitrile or low-protein, powder-free latex). Employees allergic to latex gloves should use nitrile gloves in preference.
· Double gloving should be considered.
· PVC gloves.
· Protective shoe covers.
· Head covering.

OTHER

· For quantities up to 500 grams a laboratory coat may be suitable.
· For quantities up to 1 kilogram a disposable laboratory coat or coverall of low permeability is recommended. Coveralls should be buttoned at collar and cuffs.
· For quantities over 1 kilogram and manufacturing operations, wear disposable coverall of low permeability and disposable shoe covers.
· For manufacturing operations, air-supplied full body suits may be required for the provision of advanced respiratory protection.
· Eye wash unit.
· Ensure there is ready access to an emergency shower.
· For Emergencies: Vinyl suit.

ENGINEERING CONTROLS

■ For potent pharmacological agents:
Powders
To prevent contamination and overexposure, no open handling of powder should be allowed.
· Powder handling operations are to be done in a powders weighing hood, a glove box, or other equivalent ventilated containment system.
· In situations where these ventilated containment hoods have not been installed, a non-ventilated enclosed containment hood should be used.
· Pending changes resulting from additional air monitoring data, up to 300 mg can be handled outside of an enclosure provided that no grinding, crushing or other dust-generating process occurs.
· An air-purifying respirator should be worn by all personnel in the immediate area in cases where non-ventilated containment is used, where significant amounts of material (e.g., more than 2 grams) are used, or where the material may become airborne (as through grinding, etc.).
· Powder should be put into solution or a closed or covered container after handling.
· If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.
Solutions Handling:
· Solutions can be handled outside a containment system or without local exhaust ventilation during procedures with no potential for aerosolisation. If the procedures have a potential for aerosolisation, an air-purifying respirator is to be worn by all personnel in the immediate area.
· Solutions used for procedures where aerosolisation may occur (e.g., vortexing, pumping) are to be handled within a containment system or with local exhaust ventilation.
· In situations where this is not feasible (may include animal dosing), an air-purifying respirator is to be worn by all personnel in the immediate area. If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.
· Ensure gloves are protective against solvents in use.
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.

State	Divided solid	Molecular Weight	422.0
Melting Range (°F)	394.5- 396.5	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not Applicable

APPEARANCE

Powder; does not mix well with water.

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

buspirone hydrochloride

TOXICITY AND IRRITATION

BUSPIRONE HYDROCHLORIDE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Intraperitoneal (rat) LD50: 136 mg/kg	Nil Reported
Intraperitoneal (mouse) LD50: 146 mg/kg	
Oral (Human) TDLo: 4 mg/kg	
Oral (Human) TDLo: 0.285 mg/kg	
Oral (Rat) LD50: 196 mg/kg	
Oral (Mouse) LD50: 655 mg/kg	
Oral (Dog) LD50: 586 mg/kg	

■ 5-HT1A is the most widespread serotonin receptor and is present in both the central and peripheral nervous systems, where it controls a variety of different biological and neurological functions. 5-HT1A is coupled to Gi/G0, and is therefore inhibitory.
5-HT1A receptors are located both pre-synaptically and post-synaptically. The pre-synaptic receptors are also known as autoreceptors and are activated automatically upon release of serotonin. Stimulation of the 5-HT1A autoreceptors inhibits the release of serotonin. Therefore receptor agonists typically inhibit serotonergic neurotransmission at lower doses, and enhance it at higher doses. For example, administration of 8-OH-DPAT in rats causes hypothermia in low doses, while the higher doses cause hyperthermia. The autoreceptor-mediated inhibition of serotonin release has been hypothesised to be the reason for the delay seen in the therapeutic benefits of certain antidepressants such as the selective serotonin reuptake inhibitors (SSRIs) and the monoamine oxidase inhibitors (MAOIs). The autoreceptors must first desensitise or down-regulate before serotonin release is properly enhanced
5-HT1 agonists may increase the risk of serotonin syndrome, which is a rare but serious and potentially fatal condition thought to result from hyperstimulation of brainstem 5-HT1A receptors. Rare but serious cardiac events have been associated with the administration of 5-HT1 agonists, including coronary artery vasospasm, transient myocardial ischaemia, atrial and ventricular arrhythmias, and myocardial infarction, predominantly in patients with risk factors for coronary artery disease.
On the other hand side effects common to H1 receptor antagonists, such as drowsiness, weight gain and increased growth in children have been observed and attributed to impaired regulation of growth-hormone secretion
Peripherally, 5-HT1A receptor activation inhibits the release of epinephrine and norepinephrine in blood vessels, leading to vasodilation, which consists of hypotension (lowered blood pressure), and decreased heart rate.
Centrally, 5-HT1A receptors inhibit the release of glutamate and acetylcholine, thereby impairing cognition, learning, and memory.
5-HT1A receptor activation induces ACTH, corticosterone, oxytocin, and prolactin release. Oxytocin release may contribute to the receptor's antiaggressive and anxiolytic properties
Of the many drugs that are nonselective 5-HT agonists, the potent mind-altering drug LSD (D-lysergic acid diethylamide) is the most remarkable. LSD mimics 5-HT (5-hydroxytryptamine) at 5-HT1A autoreceptors of the brain (found in raphe cell bodies), producing a marked slowing of the firing rate of serotonergic neurons. In the raphe, LSD and 5-HT are equi-effective; however, in areas of serotonergic axonal projections (such as visual relay centers), LSD is far less effective than is 5-HT. Current theories focus on the ability of hallucinogens such as LSD to promote glutamate release in thalamocortical terminals, thus causing a dissociation between sensory relay centers and cortical output .
5-HT1A receptors in the dorsal raphe nucleus are co-located with neurokinin 1 receptors and indirectly block the release of substance P, which is their endogenous ligand. It has been postulated that the antiemetic, analgesic, antidepressant, and anxiolytic properties of 5-HT1A agonists may be largely mediated by this action. 5-HT1A receptor activation has also been shown to increase dopamine release in the medial prefrontal cortex, striatum, and hippocampus, and may be useful for improving schizophrenia and Parkinson's disease. Many of the new atypical antipsychotic drugs are 5-HT1A agonists, and this property has been shown to enhance their clinical efficacy.
For buspirone
Antipsychosis, alteration of classical conditioning, foetotoxicity, specific developmental abnormalities (musculoskeletal system), effects on newborn recorded.

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

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: None Hazard class or Division: 6.1
Identification Numbers: UN3249 PG: III
Label Codes: 6.1 Special provisions: T1, TP33
Packaging: Exceptions: 153 Packaging: Non- bulk: 213
Packaging: Exceptions: 153 Quantity limitations: 5 kg
Passenger aircraft/rail:
Quantity Limitations: Cargo 5 kg Vessel stowage: Location: C
aircraft only:
Vessel stowage: Other: 40
Hazardous materials descriptions and proper shipping names:
Medicine, solid, toxic, n.o.s.

Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None
UN/ID Number: 3249 Packing Group: III
Special provisions: A3
Cargo Only
Packing Instructions: 200 kg Maximum Qty/Pack: 100 kg
Passenger and Cargo Passenger and Cargo
Packing Instructions: 677 Maximum Qty/Pack: 670
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: 5 kg Maximum Qty/Pack: Y645
Shipping Name: MEDICINE, SOLID, TOXIC, N.O.S.(CONTAINS
BUSPIRONE HYDROCHLORIDE)

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: None
UN Number: 3249 Packing Group: III
EMS Number: F-A , S-A Special provisions: 221 223
Limited Quantities: 5 kg
Shipping Name: MEDICINE, SOLID, TOXIC, N.O.S.
(contains buspirone hydrochloride)

Section 15 - REGULATORY INFORMATION

No data for buspirone hydrochloride (CAS: , 33386-08-2)

Section 16 - OTHER INFORMATION

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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