Phenylphosphine

sc-250704

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Phenylphosphine

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
C6-H7-P, C6H5PH2, "phosphine, phenyl-"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	4		
Toxicity:	3		
Body Contact:	3		
Reactivity:	1		
Chronic:	2		

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

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Spontaneously flammable in air.
Toxic by inhalation, in contact with skin and if swallowed.
Irritating to eyes, respiratory system and skin.
Extremely flammable.
May cause fire.
May cause long-term adverse effects in the aquatic environment.

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.
■ Pyrophoric compounds may produce gastrointestinal damage resulting fromlocal generation of heat.
■ Not normally a hazard due to physical form of product.
■ Considered an unlikely route of entry in commercial/industrial environments.

EYE

■ This material can cause eye irritation and damage in some persons.
■ If applied to the eyes, this material causes severe eye damage.
■ Pyrophoric compounds may produce thermal burns on contact with the eye.
■ Irritation of the eyes may produce a heavy secretion of tears (lachrymation).

SKIN

■ Skin contact with the material may produce toxic effects; systemic effectsmay result following absorption.
■ This material can cause inflammation of the skin oncontact in some persons.
■ The material may accentuate any pre-existing dermatitis condition.
■ Pyrophoric compounds can produce irritation with a range of severity.
Deep burns can occur in severe cases, with shock.
■ Irritation and skin reactions are possible with sensitive skin.
■ 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

■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects.
■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Inhalation of vapours may cause drowsiness and dizziness.
This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.
■ Signs of phenylphosphine intoxication, in rats, included hyperaemia of the ears, excessive salivation, lachrymation, face-pawing and dyspnea.
The acute toxicity of inhaled vapour was one-quarter that of phosphine (on a molar basis).
■ The only signs during exposure to phosphine may be mild respiratory irritation although some victims report dyspnea, weakness, tremor and convulsions.
Phosphine is a very toxic gas.
■ Pyrophoric compounds may decompose giving rise to potent irritants of therespiratory tract.

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.
Chronic phosphine poisoning is said to resemble chronic phosphorus poisonings which produces stomach pains, vomiting and diarrhoea. Chronic poisoning, characterised by anemia, bronchitis, gastrointestinal disturbances and visual, speech and motor disturbances may result from continued exposure to low concentrations.
Chronic exposure may produce systemic poisoning characterised by cachexia (general ill-health and malnutrition), anaemia, bronchitis, and necrosis of the mandible, the so-called "phossy" or Lucifer's" jaw. Other bones may also be involved as demonstrated by chronic systemic administration to animals which produces dense growth lines in all extremities proximal to the epiphyses (phosphoschicht).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
phenylphosphine	638-21-1	>98

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: · 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. For THERMAL burns: · Do NOT remove contact lens · Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. · Seek urgent medical assistance, or transport to hospital.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear. In case of burns: · Immediately apply cold water to burn either by immersion or wrapping with saturated clean cloth. · DO NOT remove or cut away clothing over burnt areas. DO NOT pull away clothing which has adhered to the skin as this can cause further injury. · DO NOT break blister or remove solidified material. · Quickly cover wound with dressing or clean cloth to help prevent infection and to ease pain. · For large burns, sheets, towels or pillow slips are ideal; leave holes for eyes, nose and mouth. · DO NOT apply ointments, oils, butter, etc. to a burn under any circumstances. · Water may be given in small quantities if the person is conscious. · Alcohol is not to be given under any circumstances. · Reassure. · Treat for shock by keeping the person warm and in a lying position. · Seek medical aid and advise medical personnel in advance of the cause and extent of the injury and the estimated time of arrival of the patient.

INHALED

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

NOTES TO PHYSICIAN

■ For severe acute or short term repeated exposures to phosphine:
· There is no antidote. Clinical manifestations include headache, fatigue, nausea, vomiting, cough, dyspnea, parethesias, jaundice, ataxia, intention tremor, weakness and diplopia.
· i Care is supportive and all obviously symptomatic patients should be monitored in an intensive care setting. Watch for dysrhythmias. ii Replace fluids/electrolytes. iii Follow blood chemistries (calcium, phosphorus, glucose, prothrombin time, CBC) at least daily. iv Follow renal and hepatic function at least daily. Avoid any alcohol intake.
Treatment for intoxication following phosphine exposures may be used as guide to treatment of phenylphospine poisonings.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	758.162 @ 160 C
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.001
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

■ For SMALL FIRES:
· Dry chemical, CO2, water spray or foam.
For LARGE FIRES:
· Foam, fog or water spray.

FIRE FIGHTING

· Wear SCBA and fully-encapsulating, gas-tight suits when handling these substances.
· Always wear thermal protective clothing when handling molten substances.
· Structural fire fighter's uniform will only provide limited protection.
· 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

■ Ignites spontaneously in air (pyrophoric) and burns with intense heat.
· May ignite on contact with air leading to spontaneous combustion and burning rapidly.
· May decompose explosively when heated or involved in fire.
Combustion products include: carbon dioxide (CO2), phosphorus oxides (POx), 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 A Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Eliminate all ignition sources.
· Cover with WET earth, sand or other non-combustible material.
· Use clean, non-sparking tools to collect absorbed material
· Wear gloves and safety glasses as appropriate.
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

· DO NOT allow clothing wet with material to stay in contact with skin.
· For large scale or continuous use, spark-free, earthed ventilation system venting directly to the outside and separate from usual ventilation systems
· Provide dust collectors with explosion vents.
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of overexposure occurs.
· Use in a well-ventilated area.
· 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 and before re-use
· Use good occupational work practice.
· Observe manufacturer's storing/handling recommendations.
· Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
NOTE: The material may remove oxygen from the air thus producing a severe hazard to workers inside enclosed or confined spaces where the material might accumulate. Before entry to such areas, sampling and test procedures for low oxygen levels should be undertaken; control conditions should be established to ensure the availability of adequate oxygen supply.

RECOMMENDED STORAGE METHODS

■ Storage containers must be hermetically sealed under an inert atmosphere.
For low viscosity materials and solids: 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 under an inert gas, e.g. argon or nitrogen.
FOR MINOR QUANTITIES:
· Store in an indoor fireproof cabinet or in a room of noncombustible construction
· Provide adequate portable fire-extinguishers in or near the storage area.
Store under nitrogen.
Do NOT store near or allow contact with combustible materials and clothing.

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	phenylphosphine (Phenylphosphine)					0.05	0.2	
Canada - British Columbia Occupational Exposure Limits	phenylphosphine (Phenylphosphine)					0.05		R
US NIOSH Recommended Exposure Limits (RELs)	phenylphosphine (Phenylphosphine)					0.05	0.25	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	phenylphosphine (Phenylphosphine)					0.05	0.23	
US ACGIH Threshold Limit Values (TLV)	phenylphosphine (Phenylphosphine)					0.05		TLV Basis: dermatitis; hematologic effects; testicular damage
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	phenylphosphine (Phenylphosphine)					0.05	0.25	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	phenylphosphine (Phenylphosphine)					0.05	0.25	
US - Minnesota Permissible Exposure Limits (PELs)	phenylphosphine (Phenylphosphine)					0.05	0.25	
US - California Permissible Exposure Limits for Chemical Contaminants	phenylphosphine (Phenylphosphine)	0.05	0.25			C		
US - Hawaii Air Contaminant Limits	phenylphosphine (Phenylphosphine)					0.05	0.25	
US - Alaska Limits for Air Contaminants	phenylphosphine (Phenylphosphine)					0.05	0.25	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	phenylphosphine (Phenylphosphine)					0.05		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	phenylphosphine (Phenylphosphine)	0.05	0.25	-	-			

US - Washington Permissible exposure limits of air contaminants	phenylphosphine (Phenylphosphine)	0.05		
Canada - Nova Scotia Occupational Exposure Limits	phenylphosphine (Phenylphosphine)	0.05		TLV Basis: dermatitis; hematologic effects; testicular damage
Canada - Prince Edward Island Occupational Exposure Limits	phenylphosphine (Phenylphosphine)	0.05		TLV Basis: dermatitis; hematologic effects; testicular damage
Canada - Northwest Territories Occupational Exposure Limits (English)	phenylphosphine (Phenylphosphine)	0.05	0.23	
US - Michigan Exposure Limits for Air Contaminants	phenylphosphine (Phenylphosphine)	0.05	0.25	
US - Oregon Permissible Exposure Limits (Z-1)	phenylphosphine (Phenylphosphine)	0.05	0.25	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.

ENDOELTABLE

PERSONAL PROTECTION




RESPIRATOR

• type a filter of sufficient capacity.

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.
· Fire resistant/ heat resistant gloves where practical, otherwise
· Heavy-duty chemically resistant gloves capable of providing short-term protection against spontaneous ignition.

OTHER

■ Wear protective clothing appropriate for the work situation.
When handling liquids wear :
· non-sparking shoes,
· noncombustible or flameproof clothing.

ENGINEERING CONTROLS

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.
Inhalation risk of a pyrophoric material is low however risks of inhalation of combustion products may requires respiratory protection. It is recommended that this material be handled in a closed system or in a fume hood.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.
Toxic or noxious vapours/gas.

State	Liquid	Molecular Weight	110.10
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	320	Solubility in water (g/L)	Immiscible
Flash Point (°F)	163	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	758.162 @ 160 C
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.001
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	3.79
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Clear, colourless liquid with foul odour; does not mix with water. Miscible in organic solvents.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· May heat spontaneously
· Identify and remove sources of ignition and heating.

STORAGE INCOMPATIBILITY

· Phosphine gas may react with certain metals and cause corrosion, especially at elevated temperatures and humidities.
· Metals such as copper, brass, and other copper alloys, aluminium and precious metals such as gold and silver are susceptible to corrosion by phosphine. Small electric motors smoke detectors, brass sprinkler heads, batteries and battery chargers, fork lifts, temperature monitoring systems, switching gears, communication devices, computers, calculators and other electrical equipment may be damaged by this gas.
· Phosphine will also react with certain metallic salts and therefore sensitive items such as photographic film, some inorganic pigments, etc., should not be exposed to the gas.
· Other incompatible materials include natural rubber, neoprene, polyethylene, PVC.
· Even small amounts of oxygen in phosphine give an explosive mixture in which autoignition occurs at low pressures.
· Pure phosphine does not spontaneously ignite in air below 150 deg. C. unless it is thoroughly dried, when it ignites in cold air. The presence of diphosphanes in phosphine as normally prepared causes it to ignite spontaneously in air, even below -15 deg. C. Traces of oxidants promote pyrophoricity (e.g dinitrogen trioxide, nitrous acid or similar oxidants).
· Lower flammability limit of pure phosphine in moist air (0.39 vol% water vapour) at 1037 mbar is 2.1% at 10 deg. C and 1.8% at 50 deg. C.
· Ignition occurs on contact of phosphine with chlorine or bromine or their aqueous solutions (hypochlorous or hypobromous acids).
· Passage of phosphine into silver nitrate solution causes ignition or explosion depending on gas rate.
· Interaction of phosphine with boron trichloride is energetic.
· Mercury(II) nitrate solution gives a complex phosphide, explosive when dry.
· In contact with chlorine, phosphine ignites at ambient temperatures.
Avoid reaction with oxidizing agents.

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

Section 11 - TOXICOLOGICAL INFORMATION

phenylphosphine

TOXICITY AND IRRITATION

PHENYLPHOSPHINE:

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

TOXICITY	IRRITATION
Inhalation (rat) LC50: 38 ppm/4h	Nil Reported

■ 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.
Lachrymation, dyspnea recorded.

CARCINOGEN

phenylphosphine	US - Rhode Island Hazardous Substance List	IARC

Section 12 - ECOLOGICAL INFORMATION

May cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
phenylphosphine	HIGH	No Data Available	LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Reactivity characteristic: use EPA hazardous waste number D003 (waste code R).

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. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. 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 or consult manufacturer for recycling options.
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: G Hazard class or Division: 4.2
Identification Numbers: UN2845 PG: I
Label Codes: 4.2 Special provisions: B11, T22,
TP2, TP7
Packaging: Exceptions: None Packaging: Non- bulk: 181
Packaging: Exceptions: None Quantity limitations: Forbidden
Passenger aircraft/rail:
Quantity Limitations: Cargo Forbidden Vessel stowage: Location: D
aircraft only:
Vessel stowage: Other: 18
Hazardous materials descriptions and proper shipping names:
Pyrophoric liquids, organic, n.o.s.

Air Transport IATA:
ICAO/IATA Class: 4.2 ICAO/IATA Subrisk: None
UN/ID Number: 2845 Packing Group: -
Special provisions: None
Cargo Only
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden
Passenger and Cargo Passenger and Cargo
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden
Shipping Name: PYROPHORIC LIQUID, ORGANIC, N.O.S. *
†(CONTAINS PHENYLPHOSPHINE)

Maritime Transport IMDG:
IMDG Class: 4.2 IMDG Subrisk: None
UN Number: 2845 Packing Group: I
EMS Number: F-G , S-M Special provisions: 274
Limited Quantities: 0
Shipping Name: PYROPHORIC LIQUID, ORGANIC, N.O.S.(contains phenylphosphine)

Section 15 - REGULATORY INFORMATION

phenylphosphine (CAS: 638-21-1) 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 - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada Ingredient Disclosure List (SOR/88-64)","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 - California Proposition 65 - Reproductive Toxicity","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","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 - Oregon Permissible Exposure Limits (Z-1)","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 DOE Temporary Emergency Exposure Limits (TEELs)","US NIOSH Recommended Exposure Limits (RELs)"

Section 16 - OTHER INFORMATION

ND
Substance CAS Suggested codes phenylphosphine 638- 21- 1 Xn; R22

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.

Issue Date: Nov-3-2009

Print Date:May-28-2011