



MATERIAL SAFETY DATA SHEET

Section I – Product Information			
Product Name or Identity:	Phosphate Buffered Saline (PBS), pH 7.4		
Manufacturer's Name:	Neogen Corporation	Emergency Phone No.:	517/372-9200
	620 Leshar Place	Fax No.:	517/372-2006
	Lansing, Michigan 48912	e-mail:	foodsafety@neogen.com
Date Prepared or Revised: 12/11/06			

Section II – Hazardous Ingredients / Identity Information			
Hazardous Components: (Specific Chemical Identity)	OSHA PEL (Permissible Exposure Limits)	ACGIH TLV (Threshold Limit Value)	Toxicity Data LD ₅₀
Sodium Chloride, NaCl	N/A	N/A	ORL-RAT, 3000 mg/kg
Potassium Phosphate	N/A	N/A	SKN-RBT, > 4640 mg/kg
Potassium Chloride	N/A	N/A	ORL, RAT, 2600 mg/kg
Sodium Phosphate	N/A	N/A	ORL-RAT, 17000 mg/kg

Section III – Physical Characteristics	
Boiling Point: 1413°C (Sodium Chloride) 1500°C (Potassium Chloride)	Specific Gravity (H₂O = 1): 2.04 (Sodium Phosphate) 1.99 (Potassium Chloride), 2.16 (Sodium Chloride)
Vapor Pressure (mm Hg.): 865°C (Sodium Chloride)	Melting Point: 804°C (Sodium Chloride), 240°C (Sodium Phosphate), 772°C (Potassium Chloride), > 465°C (Potassium Phosphate)
Vapor Density (AIR = 1): N/A	Evaporation Rate (Butyl Acetate = 1): N/A
Solubility in Water: 150 g/ 100 g cold water (Potassium Phosphate), 28.1 g/ 100g of water at 0°C (Potassium Chloride)	
Appearance and Odor: White granular powder (Sodium Phosphate), White crystals or powder, odorless (Potassium Phosphate) Colorless crystals or white powder (Sodium Chloride), White crystals or powder, odorless (Potassium Chloride).	

Section IV – Fire and Explosion Hazard Data	
Flash Point (Method Used): Not applicable	Flammable Limits: LEL:(Lower Explosive Limit) - N/A UEL:(Upper Explosive Limit) - N/A
Extinguishing Media: Suitable extinguishing agents. CO ₂ , extinguishing powder, or water spray.	
Special Fire Fighting Procedures: Fight larger fires with water or alcohol resistant foam. Firefighters should wear protective equipment and self-contained breathing apparatus. As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.	
Unusual Fire and Explosion Hazards: During heating or in case of fire, poisonous gases are produced. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.	

Section V – Reactivity Data			
Stability:	Unstable		Conditions to Avoid: Moisture and air sensitive.
	Stable	X	
Incompatibility (Materials to Avoid): Incompatible with strong acids, metals, oxidizers, Potassium permanganate, Sulfuric acid, and Bromine trifluoride.			
Hazardous Decomposition or Byproducts: Carbon dioxide (CO ₂), Phosphorus oxides (POx), Hydrogen chloride (HCl), and Sulfur oxides (SOx).			
Hazardous Polymerization:	May Occur		Conditions to Avoid: Moisture and incompatible materials.
	Will Not Occur	X	

Section VI – Health Hazard Data			
Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
Health Hazards: (Acute and Chronic)	Irritant. Irritating to eyes, respiratory system, and skin. May be harmful if swallowed.		
Carcinogenicity:	NTP? No (National Toxicology Program)	IARC Monographs? No (International Agency for Research in Cancer)	OSHA Regulated? No
Signs and Symptoms of Exposure: Sodium Phosphate is a corrosive material and can cause burns. Sensitization possible through skin contact and inhalation. Material can be irritating to mucous membranes and respiratory tract. Inhalation of high concentrations of dust may cause nasal or lung irritation. Ingestion of large quantities can produce gastrointestinal irritation and vomiting. May produce weakness and circulatory problems. Potassium chloride can cause eye irritation, including redness, tearing, and possible abrasions.			
Medical Conditions Generally Aggravated by Exposure: Chronic exposure of phosphates may sequester calcium and cause calcium phosphate deposits in the kidneys. Persons with impaired kidney function may be more susceptible to the effects of the substance. Phosphates are slowly and incompletely absorbed when ingested. Symptoms may include vomiting, lethargy, diarrhea, cardiac effects, and central nervous system effects.			
Emergency / First Aid Procedures:	Ingestion: If swallowed and patient is conscious, induce vomiting. Seek medical attention immediately.		
	Inhalation: In case of unconsciousness, place patient on side position for transportation. If not breathing, give artificial respiration. Supply fresh air or oxygen; seek medical attention immediately.		
	Eye Contact: Rinse opened eye for at least 15 minutes under running water, lifting upper and lower eyelids occasionally. Seek medical attention.		
	Skin Contact: Remove contaminated clothing. Immediately wash with plenty of soap and water for at least 15 minutes. Seek medical attention.		

Section VII – Precautions for Safe Handling and Use
Accidental Release Measures: Ventilate area of leak or spill. Wear suitable protective clothing. Wipe up with damp sponge or mop. Avoid inhalation, contact with eyes, skin, and clothing.
Waste Disposal Method: Dispose in accordance with all applicable federal, state, and local environmental regulations.
Handling and Storing: Keep container tightly closed. Store at < 30°C in cool, dry conditions. Do not store together with oxidizing and acidic materials. Do not store together with alkali material (caustic) or metals. Containers may be hazardous when empty because they retain product residues (dust, solids).
Other Precautions: Remove contaminated clothing immediately. Ensure good ventilation / exhaust at the workplace. Prevent formation of dust. Avoid prolonged or repeated exposure.

Section VIII – Control Measures		
Respiratory Protection (Specify Type): None required where adequate ventilation conditions exist. If airborne concentration is high, use an appropriate respirator or dust mask.		
Ventilation:	Local Exhaust: 50 – 100 CFM	Special: N/A
	Mechanical (General): N/A	Other: N/A
Protective Gloves: Proper disposable gloves		Eye Protection: Chemical resistant safety goggles
Other Protective Clothing or Equipment: Uniform, lab coat, or disposable lab wear.		
Work / Hygienic Practices: Follow the usual precautionary measures for handling chemicals / powder. Keep away from food and beverages. Immediately remove all soiled and contaminated clothing. Avoid contact with eyes, skin, and clothing.		

This document is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. Neogen Corporation shall not be held liable for any damage resulting from handling or from contact with the above product. These suggestions should not be confused with state, municipal or insurance requirements, and constitute NO WARRANTY.