

MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2321
Gaithersburg, Maryland 20899-2321

SRM Number: 186g
MSDS Number: 186g
SRM Name: pH Standards
Potassium Dihydrogen Phosphate (186-I-g);
Disodium Hydrogen Phosphate (186-II-g)

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SECTION I. MATERIAL IDENTIFICATION

Material Name: pH Standards: Potassium Dihydrogen Phosphate (186-I-g); Disodium Hydrogen Phosphate (186-II-g)

Description: SRM 186g consists of two components, each prepared to ensure high purity and uniformity: KH_2PO_4 , Potassium Dihydrogen Phosphate (186-I-g) and Na_2HPO_4 , Disodium Hydrogen Phosphate (186-II-g). However, neither SRM component is certified for purity of substance. A unit of SRM 186g consists of 30 g of potassium dihydrogen phosphate (186-I-g) and 45 g of disodium hydrogen phosphate (186-II-g), each contained in its respective clear glass bottle.

Other Designations: Potassium Dihydrogen Phosphate (potassium acid phosphate; monopotassium phosphate; potassium diphosphate; potassium biphosphate; potassium orthophosphate; potassium dihydrogen phosphate)

Disodium Hydrogen Phosphate (disodium phosphate; disodium acid orthophosphate; soda phosphate; disodium phosphoric acid; disodium monohydrogen phosphate; monohydrogen disodium phosphate; DSP; sodium phosphate; sodium phosphate (Na_2HPO_4); hydrogen disodium phosphate; phosphoric acid, disodium salt; sodium monohydrogen phosphate; anhydrous sodium acid phosphate; disodium acid phosphate; dibasic sodium phosphate; disodium orthophosphate; disodium hydrogenorthophosphate)

Name	Chemical Formula	CAS Registry Number
Potassium Dihydrogen Phosphate	KH_2PO_4	7778-77-0
Disodium Hydrogen Phosphate	Na_2HPO_4	7558-79-4

DOT Classification: Potassium dihydrogen phosphate and disodium hydrogen phosphate are not regulated by DOT.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Potassium Dihydrogen Phosphate	100	No occupational exposure limits established.
Disodium Hydrogen Phosphate	100	No occupational exposure limits established.
		Rat, Oral LD_{50} : 12.9 g/kg
		Rat, Intraperitoneal: LD_{Lo} : 1 g/kg
		Rat, Subcutaneous: LD_{Lo} : 1 g/kg
		Rat, Intramuscular: LD_{Lo} : 1 g/kg
		Rabbit, Intravenous: LD_{Lo} : 1075 mg/kg

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X Inhalation X Skin X Ingestion

Health Hazards (Acute and Chronic)

Potassium dihydrogen phosphate is irritating to the eyes, skin, and respiratory system. It may be harmful if swallowed.

Eye Contact: Acute eye contact of potassium dihydrogen phosphate may cause mild irritation. There is no data for chronic exposure to the eyes.

Skin Contact: Exposure to the skin may cause irritation. Chronic exposure of potassium dihydrogen phosphate may cause dermatitis.

Inhalation: Inhalation of potassium dihydrogen phosphate may cause irritation of the nose and throat, coughing and choking. There is no data for chronic exposure.

Ingestion: Phosphates are slowly and incompletely absorbed when ingested. However, effects have occurred when large doses are ingested (acute exposure): nausea, vomiting, diarrhea, and stomach pain. If sufficient amounts are absorbed, slow or irregular heartbeat, weakening of cardiac contractility with hypotension, rapid breathing or shortness of breath, dizziness, mental confusion, weakness or heaviness of the legs, tiredness, paresthesias of the hands, feet, and lips, and paralysis may occur. Chronic exposure (repeated ingestion) may result in symptoms as detailed in acute ingestion. Bone and joint pain may also occur.

Disodium hydrogen phosphate is irritating to the eyes, skin, and respiratory system. It may be harmful if swallowed.

Eye Contact: Eye contact of disodium hydrogen phosphate may cause irritation with redness and pain. There is no data for chronic exposure to the eyes.

Skin Contact: Exposure to the skin may cause mild irritation and redness. Repeated and prolonged exposure may cause dermatitis.

Inhalation: Inhalation of disodium hydrogen phosphate may cause mild irritation of mucous membranes with sore throat, coughing, and difficulty breathing. There is no data for chronic exposure.

Ingestion: Ingestion of sodium hydrogen phosphate may result in pain and burning in the mouth, abdominal pain, nausea, vomiting, diarrhea, and cramps. Amounts greater than 45 ml of disodium hydrogen phosphate solution may cause a change in blood pressure, slow pulse, and coma.

Listed as a Carcinogen/Potential Carcinogen (Potassium Dihydrogen Phosphate and Disodium Hydrogen Phosphate):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u> X </u>

EMERGENCY AND FIRST AID PROCEDURES:

Potassium Dihydrogen Phosphate and Disodium Hydrogen Phosphate:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance immediately.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration by qualified personnel. Obtain medical assistance immediately.

Ingestion: If a large amount is swallowed, obtain immediate medical attention.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Potassium Dihydrogen Phosphate and Disodium Hydrogen Phosphate:

Steps to be Taken in Case Material Is Released or Spilled: Collect spilled material in appropriate container for disposal. Avoid generating dust. If disodium hydrogen phosphate is accidentally released into the water, add alkaline material such as lime, crushed limestone, sodium bicarbonate, or soda ash.

Waste Disposal: Follow all federal, state, and local regulations.

Handling and Storage: Wear gloves and chemical safety glasses where contact with dust may occur. An eye wash station and washing facilities should be readily available near handling and use areas.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

Store and handle in accordance with all current regulations and standards. Store with caps tightly closed in a dry environment, and under normal laboratory temperature. Keep separated from incompatible substances.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Sodium Phosphate, Dibasic*, 19 March 2003.
MDL Information Systems, Inc., MSDS *Potassium Phosphate Monobasic*, 19 March 2003.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was carefully prepared, using current references; however, NIST **DOES NOT** certify the data on the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.