

TRI-SODIUM ORTHOPHOSPHATE

GHS Safety Data Sheet

Version No:4

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

TRI-SODIUM ORTHOPHOSPHATE

OTHER NAMES

H₂₄-Na₃-O₁₆-P, Na₃PO₄.12H₂O, "sodium phosphate dodecahydrate", "sodium phosphate, tribasic dodecahydrate", "tribasic sodium phosphate dodecahydrate", "trisodium phosphate - 12 hydrate"

PROPER SHIPPING NAME

CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.(contains trisodium phosphate dodecahydrate)

PRODUCT USE

Ingredient of soap powders, detergents and cleaning agents; used in the manufacture of paper and leather; metal cleaning; sugar purification; photographic developers; paint removers; dietary supplement; food additive. Also used to remove boiler scale, insecticide residues from fruit and inhibiting mould.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,

MUMBAI- 400030.INDIA.

technical@sdfine.com

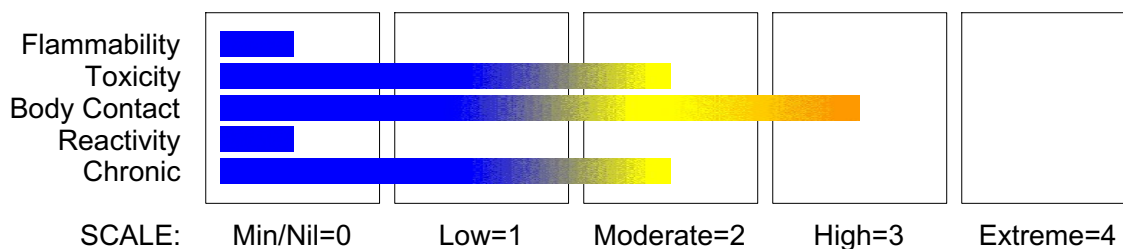
Telephone: 91- 22- 24959898

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Section 2 - HAZARDS IDENTIFICATION

HAZARD RATINGS



GHS Classification

Chronic Aquatic Hazard Category 4

Metal Corrosion Category 1

Serious Eye Damage Category 1

continued...

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Section 2 - HAZARDS IDENTIFICATION

Skin Corrosion/Irritation Category 1C



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H290 H314 H318 H413

May be corrosive to metals

Causes severe skin burns and eye damage

Causes serious eye damage

May cause long lasting harmful effects to aquatic life.

PRECAUTIONARY STATEMENTS

Prevention

Keep only in original container.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

Storage

Store locked up.

Store in corrosive resistant container or with a resistant inner liner.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
trisodium phosphate dodecahydrate	10101-89-0	98 appr
some grades may contain occluded sodium hydroxide	1310-73-2	2 appr^

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Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

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.
 - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
 - Transport to hospital or doctor without delay.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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.
 - Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
 - Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
 - Lay patient down. Keep warm and rested.
 - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
 - Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
 - Transport to hospital, or doctor.
 - Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
 - Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
 - As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
 - Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.
- This must definitely be left to a doctor or person authorised by him/her.
(ICSC13719).

NOTES TO PHYSICIAN

- » For acute or short-term repeated exposures to highly alkaline materials:
 - Respiratory stress is uncommon but present occasionally because of soft tissue edema.
 - Unless endotracheal intubation can be accomplished under direct vision,

continued...

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Section 4 - FIRST AID MEASURES

cricothyroidotomy or tracheotomy may be necessary.

- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

INGESTION:

- Milk and water are the preferred diluents
- No more than 2 glasses of water should be given to an adult.
- Neutralising agents should never be given since exothermic heat reaction may compound injury.
 - * Catharsis and emesis are absolutely contra-indicated.
 - * Activated charcoal does not absorb alkali.
 - * Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.
- Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
 - Not considered a significant fire risk, however containers may burn.
- Decomposition may produce toxic fumes of: phosphorus oxides (PO_x), metal oxides.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

- » None known.

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Section 5 - FIRE FIGHTING MEASURES

Personal Protective Equipment

Gas tight chemical resistant suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

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.

MAJOR SPILLS

- Clear area of personnel and move upwind.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Consider evacuation (or protect in place).
 - Stop leak if safe to do so.
 - Contain spill with sand, earth or vermiculite.
 - Collect recoverable product into labelled containers for recycling.
 - Neutralise/decontaminate residue.
 - Collect solid residues and seal in labelled drums for disposal.
 - Wash area and prevent runoff into drains.
 - After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
 - If contamination of drains or waterways occurs, advise emergency services.
- Personal Protective Equipment advice is contained in Section 8 of the MSDS.**
-

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with moisture.
- 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. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- DO NOT use aluminium, galvanised or tin-plated containers.
- Lined metal can, lined metal pail/ can.

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Section 7 - HANDLING AND STORAGE

- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

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.

For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):

- Removable head packaging;
- Cans with friction closures and
- low pressure tubes and cartridges may be used.

-

Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

STORAGE INCOMPATIBILITY

» Avoid reaction with.

- In presence of moisture, the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.
- Reacts vigorously with acids.
- Phosphates are incompatible with oxidising and reducing agents.
- Phosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides.
- Partial oxidation of phosphates by oxidizing agents may result in the release of toxic phosphorus oxides.
- Avoid strong acids, acid chlorides and acid anhydrides..
- Avoid contact with copper, aluminium and their alloys.
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.

Store away from extreme humidity.

Contact with certain food products (containing reducing sugars) may result in the formation of toxic carbon monoxide gas.

STORAGE REQUIREMENTS

- Plastic bag
- NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.
- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.
- DO NOT store near acids, or oxidising agents.
- No smoking, naked lights, heat or ignition sources.

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Section 7 - HANDLING AND STORAGE

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• trisodium phosphate dodecahydrate:

CAS:10101- 89- 0 CAS:7601- 54- 9

• sodium hydroxide:

CAS:1310- 73- 2

MATERIAL DATA

» Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.

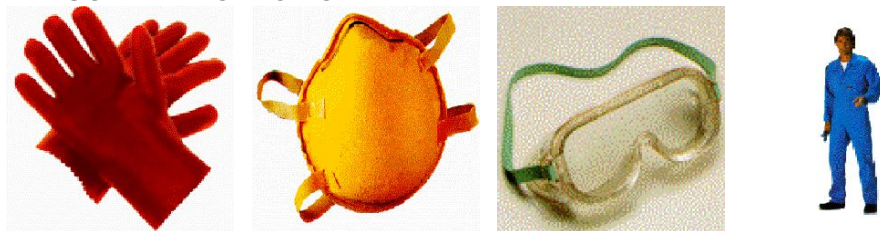
NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION



EYE

- Chemical goggles.
- 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

- Wear chemical protective gloves, eg. PVC.
 - Wear safety footwear or safety gumboots, eg. Rubber.
- Suitability and durability of glove type is dependent on usage. Factors such as:
- frequency and duration of contact,
 - chemical resistance of glove material,
 - glove thickness and
 - dexterity,
- are important in the selection of gloves.

OTHER

- Overalls.
 - PVC Apron.
 - PVC protective suit may be required if exposure severe.
 - Eyewash unit.
 - Ensure there is ready access to a safety shower.
-
- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
 - The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
 - Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory . These may be government mandated or vendor recommended.
 - Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
 - Use approved positive flow mask if significant quantities of dust becomes airborne.
 - Try to avoid creating dust conditions.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult your Occupational Health and Safety Advisor.

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.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:

- (a): particle dust respirators, if necessary, combined with an absorption cartridge;
- (b): filter respirators with absorption cartridge or canister of the right type;
- (c): fresh-air hoods or masks.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1- 2.5 m/s (200- 500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White to colourless crystalline solid, powder, flakes or granules. Water soluble.

Bulk density - powder : 0.977 to 1.04; granules: 0.929 to 1.03

PHYSICAL PROPERTIES

Mixes with water.

Corrosive.

Alkaline.

Molecular Weight: 380.12

Melting Range (°C): 73 (decomposes)

Solubility in water (g/L): Miscible

pH (1% solution): 12 approx

Volatile Component (%vol): Nil @ 38 C.

Relative Vapour Density (air=1): Not applicable.

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: DIVIDED SOLID

Boiling Range (°C): 100 (loses H₂O)

Specific Gravity (water=1): 1.62

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable.

Evaporation Rate: Not Applicable

Flash Point (°C): Not Applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): 73 minus - H₂O

Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

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

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

» The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

» Accidental ingestion of the material may be damaging to the health of the individual.

» Phosphates are slowly and incompletely absorbed from the gastrointestinal tract and are unlikely (other than in abuse) to produce the systemic effects which occur when introduced by other routes. Such effects include vomiting, lethargy, fever, diarrhoea, falls in blood pressure, slow pulse, cyanosis, carpal spasm, coma and tetany. These effects result following sequestration of blood calcium.

Ingestion of large amounts of phosphate salts (over 1 gm for an adult) may produce osmotic catharsis resulting in diarrhoea and probably, abdominal cramp. Large doses (4-8 gm) will almost certainly produce these effects in most individuals. Most of the ingested salt will be excreted in the faeces of healthy individuals without producing systemic toxicity. Doses in excess of 10 gm may produce systemic toxicity.

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Section 11 - TOXICOLOGICAL INFORMATION

EYE

- » The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
- » When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN

- » The material can produce chemical burns following direct contact with the skin.
- » Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
- » Open cuts, abraded or irritated skin should not be exposed to this material.
- » Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds 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

- » Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.
- » The material is not thought to produce adverse health effects following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- » 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.
- » Inhalation of alkaline corrosives may produce irritation of the respiratory tract with coughing, choking, pain and mucous membrane damage. Pulmonary oedema may develop in more severe cases; this may be immediate or in most cases following a latent period of 5-72 hours. Symptoms may include a tightness in the chest, dyspnoea, frothy sputum, cyanosis and dizziness. Findings may include hypotension, a weak and rapid pulse and moist rales.

CHRONIC HEALTH EFFECTS

- » Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Gastrointestinal disturbances may also occur. Chronic exposures may result in dermatitis and/or conjunctivitis.

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. A prime symptom is breathlessness. Lung shadows show on X-ray.

Dogs given daily doses of sodium phosphate dibasic for 9-22 weeks showed calcium deposits in the kidneys (nephrocalcinosis) with disseminated atrophy of the proximal tubule.

Animals fed on sodium phosphate dibasic and potassium dihydrogen phosphate, in both short- and long-term studies, showed increased bone porosity; hyperparathyroidism and soft tissue calcification were also evident.

TOXICITY AND IRRITATION

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

TOXICITY

Oral (rat) LD50: 7400 mg/kg

Oral (rat) LD50: 6500 mg/kg

Dermal (rabbit) LD50: 7940 mg/kg scale of 8.0

IRRITATION

Eye (rabbit): (FSHA) Corrosive

Skin (rabbit):(FSHA) 3.3 on a

- moderate

[CCINFO - Monsanto]

continued...

TRI-SODIUM ORTHOPHOSPHATE

Section 11 - TOXICOLOGICAL INFORMATION

» 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.

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.

Section 13 - DISPOSAL CONSIDERATIONS

» 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 or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant.
- Treatment should involve: Mixing or slurring in water; Neutralisation with suitable dilute acid followed by: Burial in a licenced land-fill or Incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

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Section 14 - TRANSPORTATION INFORMATION



Labels Required: CORROSIVE
HAZCHEM: None

UNDG:

Dangerous Goods Class:	8	Subrisk:	None
UN Number:	3262	Packing Group:	III
Shipping Name: CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (contains trisodium phosphate dodecahydrate)			

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	3262	Packing Group:	III
Special provisions:	A3		
Shipping Name: CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. *(CONTAINS TRISODIUM PHOSPHATE DODECAHYDRATE)			

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3262	Packing Group:	III
EMS Number:	F- A, S- B	Special provisions:	223 274 944
Limited Quantities:	5 kg	Marine Pollutant:	Not Determined
Shipping Name: CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.(contains trisodium phosphate dodecahydrate)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

trisodium phosphate dodecahydrate (CAS: 10101-89-0) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

MSDS SECTION CHANGES

The following table displays the version number of and date on which each section was last changed.

Section Name	Version	Date	Section Name	Version	Date	Section Name
Version Date						
First Aid (skin)	4	8- Oct- 2008	Storage (storage	4	8- Oct- 2008	Acute Health (eye)
4	8- Oct- 2008		incompatibility)			
Fire Fighter	4	8- Oct- 2008	Storage (storage	4	8- Oct- 2008	Acute Health
4	8- Oct- 2008		requirement)			(inhaled)
(extinguishing						
media)			Storage (suitable	4	8- Oct- 2008	Acute Health
Fire Fighter (fire	4	8- Oct- 2008	container)			(skin)
4	8- Oct- 2008		Engineering	4	8- Oct- 2008	Acute Health
fighting)						
Fire Fighter (fire	4	8- Oct- 2008				

continued...

TRI-SODIUM ORTHOPHOSPHATE

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4	8- Oct- 2008					
incompatibility)						
Fire Fighter	4	8- Oct- 2008	Control			(swallowed)
4			Exposure Standard	4	8- Oct- 2008	Chronic Health
(fire/explosion						
hazard)						
Spills (major)	4	8- Oct- 2008	Personal	4	8- Oct- 2008	Environmental
4						
Spills (minor)	4	8- Oct- 2008	Protection (eye)			
4			Personal	4	8- Oct- 2008	Disposal
Handling Procedure	4	8- Oct- 2008	Protection			
			(hands/feet)			
			Personal	4	8- Oct- 2008	
			Protection (other)			

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 8-Oct-2017