

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 1 of 13

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

BENTOTEST REAGENT

### PRODUCT USE

General laboratory reagent.

Detecting unstable protein in wine.

### SUPPLIER

Company: Vintessential Laboratories

Address:

13/143 Pt. Nepean Road

Dromana

VIC, 3936

Australia

Telephone: +61 3 5987 2242

Emergency Tel: +61 414 892 211

Emergency Tel: +61 409 872 0242

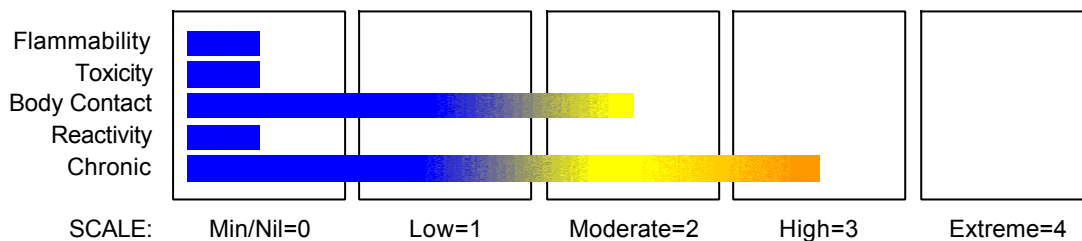
Fax: +61 3 5987 3303

## Section 2 - HAZARDS IDENTIFICATION

### STATEMENT OF HAZARDOUS NATURE

**HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.** According to NOHSC Criteria, and ADG Code.

### CHEMWATCH HAZARD RATINGS



### POISONS SCHEDULE

None

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 2 of 13

## Section 2 - HAZARDS IDENTIFICATION

### RISK

- Danger of cumulative effects.
  - Irritating to eyes.
  - Possible cancer- causing agent following repeated inhalation\*.
- \* (limited evidence).

### SAFETY

- Do not breathe gas/ fumes/ vapour/ spray.
- Avoid exposure - obtain special instructions before use.
- To clean the floor and all objects contaminated by this material use water.
- In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.
- If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

| NAME                     | CAS RN     | %   |
|--------------------------|------------|-----|
| sulfuric acid            | 7664-93-9  | 0-2 |
| phosphomolybdic acid     | 11104-88-4 | 0-1 |
| ingredients nonhazardous |            | 0-1 |
| water                    | 7732-18-5  | >60 |

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- 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.
- Seek medical advice.

### 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 contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

### INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 3 of 13

Section 4 - FIRST AID MEASURES

## NOTES TO PHYSICIAN

- Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

- The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- 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 to be a significant fire risk.
- Expansion or decomposition on heating may lead to violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.

Decomposition may produce toxic fumes of: carbon dioxide (CO<sub>2</sub>), phosphorus oxides (PO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

May emit corrosive fumes.

### FIRE INCOMPATIBILITY

- Avoid contamination with strong oxidising agents as ignition may result.

### HAZCHEM

None

### PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

1.NEOPRENE 2.NATURAL RUBBER

Respirator:

Type E- P Filter of sufficient capacity

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 4 of 13

## Section 6 - ACCIDENTAL RELEASE MEASURES

- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

### MAJOR SPILLS

- Moderate hazard.
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- 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.
- DO NOT allow clothing wet with material to stay in contact with skin.

### SUITABLE CONTAINER

- Glass container is suitable for laboratory quantities.

### STORAGE INCOMPATIBILITY

Segregate from alkalis, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulphides, carbonates.

### STORAGE REQUIREMENTS

- 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.

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 5 of 13

Section 7 - HANDLING AND STORAGE

- Observe manufacturer's storing and handling recommendations.

## SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+



X



+



X



X



+

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

| Source                             | Material                          | TWA ppm | TWA<br>mg/m <sup>3</sup> | STEL ppm | STEL<br>mg/m <sup>3</sup> | Peak ppm | Peak<br>mg/m <sup>3</sup> | TWA F/CC | Notes |
|------------------------------------|-----------------------------------|---------|--------------------------|----------|---------------------------|----------|---------------------------|----------|-------|
| Australia<br>Exposure<br>Standards | sulfuric acid<br>(Sulphuric acid) |         | 1                        |          | 3                         |          |                           |          |       |

The following materials had no OELs on our records

- water: CAS:7732- 18- 5

### EMERGENCY EXPOSURE LIMITS

| Material             | Revised IDLH Value (mg/m3) | Revised IDLH Value (ppm) |
|----------------------|----------------------------|--------------------------|
| sulfuric acid        | 15                         |                          |
| phosphomolybdic acid | 1,000                      |                          |

### MATERIAL DATA

BENTOTEST REAGENT:

Not available

SULFURIC ACID:

■ 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

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 6 of 13

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

NOTE: Detector tubes for sulfuric acid, measuring in excess of 1 mg/m<sup>3</sup>, are commercially available.

Based on controlled inhalation studies the TLV-TWA is thought to be protective against the significant risk of pulmonary irritation and incorporates a margin of safety so as to prevent injury to the skin and teeth seen in battery workers acclimatised to workplace concentrations of 16 mg/m<sup>3</sup>. Experimental evidence in normal unacclimated humans indicates the recognition, by all subjects, of odour, taste or irritation at 3 mg/m<sup>3</sup> or 5 mg/m<sup>3</sup>. All subjects reported these levels to be objectionable but to varying degrees.

### PHOSPHOMOLYBDIC ACID:

■ An increased incidence of non-specific symptoms including headache, weakness, fatigue, anorexia and joint and muscle weakness has been reported to occur in mining and metallurgy workers exposed to 60-600 mg (as Mo). Some investigators have attributed gout and elevated uric acid concentration found in some Armenians to result from exposures to Armenian soils rich in molybdenum, whilst exposure has been implicated as a cause of bone disease amongst Indians. "These involvements are speculative". [US National Research Council]. As far as it is known, the recommended TLV-TWA incorporates a large margin of safety against potential pulmonary or systemic effects.

### WATER:

- No exposure limits set by NOHSC or ACGIH.

## PERSONAL PROTECTION



### EYE

- Safety glasses with side shields.
- Chemical goggles.
- 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.

### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

The local concentration of material, quantity and conditions of use determine the type of personal protective

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equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

## ENGINEERING CONTROLS

■ None required when handling small quantities.

OTHERWISE:.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. 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:                     |
| solvent, vapours, degreasing etc., evaporating from tank (in still air).                                                                                                                                            | 0.25- 0.5 m/s (50- 100 f/min)  |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5- 1 m/s (100- 200 f/min.)   |
| 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 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters 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.

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 8 of 13

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Clear, pale yellow acidic liquid; mixes with water.

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

|                           |                |                                 |                |
|---------------------------|----------------|---------------------------------|----------------|
| State                     | Liquid         | Molecular Weight                | Not Applicable |
| Melting Range (°C)        | Not Available  | Viscosity                       | Not Available  |
| Boiling Range (°C)        | Not Available  | Solubility in water (g/L)       | Miscible       |
| Flash Point (°C)          | Not Applicable | pH (1% solution)                | Not Available  |
| Decomposition Temp (°C)   | Not Available  | pH (as supplied)                | <1             |
| Autoignition Temp (°C)    | Not Applicable | Vapour Pressure (kPa)           | Not Available  |
| Upper Explosive Limit (%) | Not Applicable | Specific Gravity (water=1)      | Not Available  |
| Lower Explosive Limit (%) | Not Applicable | Relative Vapour Density (air=1) | Not Available  |
| Volatile Component (%vol) | Not Available  | Evaporation Rate                | Not Available  |

## Section 10 - CHEMICAL STABILITY

### 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

- Considered an unlikely route of entry in commercial/industrial environments.
- Ingestion may result in nausea, abdominal irritation, pain and vomiting.

##### EYE

- The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

##### SKIN

- The material may accentuate any pre-existing dermatitis condition.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

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.

continued...



# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 9 of 13

Section 11 - TOXICOLOGICAL INFORMATION

## INHALED

- Not normally a hazard due to non-volatile nature of product.

## CHRONIC HEALTH EFFECTS

- Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure.

Strong inorganic acid mists containing sulfuric acid can cause cancer.

## TOXICITY AND IRRITATION

WATER:

PHOSPHOMOLYBDIC ACID:

- No significant acute toxicological data identified in literature search.

PHOSPHOMOLYBDIC ACID:

SULFURIC ACID:

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

■ 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.

- Not available. Refer to individual constituents.

SULFURIC ACID:

### TOXICITY

Oral (rat) LD50: 2140 mg/kg

Inhalation (rat) LC50: 510 mg/m<sup>3</sup>/2h

Inhalation (human) TCl<sub>0</sub>: 3 mg/m<sup>3</sup>/24w

- WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS

The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 µm) crystalline silica as being carcinogenic to humans. This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease.

Occupational exposures to strong inorganic acid mists of sulfuric acid:

PHOSPHOMOLYBDIC ACID:

### IRRITATION

Eye (rabbit): 1.38 mg SEVERE

Eye (rabbit): 5 mg/30sec SEVERE

continued...

## Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

SULFURIC ACID:

PHOSPHOMOLYBDIC ACID:

BENTOTEST REAGENT:

- DO NOT discharge into sewer or waterways.

SULFURIC ACID:

- Prevent, by any means available, spillage from entering drains or water courses.

- Sulfuric acid is soluble in water and remains indefinitely in the environment as sulfate.

Large discharges may contribute to the acidification of water and be fatal to aquatic life and soil micro-organisms. Large discharges may also contribute to the acidification of effluent treatment systems and injure sewage treatment organisms.

In water, sulfuric acid dissociates, and the sulfate anion may combine with other cations. In soil, the ions from sulfuric acid can adsorb to soil particles or leach into surface water and groundwater. Sulfates can be taken up by plants and be incorporated into the parenchyma of the plant.

The ions (sulfate, hydrogen) can adsorb to soil particles or be converted to gases. Anaerobic bacteria in sediments and soil can reduce sulfate to sulfur and hydrogen sulfide.

Sulfates, including sulfuric acid, are removed from the air by both dry and wet deposition processes. Wet deposition processes including rain-out (a process that occurs within the clouds) and washout (removal by precipitation below the clouds) contribute to the removal of sulfate from the atmosphere. In the stratosphere, sulfuric acid aerosols have lifetimes of about 14 and 2.4 days at altitudes of 15 and 20 km, respectively. At cloud level, the residence time is about 6 days, with shorter residence times in surface air.

Sulfuric acid is soluble in water and remains indefinitely in the environment as sulfate.

Large discharges may contribute to the acidification of water and be fatal to aquatic life and soil micro-organisms.

Large discharges may contribute to the acidification of effluent treatment systems and injure sewage treatment organisms. [ICI UK]

PHOSPHOMOLYBDIC ACID:

- Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. Environmental processes (such as oxidation and the presence of acids or bases) may transform insoluble metals to more soluble ionic forms. Microbiological processes may also transform insoluble metals to more soluble forms. Such ionic species may bind to dissolved ligands or sorb to solid particles in aquatic or aqueous media. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms.

When released to dry soil most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice.

Environmental processes may also be important in changing solubilities.

Even though many metals show few toxic effects at physiological pHs, transformation may introduce new or magnified effects.

A metal ion is considered infinitely persistent because it cannot degrade further.

The current state of science does not allow for an unambiguous interpretation of various measures of bioaccumulation.

The counter-ion may also create health and environmental concerns once isolated from the metal. Under normal physiological conditions the counter-ion may be essentially insoluble and may not be bioavailable.

Environmental processes may enhance bioavailability.

- Based on the high concentration of molybdenum in all analysed waste types, the exposure of the environment to molybdenum is regarded as significant. The limited amount of data regarding its toxicity makes it impossible to evaluate the potential for adverse environmental and health effects from molybdenum exposure. Molybdenum cause adverse effects in ruminant animals. Livestock have been injured by forage grown on soils with excessive geochemically-derived molybdenum. Soil molybdenum is a potentially toxic element, but no cases have been reported of molybdenum toxicity to animals from consumption of forage grown on sludge-amended

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 11 of 13

## Section 12 - ECOLOGICAL INFORMATION

soils. In pot studies, where clover was grown on alkaline soils containing up to 16 kg of molybdenum per ha, concentrations in the plant tissue reached levels that could be harmful to animals if the clover were to make up a substantial portion of the diet for an extended period of time.

Molybdenum is generally found in two oxidation states in nature, Mo(IV) and Mo(VI). In oxidising environments Mo(VI) dominates and it is commonly present as the oxyanion molybdate ( $\text{MoO}_4^{2-}$ )

In a laboratory experiment it was found that Mo was lost from solution under reducing conditions and remobilised under oxidizing conditions, and hypothesised that  $\text{MoS}_2$ , a low-solubility mineral, formed in the system.

In this study it was also found that Fe minerals were important sinks for Mo accumulation in reducing sediments. It has been proposed that under reducing conditions and with the reduction of sulfate, molybdate is converted to thiomolybdate ( $\text{MoS}_4^{2-}$ ) which then binds to Fe, Al, and organic matter phases via sulfur bridges. This mechanism could also account for decreased Mo solubility under reducing conditions.

Another study in wetland found that Mo accumulated in the sediments with most of the accumulation occurring in the top 2 cm and decreasing with depth. It appears that Mo accumulation (as well as As and V accumulation) or retention in the surface sediments is dependent on the depth of the overlying water column and correspondingly on redox status.

### Ecotoxicity

| Ingredient    | Persistence:<br>Water/Soil | Persistence: Air | Bioaccumulation | Mobility |
|---------------|----------------------------|------------------|-----------------|----------|
| sulfuric acid |                            |                  | LOW             |          |
| water         | LOW                        |                  | LOW             | HIGH     |

## Section 13 - DISPOSAL CONSIDERATIONS

- 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.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes 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.
- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

## Section 14 - TRANSPORTATION INFORMATION

### HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 12 of 13

## Section 15 - REGULATORY INFORMATION

### POISONS SCHEDULE

None

### REGULATIONS

Regulations for ingredients

**sulfuric acid (CAS: 7664-93-9) is found on the following regulatory lists;**

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Illicit Drug Reagents/Essential Chemicals - Category III", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals", "United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II", "United Nations List of Precursors and Chemicals Frequently used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances Under International Control - Table II"

**phosphomolybdic acid (CAS: 11104-88-4, 51429-74-4, 12026-57-2) is found on the following regulatory lists;**

"Australia Inventory of Chemical Substances (AICS)"

**water (CAS: 7732-18-5) is found on the following regulatory lists;**

"Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "OECD Representative List of High Production Volume (HPV) Chemicals"

**No data for Bentotest Reagent (CW: 4642-80)**

## Section 16 - OTHER INFORMATION

### INGREDIENTS WITH MULTIPLE CAS NUMBERS

| Ingredient Name      | CAS                                |
|----------------------|------------------------------------|
| phosphomolybdic acid | 11104-88-4, 51429-74-4, 12026-57-2 |

### EXPOSURE STANDARD FOR MIXTURES

■ "Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

■ Composite Exposure Standard for Mixture (TWA) :100 mg/m<sup>3</sup>.

■ 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](http://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

continued...

# BENTOTEST REAGENT

Hazard Alert Code: HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Issue Date: 16-Apr-2010

NC317TCP

CHEMWATCH 4642-80

Version No:3

CD 2010/2 Page 13 of 13

Section 16 - OTHER INFORMATION

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by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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Issue Date: 16-Apr-2010

Print Date: 30-Jul-2010

*This is the end of the MSDS.*