POTASSIUM METABISULPHITE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

POTASSIUM METABISULPHITE

OTHER NAMES

K2-S2-O5, "pyrosulfurous acid, dipotassium salt", "potassium metabisulphite", "pyrosulphurous acid, dipotassium salt", "potassium pyrosulphite", "potassium pyrosulfite", "dipotassium disulfite", "dipotassium metabisulfite", "disulfurous acid dipotassium salt"

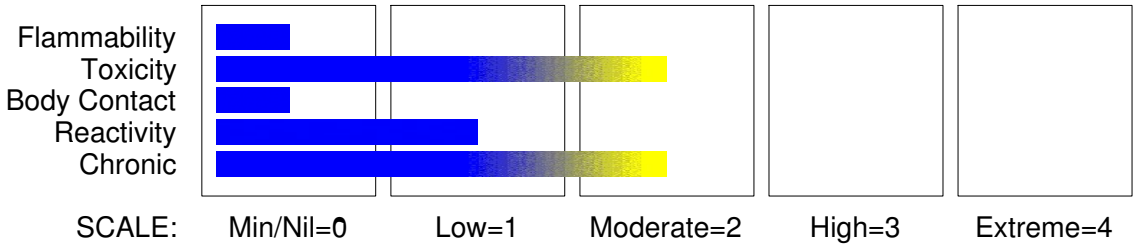
PRODUCT USE

As antifermentative in breweries and wineries; bleaching straw; preservative for fruits and vegetables. Not advised for use in foods recognised as a source of Vitamin B-1 or consumed raw.

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
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4
Respiratory Sensitizer Category 1
Skin Sensitizer Category 1

continued...

EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H302 H334 H317
Harmful if swallowed
May cause allergic or asthmatic symptoms or breathing difficulties if inhaled
May cause allergic skin reaction

PRECAUTIONARY STATEMENTS

Prevention

Avoid breathing dust/fume/gas/mist/vapours/spray.
In case of inadequate ventilation wear respiratory protection.
Contaminated clothing should not be allowed out of the workplace.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
If skin irritation or rash occurs, seek medical advice/attention.
If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.
Specific treatment: refer to Label or MSDS.
IF ON SKIN: Gently wash with plenty of soap and water.
Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
potassium metabisulfite	16731-55-8	>95
decomposes to produce		
sulfur dioxide	7446-09-5	

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.

continued...

· 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:
· Wash out immediately with fresh 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.
· If pain persists or recurs seek medical attention.
· 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.
· 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.

NOTES TO PHYSICIAN

Treat symptomatically.
For poisons (where specific treatment regime is absent):

BASIC TREATMENT

· Establish a patent airway with suction where necessary.
· Watch for signs of respiratory insufficiency and assist ventilation as necessary.
· Administer oxygen by non-rebreather mask at 10 to 15 L/min.
· Monitor and treat, where necessary, for pulmonary oedema .
· Monitor and treat, where necessary, for shock.
· Anticipate seizures .
· DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

· Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
· Positive-pressure ventilation using a bag-valve mask might be of use.
· Monitor and treat, where necessary, for arrhythmias.
· Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
· Drug therapy should be considered for pulmonary oedema.

continued...

· Hypotension with signs of hypovolaemia requires the cautious administration of fluids.
Fluid overload might create complications.
· Treat seizures with diazepam.
· Proparacaine hydrochloride should be used to assist eye irrigation.
BRONSTEIN, A.C. and CURRANCE, P.L.
EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
· There is no restriction on the type of extinguisher which may be used.
· Use extinguishing media suitable for surrounding area.

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 a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of: sulfur oxides (SOx), metal oxides.
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY
Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

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
Moderate hazard.
· CAUTION: Advise personnel in area.
· Alert Emergency Services and tell them location and nature of hazard.
· Control personal contact by wearing protective clothing.
· Prevent, by any means available, spillage from entering drains or water courses.

continued...

· Recover product wherever possible.
· IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
· ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
· 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.
· Prevent concentration in hollows and sumps.
· DO NOT enter confined spaces until atmosphere has been checked.
· DO NOT allow material to contact humans, exposed food or food utensils.
· 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

Glass container.
· Polyethylene or polypropylene container.
· Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Contact with acids produces toxic fumes.
Metals and their oxides or salts may react violently with chlorine trifluoride. Chlorine trifluoride is a hypergolic oxidiser. It 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.
Segregate from alcohol, water.
Keep dry.
NOTE: May develop pressure in containers; open carefully. Vent periodically.

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.
· Observe manufacturer's storing and handling recommendations.

continued...

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	X	+	X	0	+

+: 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

The following materials had no OELs on our records

- potassium metabisulfite: CAS:16731- 55- 8 CAS:4429- 42- 9
- sulfur dioxide: CAS:7446- 09- 5

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
sulfur dioxide		100 [Unch]

MATERIAL DATA

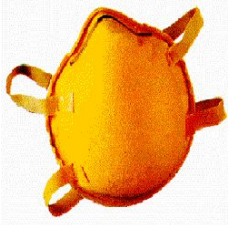
It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.
At this time no TLV has been established, even though this material may produce adverse health 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.

INGREDIENT DATA

SULFUR DIOXIDE:
NOTE: Detector tubes for sulfur dioxide, measuring in excess of 0.1 ppm, are commercially available.
Sulfur dioxide is termed a "mild" respiratory irritant.
Odour threshold (detection) is 0.5 ppm with irritation reported above 2 ppm; at 8-12 ppm eyes and nose are strongly irritated. 150 ppm is only tolerable for about a minute because of extreme irritation. At 500 ppm there is a sense of suffocation. Human bronchoconstriction occurs with inhalation at 5 ppm or more and the recommended TLV-TWA is thought to provide a reduction of significant risk of adverse respiratory effects such as coughing, increase in sputum production and bronchoconstriction.
The reported effects of SO2 in humans exposed to levels below 2 ppm, together with the potentiation of SO2 toxicity by soot and other particulates, has created the need for the current review by ACGIH.
A worker inhaling 4 ppm for 8 hours and doing light-work would absorb about 150 mg of SO2. By comparison, average dietary intake for a 70 kg man has been established at only 50 mg.

continued...

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

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.
Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids.
· polychloroprene
· nitrile rubber
· butyl rubber
· fluorocaoutchouc
· polyvinyl chloride
Gloves should be examined for wear and/ or degradation constantly.
NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

OTHER

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

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

continued...

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 usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. 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.

continued...

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Transparent, colourless crystals with a sulfur dioxide odour; soluble in water. Insoluble in alcohol.

PHYSICAL PROPERTIES

Solid.
Contact with acids liberates toxic gas.

Molecular Weight: 222.32
Melting Range (℃): Decomposes @ 150
Solubility in water (g/L): Reacts
pH (1% solution): Not applicable.
Volatile Component (%vol): Negligible
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable
Autoignition Temp (℃): Not applicable
State: Divided solid

Boiling Range (℃): Not applicable.
Specific Gravity (water=1): 2.3
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not applicable
Flash Point (℃): Not applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (℃): 150- 190
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.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Ingestion of sulfite salts may cause gastric irritation as a result of the liberation of sulfurous acid. Rapid oxidation to sulfate (at least in rats) means that sulfites are well tolerated. Large doses however may produce violent colic, diarrhoea, circulatory disturbances, central nervous system depression and, sometimes, death. Sulfite is an endogenous decomposition product found in all tissues as a result of amino-acid catabolism. However individuals with a genetic defect in sulfite oxidase are particularly sensitive to bisulfite and at least one death due bisulfite-induced neurologic degeneration has been recorded.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

continued...

SKIN
Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
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 dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
Sulfur dioxide irritation probably results from the action of sulfurous acid as the highly soluble gas dissolves in mucous fluid. Short-term exposure causes bronchoconstriction measurable as an increase in flow-resistance. The magnitude is concentration-dependent.
Symptoms include throat irritation, coughing, tightness of chest, difficulty with breathing, tear formation (lachrymation), eye smarting and suffocating feeling.
Substantial exposures produce direct respiratory tract irritation, cough, burning, lachrymation, conjunctival injection, difficulty in swallowing, and otopharyngeal erythema. Other symptoms may include vomiting, diarrhoea, abdominal pain, fever, headache , vertigo, agitation, tremor, convulsions, and peripheral neuritis. High dose acute exposure may produce immediate bronchospasm and pulmonary oedema with respiratory failure ,
inflammation of the conjunctivae and inflammation of the tongue. Chief effects are upper respiratory tract irritation and severe acute exposure may cause oedema of the lungs and possible respiratory paralysis. These exposures have produced severe obstructive and restrictive defects up to 3 months post-exposure; these have failed to respond to bronchodilators. Such exposures have also, on rare occasions, been associated with moderately severe obstructive illness and persistent, productive cough.
Systemic effects of acute poisoning are not known but regular exposure may deaden the sense of smell.

CHRONIC HEALTH EFFECTS
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.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.
Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.
Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.
There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

continued...

Sulfite and bisulfite salts react irreversibly, through free radical formation, with endogenous substances (including DNA). Some asthmatics are said to be dangerously sensitive to minute amounts of sulfite in food. Symptoms include bronchoconstriction, bronchospasm, gastrointestinal disturbance, flushing, hypotension, tingling sensations, urticaria and angio-oedema and shock.

The sulfites belong to a group of substances which induces local or systemic reactions which are identical or similar to allergic reactions and invoke pseudo-allergic ("anaphylactoid) reactions. The mechanism of this response is still largely unknown but does not involve an antigen-antibody interaction and therefore may appear on first contact with the substance.
Chronic exposure to sulfur dioxide (SO2) particulate complexes, present in polluted air, have been associated with the aggravation of chronic cardiovascular diseases such as asthma, chronic pulmonary disease, and coronary artery disease (this may occur at levels of 6-10 ug/m3 for 24 hours), An association exists between persistent cough and sputum production, particularly in women and non-smokers. A 10-year follow study on workers exposed to a mean sulfur dioxide concentration of up to 33 ppm did not reveal an increased prevalence of chronic respiratory disease or decreased pulmonary function.
By contrast, studies of smelter workers, exposed to concentrations below 2 ppm, suggest that chronic respiratory disease may develop and that workers exposed at concentrations exceeding 1 ppm show some loss of pulmonary function.
Repeated exposure of animals to airborne SO2 can produce a thickening of mucous layer in the trachea and an increase in goblet cells and mucous glands similar to pathological changes found in chronic human bronchitis.
Although SO2 is not a carcinogen, the apparent increases in mortalities amongst arsenic -exposed smelter workers was greater when exposures included both high arsenic concentrations and moderate to high SO2 exposures, suggesting that SO2 might act as a promoter.
Intermittent exposure of rats to benz[a]pyrene along with inhalation of SO2 at 4-10 ppm, 1-6 hours per day, 5 days per week, produced substantial increases in respiratory tract squamous cell carcinomas compared to that associated with exposure to B[a]P or SO2 alone.

TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
No significant acute toxicological data identified in literature search.
The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.

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

TOXICITY	IRRITATION
Inhalation (rat) LC50: 2520 ppm/1h	Nil Reported
Inhalation (human) LCLo: 1000 ppm/10m	
Inhalation (human) TCLo: 3 ppm/5d	

400-500 ppm - immediately dangerous to life.
NOTE: Aggravates chronic pulmonary disease and increases the risk of acute and chronic respiratory disease - condition aggravated by smoking.

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.
Refer to data for ingredients, which follows:

SULFUR DIOXIDE:
Toxicity Fish: LC50(96)>12.5mg/L
Toxicity invertebrate: LC50(48)802-2241ppm

continued...

Section 13 - DISPOSAL CONSIDERATIONS

For small quantities:
· Neutralise an aqueous solution of the material.
· Filter solids for disposal to approved land fill.
· Flush solution to sewer (subject to local regulation)
· Heat and fumes evolved during reaction may be controlled by rate of addition.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult State Land Waste Management Authority for disposal.
· Bury residue in an authorised landfill.
· Recycle containers if possible, or dispose of in an authorised landfill.
· 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

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

Section 15 - REGULATORY INFORMATION

REGULATIONS

potassium metabisulfite (CAS: 16731-55-8) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals

potassium metabisulfite (CAS: 4429-42-9) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
potassium metabisulfite	16731- 55- 8, 4429- 42 - 9

REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects.

continued...

Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for reproductive no -observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH were used in the creation of such limits. Uncertainty factors (UFs) have also been incorporated.

Ingredient	ORG	UF	Endpoint	CR	Adeq TLV
sulfur dioxide	2.3 mg/m3	100	D	NA	-

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time -weighted average unless specified otherwise.
CR = Cancer Risk/10000; UF = Uncertainty factor:
TLV believed to be adequate to protect reproductive health:
LOD: Limit of detection
Toxic endpoints have also been identified as:
D = Developmental; R = Reproductive; TC = Transplacental carcinogen
Jankovic J., Drake F.: A Screening Method for Occupational Reproductive American Industrial Hygiene Association Journal 57: 641-649 (1996).

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: 26-Sep-2017