TECHNICAL BULLETIN

19 Motivation Dve Wangara, WA, 6065 AUSTRALIA
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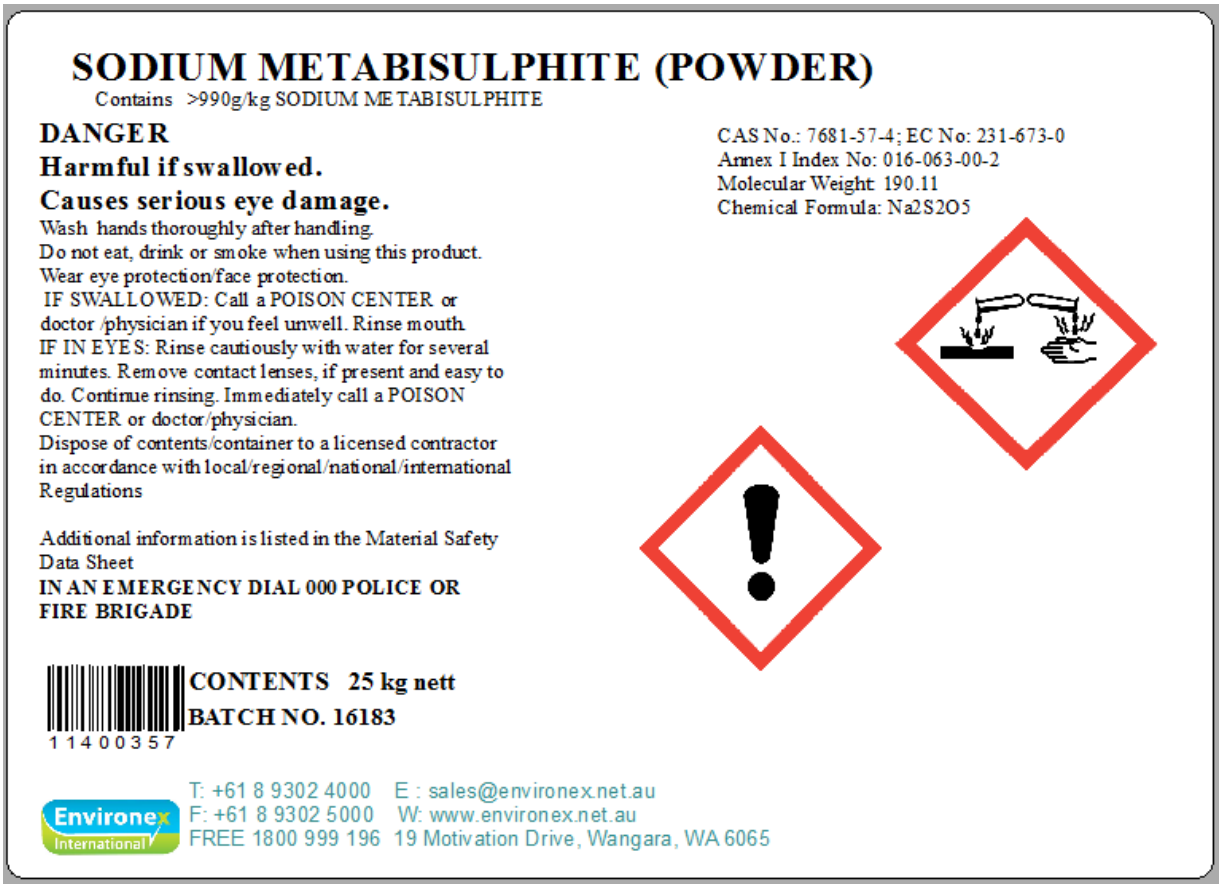
SODIUM METABISULFITE (SMBS)

SANITISER, PRESERVATIVE AND ANTIOXIDANT



MATERIAL & FUNCTION

SODIUM METABISULFITE or sodium pyrosulfite (American spelling; English spelling is **SODIUM METABISULFITE** or sodium pyrosulphite), Na2S2O5.. It is used as a sterilizer and antioxidant/ preservative.

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SODIUM METABISULFITE is a white to slightly yellowish, crystalline powder with a odour of sulfur dioxide. Content of sulfur dioxide at least 65.5 %-wt.

Properties:

Melting temperature:	decomposition starts at 150 °C
Density (20 °C):	1.48 g/cm3
Bulk density:	1000 - 1200 kg/m3
Solubility in water (20 °C):	470 g/l
pH-value (50 g/l, 20 °C):	3.5 - 5

Applications:

In the chemical and pharmaceutical industries: as a reducing agent, for purifying and isolating aldehydes and ketones. For destroying waste bromine.
In drinking water treatment to remove excess chlorine and chloramines and protect RO membranes. In the treatment of wastewater, particularly. from electroplating plants, to neutralize chromic acid; to remove excess chlorine in the neutralization of cyanide. In special cases to remove oxygen from boiler feed water.
For cleaning and bleaching wool, jute, and other vegetable fibres.
In the paper and pulp industry for bleaching ground wood.
SODIUM METABISULFITE photo grade in the photographic and film industry for preparing developer solutions, for acidifying fixing baths.
SODIUM METABISULFITE food grade (E223): For preserving foodstuffs (restricted use in accordance with the additives approval regulations, E 223). It may cause allergic reactions, particularly skin irritation, gastric irritation and asthma. It is not recommended for consumption by children

As anti-melanosis additive for sea food (prawns, shrimp).

SODIUM METABISULFITE Solution (**SMBS**) is made by dissolving solid **SODIUM METABISULFITE** into water and has a pH of 4.6 at 1.0 % (by weight) solution strength. The **SMBS** solution is not stable to air and reacts with oxygen as well as chlorine, therefore it is recommended that batches of less than 2 % by weight be used within 3 to 7 days and batch solutions less than 10 % be used within 7 to 14 days. Theoretically, 0.70 ppm of **SODIUM METABISULFITE**) will stoichiometrically neutralize 1.0 ppm of chlorine.

· $Na_2S_2O_5$ (**SODIUM METABISULFITE**) + H_2O → 2 $NaHSO_3$ (sodium bisulfite)

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· $NaHSO_3$ + HOCl → $NaHSO_4$ (sodium bisulfate) + HCl (hydrochloric acid)

· $NaHSO_3 + Cl_2 + H_2O \rightarrow NaHSO_4 + 2\ HCl$

Monitoring for dechlorination can be performed by the use of an Available Free Chlorine monitor, monitoring for a residual bisulfite concentration, or by an ORP monitor. The preferred method is to monitor for a residual bisulfite concentration, as this assures one that sufficient bisulfite exists to have neutralized all chlorine. Most commercial chlorine monitors measure with accuracy down to only 0.1 ppm, which is the upper limit for CPA membranes. The use of ORP monitors to indirectly measure residual bisulfite levels by the oxidation/reduction (Redox) level of the feedwater have proven not to be reliable due to hard to predict variability of the baseline millivolt readings.

ANTIMICROBIAL AGENT

Typically, an **SMBS** solution should be dosed at 0.1 % v/v to 0.3% v/v at ambient temperature and left in contact with the surface for at least 30 minutes.

Theoretically, **SMBS** solution contains 37% **SODIUM METABISULFITE**. However, It does react with oxygen in the air and will lose some activity as Sulfur dioxide gas.

CAUTION

Avoid contact with skin and eyes and avoid breathing vapour or spray mist. **SMBS** produces sulfur dioxide. A Material Safety Data Sheet (MSDS) is available on request.

Classification: Xn Harmful. R22 Harmful if swallowed. R31 Contact with acids liberates toxic gas. R41 Risk of serious damage to eyes.

PACKAGING

15, 200 Litre containers

IMPORTANT NOTICE TO CUSTOMER

Since the use of this product is beyond the control of either seller or manufacturer, their only obligation shall be to replace any quantity of product which is proven defective. They cannot assume any risk or liability in excess of the purchase price of the product itself, which does not include labour or any consequential damages resulting from the use of this product. Determining the suitability of this product for any intended use shall be solely the responsibility of the user. **ALWAYS TEST FIRST.**

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