

# Material Safety Data Sheet

## Direct Bilirubin

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Direct Bilirubin.

**Catalog Numbers:** TD33301, TL33301, TR33321, TR33326, TR33398, TY33301, 1225-250, 1225-200H.

**Use:** This reagent is intended for in vitro quantitative determination of direct bilirubin in human serum .

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### 2. HAZARD IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO EU CRITERIA

**Hazard Classification:** HAZARDOUS SUBSTANCE, DANGEROUS GOODS.

**Hazard Category**

**Direct Bilirubin:** Irritant

**Nitrite:** Harmful

**RISK PHRASES**

**Direct Bilirubin**

R38 Irritating to skin

R41 Risk of serious damage to eyes.

**Nitrite**

R22 Harmful if swallowed.

**SAFETY PHRASES**

**Direct Bilirubin**

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Nitrite**

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Poison Schedule**

**Direct Bilirubin:** S5

This material is a Schedule (S5) Poison and must be stored, handled and used according to the appropriate regulations.

**Nitrite:** S6

This material is a Schedule (S6) Poison and must be stored, handled and used according to the appropriate regulations.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE NAME	Proportion	CAS Number
<b>Direct Bilirubin</b>		
HYDROCHLORIC ACID	~ 1 %	7647-01-0
WATER AND OTHER NON HAZARDOUS INGREDIENTS	Balance	Mixture
<b>Nitrite</b>		
SODIUM NITRITE	1 to 10 %	7632-00-0
WATER AND OTHER NON-HAZARDOUS SUBSTANCES	> 60 %	Mixture

All other ingredients determined not to be hazardous according to the EU criteria.

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### 4. FIRST AID MEASURES

**Swallowed:****Direct Bilirubin**

If swallowed, **DO NOT induce vomiting**. If victim is conscious give glass of water to drink. Immediately transport to hospital or doctor.

**Nitrite**

If swallowed, and if more than 15 minutes from a hospital, **induce vomiting**, preferably using Ipecac Syrup APF.

**Eye:** If product enters the eyes, immediately, flush with plenty of water for 15 minutes, ensuring eye lids are held open. Immediately transport to hospital or doctor.

**Skin:** If product contacts the skin, remove any contaminated clothing and wash skin thoroughly with soap and water. If irritation persists transport to hospital or doctor.

**Inhaled:** Move victim to fresh air. Apply resuscitation if victim is not breathing.

**First Aid Facilities:** Eye wash fountain, safety shower and normal wash room facilities.

**Advice to Doctor:** Treat symptomatically.

In case of poisoning, contact Poisons Information Centre

**In Australia call Tel: 131126**

**In New Zealand Tel: 034747000**

### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing media suitable for surrounding fire situation.

**Hazards from Combustion Products:** Decomposes on heating emitting hydrogen chlorides, oxides of sulfur and nitrogen.

**Precautions for Fire Fighters and Special Protective Equipment:** If safe to do so, move undamaged containers from fire area. Fire fighters to wear Self-contained breathing apparatus (SCBA) in confined spaces, in oxygen deficient atmospheres or if exposed to products of decomposition. Full protective clothing is also recommended.

**Hazchem Code:** None allocated.

**Flammability:** This material is not a combustible or flammable liquid.

### 6. ACCIDENTAL RELEASE MEASURES

**Emergency Procedures**

Keep unnecessary people away. Isolate hazard area and deny entry. If product spills onto floors it will represent a slip hazard, walk cautiously. Wear protective equipment to prevent skin and eye contact, as outlined under personal protection in this MSDS.

**Methods and Materials for Containment and Cleanup Procedures**

Dike area using with an absorbent such as diatomaceous earth - to prevent run off into drains and waterways. Throw further absorbent (diatomaceous earth or other inert material) on top of spill, then shovel up and seal in properly labeled containers for disposal. Remainder of material on floor can be neutralized by cautiously adding sodium bicarbonate or soda ash. Collect this material after foaming/effervescence ceases and place into above labeled container.

### 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

Avoid contact with skin and eyes.

**Conditions for Safe Storage**

Store in a cool place and out of direct sunlight. Store away from sources of heat or ignition. Store away from strong oxidizing agents and strong alkalis. Keep containers closed, when not using the product. When stored at 2 - 8°C the reagent will be stable until the expiry date on the bottle and kit box labels. Store in original packaging as approved by manufacturer.

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### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Standards

##### Direct Bilirubin

No exposure standards have been assigned by (NOHSC) for this product however, the following exposure standards have been assigned to the following component of the product.

##### HYDROCHLORIC ACID

(Worksafe Australia)

[TWA] 5 ppm 7.5 mg/m<sup>3</sup>

[STEL] Peak limitation

Notices: H

##### Nitrite

No exposure standards have been assigned by [NOHSC] for this product or for any of the components.

#### Engineering Controls

Maintain adequate ventilation at all times. In most circumstances natural ventilation systems are adequate unless the material is heated, reacted or otherwise changed in some type of chemical reaction, then the use of a local exhaust ventilation system is recommended.

#### Personal Protection Equipment

**Gloves:** Not normally required, however, if product has spilt, or package is broken, then the use of PVC or neoprene gloves is recommended.

**Eyes:** Chemical glasses or face shield to protect eyes.

**Respiratory Protection:** Avoid breathing of vapours. The use of a respirator is not normally required, however, if entering spaces where the airborne concentration of a contaminant is unknown then the use of a Self-contained breathing apparatus (SCBA) with positive pressure air supply complying with AS/NZS 1715 / 1716, or any other acceptable International Standard is recommended. Select and use respirators in accordance with AS/NZS 1715/1716.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

	Direct Bilirubin	Sodium Nitrite
<b>Appearance:</b>	Clear liquid with faint odour	Clear liquid with faint odour
<b>Boiling Point:</b>	Not available	Not available
<b>Freezing Point:</b>	Not available	Not available
<b>Vapour Pressure:</b>	Not available	Not available
<b>Specific Gravity:</b>	Not available	Not available
<b>Flash Point:</b>	Not applicable	Not applicable
<b>Flammability Limits:</b>	Not applicable	Not applicable
<b>Solubility in Water:</b>	Completely miscible	Completely miscible
<b>Other Properties</b>		
<b>pH:</b>	1.15 ± 0.1	7.0 ± 0.4 @ 19-22° C
<b>% Volatiles:</b>	> 80 %	Not available

### 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable under normal conditions of use.

**Conditions to Avoid:** Incompatibles.

**Incompatible Materials:** Strong oxidizing agents and strong alkalis.

**Hazardous Decomposition Products:** Decomposes on heating emitting hydrogen chlorides, oxides of sulfur and nitrogen.

**Hazardous Reactions:** Will not occur.

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### 11. TOXICOLOGICAL INFORMATION

#### **Direct Bilirubin**

There is no toxicological information available for this product, however, for the ingredient:

#### **Hydrochloric Acid:**

According to OECD Guideline for the Testing of Chemicals (OECD 405) for eye corrosion and OECD Guideline for the Testing of Chemicals (OECD 404) for skin corrosion, both test procedures have been utilized to determine that hydrochloric acid is a confirmed corrosive substance.

This product contains less than the amount of hydrochloric acid which is considered a hazardous substance according to Worksafe Australia, however, we anticipated that this product will cause severe eye irritation and significant skin irritation especially if the duration of exposure is prolonged or repeated.

#### **Nitrite**

There is no toxicological information available for this product, however, for the sodium nitrite component:

The two basic actions of sodium nitrite in vivo are relaxation of smooth muscle, especially of small blood vessels, and in toxic doses the conversion of hemaoglobin to methemoglobin.

Oral LD50(rat): 180 mg/kg

There is no clear evidence that sodium nitrite will cause carcinogenesis, mutagenesis or impair fertility or cause developmental toxicity effects.

#### **Acute Health Effects**

**Swallowed:** May cause irritation to mouth, throat and stomach with effects including mucous build up, irritation to the tongue and lips and pains in the stomach. Swallowing of large quantities may result in nausea, vomiting and diarrhoea.

**Eye:** Will cause severe irritation to the eyes, with effects including: tearing, pain, stinging and blurred vision. If the product is not removed promptly corneal injury may occur.

**Skin:** Will cause irritation to the skin, with effects including; Redness and itchiness. The product is not anticipated to be absorbed through the skin.

**Inhaled:** May cause irritation to the nose, throat and respiratory system. However, this is only anticipated to occur if the product is heated.

**Chronic:** Prolonged or repeated skin contact may lead to drying / defatting and possible dermatitis in some susceptible individuals.

### 12. ECOLOGICAL INFORMATION

#### **Direct Bilirubin**

No information is available for this product, however, for hydrochloric acid component:

#### **Water Pollution**

**Persistency:** pH will be neutralized slowly by natural alkalinity and carbon dioxide.

**Effect on water treatment process:** May prevent coagulation by some agents through pH reduction.

**Water uses threatened:** All uses.

**Industrial fouling potential:** Highly corrosive to equipment. pH is often a very important parameter in industrial water use.

Avoid contaminating drains, sewers or waterways.

#### **Nitrite**

According to Worksafe Australia and the European Union sodium nitrite is considered to be very toxic to aquatic organisms.

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### 12. ECOLOGICAL INFORMATION

#### Water Pollution

**Aquatic toxicity:** 17.1 ppm/24 hr/minnow/no effect

fresh water 7.5 ppm/48 hr

**Waterfowl toxicity:** Data not available

**Biological oxygen demand (BOD):** Data not available.

**Food chain concentration potential:** Data not available.

Avoid contaminating drains, sewers or waterways.

### 13. DISPOSAL CONSIDERATIONS

Refer to appropriate authority in your State. Normally suitable for disposal by approved waste disposal agent.

### 14. TRANSPORT INFORMATION

#### Direct Bilirubin & Nitrite

**UN Number:** None allocated

**Proper Shipping Name:** NONE ALLOCATED

**Dangerous Goods Class:** None allocated

**Subsidiary risk:** None allocated

**Packing Group:** None allocated

**Label: Direct Bilirubin:** Irritant (Xi), **Nitrite:** Harmful (Xn)

#### Road and Rail Transport

Not classified as a Dangerous Good according to the United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the Classification and Labeling of Chemicals.

#### Air Transport

**Direct Bilirubin:** This product is classified as a Dangerous Good according to ICAO/IATA regulations:

**Proper Shipping Name:** CORROSIVE LIQUID, N.O.S. (HYDROCHLORIC ACID)

**UN Number:** UN1760

**Class:** 8

**Pack Group:** III

#### Marine Transport

Not classified as a Dangerous Good according to the International Maritime Organization Rules (Maritime Dangerous Goods Code - IMDG Code) for transport by sea.

### 15. REGULATORY INFORMATION

#### Poison Schedule

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#### Inventory Status:

Australia (AICS)	Y
United States (TSCA)	Y
Canada (DSL)	Y
Europe (EINECS/ELINCS)	Y

Y = all ingredients are on the inventory.

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### 16. OTHER INFORMATION

Issue date: May, 2006.

#### Key Legend Information

NOHSC - National Occupational Health & Safety Commission [Aust]

SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons {Poison Schedule} [Aust]

TWA - Time Weighted Average [Int]

STEL - Short Term Exposure Limit [Int]

AICS - Australian Inventory of Chemical Substances [Aust]

EPA - Environmental Protection Agency [Int]

NIOSH - National Institute for Occupational Safety and Health [US]

AS/NZS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. [Aust]

AS/NZS 1716 - Respiratory Protective Devices. [Aust]

Hazchem Code - Fire Fighter Designation [Aust]

IATA - International Aviation Transport Authority [Int]

ICAO - International Civil Aviation Organization [Int]

IMO - International Maritime Organisation. [Int]

IMDG - International Maritime Dangerous Goods [Int]

United Nations Recommendations for the Transport of Dangerous Goods and Globally Harmonized System for the Classification and Labeling of Chemicals. [Int]

EU - European Union

TSCA - Toxic Substances Control Act [US]

DSL - Domestic Chemical List [Can]

EINECS - European Inventory of Existing Commercial Chemical Substances [Int]

ELINCS - Existing List of Notified Chemical Substances. [Int]

[Aust] = Australia

[Int] = International

[US] = United States of America

[Can] = Canada

#### Principal References:

Information supplied by manufacturer, reference sources including the public domain.

#### Disclaimer

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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**END OF MSDS**