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MATERIAL SAFETY DATA SHEET BC180 TIMBER PRIMER

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Hazardous according to criteria of Worksafe Australia

1. IDENTIFICATION

PRODUCT NAME : BC180 Timber Primer

AVAILABLE COLORS : White

OTHER NAMES : BC180 Fast Dry Timber Primer

U.N. NUMBER : 1263

DANGEROUS GOODS CLASS : 3.1 (Highly flammable liquid)

SUBSIDIARY RISK : None
PACKAGING GROUP : II
HAZCHEM CODE : •3YE
POISONS SCHEDULE : S6
EPG : 3C1

USE : Timber primer giving almost lacquer type dry in an enamel based paint over

properly prepared timber surfaces.

For Industrial Use Only In Spray Areas Complying With Relevant Regulations.

COMPANY / UNDERTAKING

BC COATINGS

2 Hume Road, Smithfield, N.S.W., 2164 Phone +612 9729-2000, FAX +612 9729-2279 Emergency Telephone No.+612 9634-5560

The following personnel should be contacted depending on the nature of the inquiry.

TECHNICAL MANAGER PRODUCTION MANAGER

MANAGING DIRECTOR SALES MANAGER

AUSTRALIAN POISONS INFORMATION CENTRE 24 HOUR SERVICE : 13 11 26

POLICE OR FIRE BRIGADE : 000 (exchange): 1100

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure.

Always read the Material Safety Data Sheets (MSDS) for any products you use at work.

They contain useful information on hazards and control measures.

Safety Data Sheets are current for a maximum of three years but may be updated more frequently.

Please ensure that you have a current copy.

The information given in this bulletin and by the company's technical staff is provided as a general guide only to facilitate the adoption of appropriate measures in relation to handling, storage and disposal of the product.

Although BC Coatings has taken all reasonable care to ensure that the information is accurate, it accepts no responsibility for any loss or damage however caused that results there from and does not warrant such accuracy whether or not the information originated with BC Coatings .

BC Coatings urges each recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product.

The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should notify its employees, agents, contractors and others whom it knows or believes will use this material or the information in this MSDS and any other information regarding hazards or safety.

Users of the product are requested to contact BC Coatings technical section for detailed information regarding the qualities and characteristics of the product before it is used.

We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.



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3. HAZARDS IDENTIFICATION

Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flash point.

Hazardous according to criteria of Worksafe Australia

CLASSIFICATION AND LABELLING ACCORDING TO NOHSC CODES

CLASSIFICATION / SYMBOL : HIGHLY FLAMABLE / F

CLASSIFICATION / SYMBOL : HARMFUL / Xn

GOVERNING DIRECTIVE : National Code of practice for the Labelling of Hazardous Substances.

LABEL NAME : Paint Related Material

HAZARDS IDENTIFICATION

Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flash point.

RISK PHRASES

R36/37 Irritating to eyes and respiratory system.

R11 Highly flammable.

R20/2122 Harmful by inhalation, in contact with skin and if swallowed.

R36/37/38 Irritating to eyes, respiratory system and skin.

R42/43 May cause sensitisation by inhalation and skin contact.

SAFETY ADVICE

S7/9 Keep container tightly closed and in a well ventilated place.

S16 Keep away from sources of ignition - No smoking.

S20/21 When using, do not eat, drink or smoke. S23 Do not breathe gas/fumes/vapour/spray

S25 Avoid contact with eyes. S29 Do not empty into drains.

Take precautionary measures against static discharges.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S43B In case of fire use sand, earth, chemical powder or alcohol type foam

Use only in well ventilated areas.

HAZARD RATINGS

Flammability : 2 Health Hazard : 1 Body Contact : 1 Reactivity : 0

SCALE : Min/Nil = 0 Low = 1 Moderate = 2 High = 3 Extreme = 4

HEALTH EFFECTS - ACUTE EXPOSURE

The following acute (short term) health effects may occur immediately or shortly after exposure to this product:

High vapor concentrations are irritating to the eyes and the respiratory tract, may cause coughing, stomach upset, headaches, nausea and vomiting, tiredness, dizziness, are anaesthetic and may have other central nervous system effects.

High levels can cause you to feel dizzy and light-headed, and to pass out.

Very high levels can cause death.

Narcotic effects occur at levels below the exposure standard.

If a large amount (> 1 ml/kg) is ingested and retained, symptoms of CNS depression and irritation occur and include weakness, dizziness, unconsciousness and convulsions.

TARGET ORGANS: Central nervous system, eyes, skin, gastro-intestinal tract, blood, liver and kidneys **MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**: None identified

ROUTES OF ENTRY: Ingestion, inhalation, skin contact, eye contact, absorption



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3. HAZARDS IDENTIFICATION - continued

HEALTH EFFECTS - ACUTE EXPOSURE - continued

SWALLOWED : Considered an unlikely route of entry in commercial/industrial environments.

The liquid is highly irritating and may be harmful if swallowed.

Tends to break into a foam if the patient vomits.

Ingestion can result in nausea, cramps, pain, vomiting, diarrhoea and central nervous system depression.

Small amounts of liquid aspirated into respiratory system during ingestion or from vomiting may cause broncho-pneumonia or pulmonary oedema may cause potentially lethal chemical pneumonitis..

If the victim is uncoordinated there is a greater likelihood of vomit entering the lungs and causing subsequent complications.

EYE

The liquid is irritating to the eyes and is capable of causing temporary discomfort with mild redness of the conjunctiva (similar to wind burn), temporary impairment of vision and other transient eye damage/ulceration.

The vapour is highly irritating to the eyes.

Corneal changes have been reported in furniture polishers exposed to xylene.

SKIN

Contact with the skin may result in mild irritation and drying of the skin which may lead to dermatitis if contact is prolonged. Material is capable of being absorbed by the skin. Toxic effects may result from skin absorption.

Capable of causing skin sensitisation and allergic skin reactions.

Open cuts, abraded or irritated skin should not be exposed to this material.

The material may accentuate any pre-existing skin condition.

INHALED

This product is a central nervous system depressant. CNS depression characterised by dizziness and headache.

Vapor/mist concentrations above recommended exposure levels may be extremely irritating to mucous membranes, eyes, respiratory tract, and lungs and may cause headaches and dizziness, could be anaesthetic and may have other central nervous system effects. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterized by headache, dizziness, increased reaction time, loss or co-ordination, fatigue, lassitude, irritability - and gastrointestinal disturbances (e.g. nausea, anorexia and flatulence).

Inhalation hazard is increased at higher temperatures.

Toxic effects are increased by consumption of alcohol.

Repeated exposure may cause sensitisation and/or allergic reactions.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Injury to the heart, liver, kidneys and nervous system has also noted amongst workers.

HEALTH EFFECTS - CHRONIC EXPOSURE

Principal routes of exposure are usually by skin contact/absorption and inhalation of vapour.

Chronic (long term) health effects can occur at some time after exposure to liquid hydrocarbons and can last for months or years:

Evidence from animal tests indicate that repeated or prolonged solvent inhalation exposures could result in kidney disorders, nervous system impairment, liver and blood changes. [PATTYS]

Repeated exposure can damage bone marrow, causing low blood cell count. This product can damage the liver and kidneys.

Repeated exposure to this product can cause poor memory, difficulty in concentration and other brain effects.

It can also cause damage to the surface of the eye and cause stomach problems.

(EPA)

Prolonged or continuous skin contact with the liquid may cause de-fatting with drying, cracking, irritation and dermatitis following. Capable of causing skin sensitisation and allergic skin reactions.

MIXED EXPOSURES

Because smoking can cause heart disease, as well as lung cancer, emphysema, and other respiratory problems, it may worsen respiratory conditions caused by chemical exposure.

Even if you have smoked for a long time, stopping now will reduce your risk of developing health problems.

Because more than light alcohol consumption can cause liver damage, drinking alcohol can increase the liver damage caused by liquid hydrocarbons.



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2. COMPOSITION

CHEMICAL ENTITY	CAS No.	PROPORTION (% w/w)
PETROLEUM HYDROCARBONS MIXTURE AROMATIC	64741-68-0	10 - 30
(Toluene	108-88-3	30 - 60)
(Xylene, mixture of isomers	1330-30-7	< 10)
(Ethyl Benzene	100-41-4	< 10)
(Light Aliphatic Petroleum Solvent	64742-89-8	30 - 60)
(Benzene	71-43-2	< 0.1)
PETROLEUM HYDROCARBON MIXTURE (ALIPHATIC)	N/A	10 - 30
ALIPHATIC ALCOHOLS	N/A	< 10
SYNTHETIC RESINS (Proprietary Mixture)	N/A	10 - 30
INERT PIGMENTS / FILLERS	Non-Hazardous	30 - 60
MISCELLANEOUS ADDITIVES	N/A	< 10

All components are registered in accordance with Australian Inventory of Chemical Substances.

More detailed information available to medical staff in case of an emergency.



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4. FIRST AID MEASURES

Poison Information Centres in each State capital city can provide additional assistance for scheduled poisons.

SWALLOWED

Harmful if swallowed.

If swallowed, do **NOT** induce vomiting due to the hazard of solvent aspiration into the lungs which may cause mild to severe pulmonary injury and possibly death.

Tends to break into a foam if the patient vomits.

Give milk or water to rinse out mouth and to drink to dilute the chemical.

Do NOT give anything by mouth to an unconscious person.

Should vomiting occur, place patient's head downwards, head lower than hips, to prevent vomit entering the lungs.

This is especially important as aspiration of this material into the lungs can cause chemical pneumonia, which can be fatal.

Call a doctor and/or transport to an emergency facility or hospital IMMEDIATELY.

EYE

IMMEDIATELY and continuously irrigate with copious quantities of low pressure, fresh water for at least 15 minutes.

Eyelids should be held open.

Ensure irrigation under the eyelids by occasionally lifting upper and lower lids.

Remove any contaminated clothing and flush area with water until irritation subsides.

Seek IMMEDIATE medical attention.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

Soak contaminated clothing, including footwear, with water and then remove.

Gently wash the affected areas thoroughly with water, then mild soap and water.

If exposure has been prolonged or severe or if swelling, redness or irritation occur seek medical advice.

Launder contaminated clothing before re-use.

Thoroughly dry contaminated shoes before re-use.

Discard internally contaminated gloves and shoes.

INHALED: If fumes or combustion products are inhaled:

Remove affected person(s) to fresh air, taking care not to become affected yourself.

Remove any contaminated clothing and loosen remaining clothing.

If breathing is normal, allow the patient to assume the most comfortable position and keep warm.

Keep at rest until fully recovered.

If breathing is difficult and/or patient is cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a face mask.

If breathing has stopped, commence Expired Air Resuscitation (E.A.R.).

In the event of cardiac arrest, commence Cardio-Pulmonary Resuscitation (C.P.R.).

Seek **IMMEDIATE** medical attention or transport to hospital, or doctor, without delay.

ADVICE TO DOCTOR

Treat symptomatically.

Principal routes of exposure are skin contact/absorption and inhalation of the vapor/spray mist.

Primary threat to life from ingestion and/or inhalation, is respiratory failure.

Skin sensitisation may result from a single acute exposure.

Sensitisation may cause difficulty in breathing similar to asthma.

Onset of symptoms may be delayed several hours after exposure.

Extreme care must be taken to prevent aspiration. Material if aspirated into lungs may cause chemical pneumonitis.

Gastric lavage with a cuffed endotracheal tube to prevent further aspiration should be done.

In the absence of depression or convulsions, or impaired gag-reflex, ipetic emesis can also be done without increasing the hazard of aspiration.

When vomiting occurs, hold patient with head below the hips to prevent pulmonary aspiration.



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5. FIRE FIGHTING MEASURES

FOR LARGE SPILLS AND FIRES IMMEDIATELY CALL YOUR FIRE DEPARTMENT.

FIRE AND EXPLOSION HAZARD

Liquid and vapour are highly flammable.

High explosion hazard, in the form of vapour, when exposed to flame or spark.

Vapor / air mixtures may ignite explosively and flashback a considerable distance along the vapor trail to source of ignition.

Flammable liquid, can form flammable mixtures or can burn only upon heating or at temperatures above flash point.

High fire hazard when exposed to heat, flame and/or oxidisers.

When burning may form toxic materials such as carbon monoxide, carbon dioxide, various hydrocarbons, fumes and smoke.

Do not store or mix with strong oxidants (such as chlorine, bromine and fluorine) since violent reactions occur.

Shut off any leak if safe to do so and remove sources of re-ignition.

If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop leak.

If safe to do so, remove containers from the path of the fire and keep cool with water spray.

Burns very rapidly and explosively.

In the case of incomplete combustion may form toxic materials such as carbon monoxide (CO), carbon dioxide (CO₂), various hydrocarbons, fumes and smoke.

Product can accumulate static charges which can cause an incendiary electrical discharge.

Heating may cause expansion or decomposition leading to violent rupture of containers.

Shut off any leak if safe to do so and remove sources of re-ignition.

If safe to do so, remove containers from the path of the fire and keep cool with water spray.

Keep storage tanks, pipelines, fire exposed surfaces etc. cool with water spray.

Minimize breathing gases, vapour, fumes or decomposition products.

Firefighters should wear self-contained breathing apparatus with a full face piece and operated in positive pressure mode.

Water spray may be used to flush spills away from exposures.

Prevent run off from fire control or dilution from entering waterways, sewers or drinking water supply.

This product may form a floating fire hazard on water.

FIRE FIGHTING MEDIA

Either allow fire to burn under controlled conditions or extinguish with alcohol stable foam, carbon dioxide (CO_2) , or dry chemical. Try to cover liquid spills with foam.

Water spray may be ineffective, but should be used in case of larger fires, water spray be used to keep fire exposed containers cooled.

Avoid spraying water directly into storage containers due to danger of boilover.

If a leak or spill has not ignited, use water spray to disperse the vapours and to protect men attempting to stop leak.

If employees are expected to fight fires, they must be trained and equipped as stated in the appropriate regulations.

In case of fire, formation of carbon monoxide is possible.

Fire-men have to wear self-contained breathing apparatus.



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6. ACCIDENTAL RELEASE MEASURES

SPILLS AND DISPOSAL

FOR LARGE SPILLS AND FIRES IMMEDIATELY CALL YOUR FIRE DEPARTMENT.

Keep unauthorized persons away at a safe distance and move upwind until clean up is complete.

Shut off all possible sources of ignition ensure adequate ventilation / exhaust ventilation.

Stop liquid at the source if safe to do so.

No smoking, naked lights or ignition sources. Increase ventilation.

May be violently or explosively reactive.

Keep hydrocarbon solvents out of a confined space, such as a sewer, because of the possibility of an explosion, unless the sewer is designed to prevent the build up of explosive concentrations.

Do not empty into drains.

Use only spark-free and/or explosion proof equipment.

Avoid breathing vapours and contact with skin and eyes. Control personal contact by using protective equipment.

If a leak or spill has not ignited, use water spray or fog to disperse/absorb the vapours and to protect men attempting to stop leak. Advise authorities if product has entered or may enter sewers, watercourses or extensive land areas.

MINOR SPILLS

Clean up spills immediately.

Small spills may be absorbed onto any absorbent material such as sand, soil or vermiculite or other absorbent material. Collect residues and place in sealed, labelled, flammable waste container.

MAJOR SPILLS

Consider evacuation.

Alert Fire Brigade and tell them location and nature of hazard.

Avoid breathing vapors and contact with skin and eyes.

Wear breathing apparatus, protective gloves and full protective clothing.

Dyke the area with sand, earth or vermiculite, to prevent spreading and to prevent it entering sewers, drains or natural waterways. Advise authorities product has entered or may enter sewers, watercourses or extensive land areas.

Water spray or fog may be used to disperse /absorb vapour.

Pump the liquid to a labelled salvage tank for recycling or later disposal.

Absorb remaining material with suitable absorbent (sand, soil, fire retardant treated sawdust, vermiculite, diatomaceous earth & etc.).

Collect solid residues and seal in labelled, flammable waste containers for later disposal.

Water spray may be used to flush spills away from exposures.

Use only spark-free and/or explosion proof equipment.

Ventilate area well to evaporate remaining liquid and to dispel vapor.

Clean area with detergent and water - do not allow product to enter drains, sewers or water courses - inform the local authorities or emergency services if this occurs.



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7. HANDLING and STORAGE

HANDLING

Prior to working with this product, you should be trained on its proper handling and storage.

Observe manufacturer's storing and handling recommendations.

Packing as supplied by manufacturer. (Metal can / Metal drum / Metal safety cans).

Explosion protection required.

Sources of ignition, such as smoking, open flames, or ignition sources are prohibited where this product is used, handled, or stored in a manner that could create a potential fire or explosion hazard.

Handle containers with care.

Open slowly in order to control possible pressure release.

Ensure adequate ventilation (equivalent to outdoors), or exhaust ventilation in the working area to prevent build up of explosive atmosphere.

Use non-sparking tools and equipment especially when opening and closing containers.

To prevent fire or explosion risk from static accumulation and discharge, effectively ground and bond product, transfer system and all process equipment, including tanks and drums.

Ensure adequate ventilation or exhaust ventilation in the working area.

Exhaust ventilation necessary if product is sprayed.

Irritating to eyes, skin and mucous membranes.

Harmful in contact with or absorbed through the skin.

Avoid prolonged, repeated contact with eyes, skin contact and breathing vapours or mists.

Intense smelling. Keep away from foodstuffs and clothing.

Refer to AS 1940 (Storage and handling of flammable and combustible liquids) and AS 2865 (Safe working in a confined space), for more specific information on these subjects.

STORAGE REQUIREMENT

Materials are stable on storage, but should be stored in a cool and well ventilated place away from direct sunlight, sources of ignition, strong oxidizing agents (liquid chlorine, bromine, fluorine, concentrated oxygen, sodium hypochlorite), acids, alkalis (since violent reactions occur) and odor sensitive materials.

Check all containers are clearly labelled and check regularly for leaks.

Keep container dry and tightly closed when not in use.

Do NOT store in pits, depressions, basements or areas where vapours may be trapped.

Protect containers against physical damage and check regularly for leaks.

Avoid exposure to temperatures above 50 °C.

A flammable atmosphere can be produced in storage container headspaces even when stored at a temperature below the flashpoint.

Monitor and maintain headspace gas concentrations below flammable limits.

Do NOT pressurise, cut, heat, or weld containers.

Empty product containers may contain product residue.

Do NOT reuse empty containers without commercial cleaning or reconditioning.

PROCESS HAZARD

Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperatures and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources.

Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.

Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapors".



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8. EXPOSURE CONTROLS

ENGINEERING CONTROLS:

None required when handling small quantities.

OTHERWISE

Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure.

The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release.

Isolating operations can also reduce exposure.

Respirators serve as supplemental protection to reduce employee exposures when engineering and work practice controls are not sufficient to achieve the necessary reduction to or below the TWAs.

Keep containers closed when not in use.

Equipment MUST be explosion proof.

Use away from all ignition sources.

Ensure sufficient ventilation to maintain concentration below exposure standard in warehouse or closed storage areas.

Where rapid build up of vapors or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required.

Refer to AS 1940 - The storage and handling of flammable and combustible liquids and AS 2430 - Explosive gas atmospheres for further information concerning ventilation requirements.

Use with local exhaust ventilation or while wearing organic vapor /acid mist respirator (meeting the requirements of AS1715 & AS1716) or dust respirator/air supplied mask.

The effectiveness of an air purifying respirator is limited. Use it only for a single, short term exposure.

NOTE: Vapor is heavier than air and may collect in hollows, pits storage tanks or sumps.

Do **NOT** enter confined spaces where vapor may have collected without using an approved, positive pressure, self-contained breathing apparatus (meeting the requirements of AS1715 and AS1716) and an observer present for assistance.

LOCAL EXHAUST: Face velocity > 20 m/min.

FLAMMABILITY

Highly flammable liquid.

Can readily form flammable mixture with air.

May form explosive mixtures with air.

Avoid direct sources of heat, naked lights, sparks, all ignition sources and oxidising materials.

Prevent build up of flammable vapors.

Vapour may travel a considerable distance to source of ignition and flash back.

Explosion proof equipment necessary in areas where this product is being used.

Earth and bond all process equipment, including tanks, hoses and drums to avoid static charge build up.

Nearby equipment should be earthed.

Ensure ventilation is adequate to prevent build up of explosive atmosphere.

Refer to AS 1940 - Storage and handling of flammable and combustible liquids and AS 2865 - Safe working in a confined space, for more specific information on these subjects.



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8. EXPOSURE CONTROLS - continued

EXPOSURE LIMITS

No value has been assigned for this specific material by the N.H.M.R.C.

However, the Threshold Limit Value (TLV-TWA), as published by WORKSAFE [1991], for some of the individual constituents is listed below.

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin.

LIGHT AROMATIC PETROLEUM HYDROCARBONS (64742-89-8)

TLV-TWA : $100 \text{ ppm}, 525 \text{ mg/m}^3$

TOLUENE

ES-TWA : 100 ppm, 377 mg/m^3 TLV-TWA : 50 ppm, 188 mg/m^3 SKIN A4

STEL : 150 ppm, 565 mg/m³ (Under review)

IDLH Level : 2,000 ppm

Odour Threshold Value : 0.16 - 6.7 (detection), 1.9 - 69 (recognition)

The odor threshold only serves as a warning of exposure. Not smelling it does not mean you are not being exposed.

<u>NOTE</u>: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans. Detector tubes for toluene measuring in excess of 5 ppm, are available.

High concentrations of toluene in the air produce depression of the central nervous system (CNS) in humans.

Intentional toluene exposure (glue sniffing) at maternally-intoxicating concentration has also produced birth defects.

Foetotoxicity appears at levels associated with CNS narcosis and probably occurs only in those with chronic toluene induced kidney failure.

Exposure at or below the recommended TLV-TWA is thought to prevent transient headache and irritation, to provide a measure of safety for possible disturbances to human reproduction, the prevention of reduction in cognitive responses reported amongst humans inhaling greater than 40 ppm, and the significant risks of hepatotoxic, behavioural and nervous system effects (including impaired reaction time and incoordination).

Although toluene/ethanol interactions are well recognised, the degree of protection afforded by the TLV-TWA among drinkers is not known.

Exposure to liquid hydrocarbons at or below the recommended TLV-TWA and STEL is thought to minimise the risk of irritant effects and to produce neither significant narcosis or chronic injury.

BENZENE (71-43-2) $(\approx 0.1 \text{ %wt})$ TLV-TWA :10 ppm (32 mg/m³)



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8. EXPOSURE CONTROLS - continued

NOTE

These TLV's are issued as guidelines only and should not be interpreted as the fine line between safe and dangerous conditions. The above exposure limits are for air levels only.

When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.

Follow applicable regulations. (refer WORKSAFE Australia Exposure Standards)

All atmospheric contamination should be kept to as low a level as is practically possible.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and air samples.

You have a legal right to obtain copies of sampling results from your employer.

If you think you are experiencing any work related health problems, see a doctor trained to recognize occupational diseases. Take this MSDS with you.

TLV-TWA is the time weighted average concentration of the workplace atmosphere for a normal 8 hour work day and a 40 hour work week, to which nearly all workers may be repeatedly exposed day after day without adverse effect.

These TLV's are issued as guidelines only and should not be interpreted as the fine line between safe and dangerous conditions. All atmospheric contamination should be kept to as low a level as is practically possible.

STEL's are expressed as airborne concentrations of substances, averaged over a period of 30 minutes.

This short term TWA concentration should not be exceeded at any time during a normal 8 hour working day.

Workers should not be exposed at the STEL concentration continuously for longer than 15 minutes, or for more than four such periods per working day.

A minimum of 250 minutes should be allowed between successive exposures at the STEL concentration.

STEL is the concentration to which workers can be exposed continuously for a short period of time without suffering

from: - irritation

- chronic or irreversible tissue damage, or
- narcosis of a sufficient degree to increase the likelihood of accidental injury, impair self-rescue or materially reduce work efficiency, and provided that the daily TLV-TWA is not exceeded.

Sk NOTICE - absorption through the skin, mucous membranes and eye may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin.

Absorption by skin may readily exceed vapour inhalation exposure.

Symptoms for skin absorption are the same as for inhalation.

Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

PEAK LIMITATION - a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes.

ODOR THRESHOLD

When considering the odor threshold of a substance, one finds that reported values are widely divergent.

Two major factors which influence odor detection are differences between individuals in the ability to perceive a particular odor and the methodology employed in conducting the odor threshold determination.

In their "Guide to Industrial Respiratory Protection - Appendix C", NIOSH states:

Amoore and Hautala (33) found that on average, 95% of a population will have a personal odor threshold that lies within the range from about one-sixteenth to sixteen times the reported mean "odor threshold" for a substance.

In further explanation, Amoore and Hautala state:

The ability of members of the population to detect a given odor is strongly influenced by the innate variability of different persons' olfactory powers, their prior experience with that odor, and by the degree of attention they accord the matter.



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8. EXPOSURE CONTROLS - continued

PERSONAL PROTECTION

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT.

However, for some jobs personal protective equipment may be appropriate.

In case of hypersensitivity of the respiratory tract and skin (e.g. asthmatics and those who suffer from chronic bronchitis and chronic skin complaint) it is inadvisable to work with the product.

Use adequate general or local exhaust ventilation to meet TLV requirements.

All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Contact lenses should not be worn in areas where eye contact with this product can occur.

Observe good personal hygiene.

Keep away from foodstuffs, drinks and tobacco.

Keep working clothes separate.

Launder contaminated clothing and other protective equipment before storing or re-using, and discard internally contaminated gloves and footwear.

ALWAYS wash hands carefully before breaks, eating, drinking, smoking, using the toilet and at end of work.

Do not eat, smoke, or drink where this product is handled, processed, or stored, since the chemical can be swallowed.

Personal protective equipment in should not be worn in lunch areas to prevent migration of this product to an area where other employees may be unknowingly exposed.

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 Adviser.

For detailed advice on Personal Protective Equipment, refer to the following Australian Standards:

HB 9 (Handbook 9) Manual of industrial personal protection. AS 1377 Eye protectors for industrial applications.

AS 1715 Selection, use and maintenance of respiratory protective devices.

AS 1716 Respiratory protective devices.

When exposure is likely, personal protective equipment in combination appropriate to the degree and nature of exposure, should be selected from the following lists :-

SKIN

Skin contact should be avoided by wearing chemically resistant apron or other work clothing, safety boots and chemical protective gloves if needed to avoid repeated or prolonged skin contact.

Safety equipment suppliers/manufacturers can provide recommendations on the most protective glove/clothing for your operation.

All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Do NOT use solvent to clean the skin but use skin cleansing cream.

Ensure that there is ready access to an emergency shower.

If contamination occurs, immediately remove all contaminated clothing, wash or shower to remove the chemical and change into clean clothing.

Clothing wet with product should be soaked with water before removal to prevent the possibility of ignition by static electricity discharges.

At the end of the workshift, wash any areas of the body that may have contacted this product, whether or not known skin contact has occurred.

Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to this product.

EYES

Eyes should be protected by chemical splash goggles, safety glasses fitted with side shields or full face shield.

Contact lenses should NOT be worn; soft lenses may absorb irritants and all lenses concentrate irritants.

If vapor causes eye irritation or if an inhalation risk exists a full-face, organic vapor respirator

(meeting the requirements of AS1715 & AS1716) should be used.

Eye wash fountains (capable of maintaining an appropriate water pressure for an appropriate length of time to remove the product from the eyes) and safety showers should be available for emergency use.



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8. EXPOSURE CONTROLS - continued

PERSONAL PROTECTION - continued

RESPIRATORY

Avoid breathing vapors.

Enclose operations and use local exhaust ventilation.

Use general or local exhaust ventilation to meet TLV requirements.

If local exhaust ventilation or enclosure is not used, respirators should be worn.

Respiratory protection required if airborne concentration exceeds TLV.

Respiratory protection required in insufficiently ventilated working areas and during spraying.

IMPROPER USE OF RESPIRATORS IS DANGEROUS.

At concentrations up to 100 ppm, a chemical cartridge respirator with organic vapor/acid mist cartridge is recommended. Above this level, a self-contained breathing apparatus (meeting the requirements of AS1715 and AS1716) with a full facepiece operated in continuous flow or other positive pressure mode is recommended.

If vapor causes eye irritation or if an inhalation risk for higher exposures exists an approved air supplied breathing apparatus (meeting the requirements of AS1715 and AS1716) operated in pressure demand or other positive pressure mode should be used. If while wearing a filter, cartridge or canister respirator, you can smell, taste, or otherwise detect this product, or in the case of a full facepiece respirator you experience eye irritation, leave the area immediately.

Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge, or canister.

If the seal is no longer good, you may need a new respirator.

Exposure to 2,000 ppm is immediately dangerous to life and health.

If the possibility of exposures above 2,000 ppm exists, use an approved self-contained breathing apparatus(meeting the requirements of AS1715 and AS1716) with a full facepiece operated in continuous flow or other positive pressure mode.

Where the concentration of vapor or mist is unknown or expected to approach or exceed the Worksafe Exposure Standards limit, the following additional equipment is recommended :-

 $(1) \ Short\ elevated\ exposures,\ e.g.\ spillage\ -\ goggles\ and\ correct\ respiratory\ equipment\ should\ be\ worn.$

N.B.

if the vapor/mist concentration exceeds the exposure limit by more than 10 times, air supplied apparatus should be used.

(2) For prolonged elevated exposures - Full face air supplied or self contained breathing apparatus should be worn.

NOTE: Make sure the correct cartridges are used for the potential air contamination.

The effectiveness of an air purifying respirator is limited.

Use it only for a single, short term exposure.

For emergency and other conditions where the exposure guide line may be greatly exceeded, use an approved, positive pressure, self-contained breathing apparatus and an observer present for assistance.

For further information consult your Occupational Health and Safety Adviser.



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9. PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION / PROPERTIES

APPEARANCE : White, viscous liquid.
ODOR : Strong hydrocarbon odor.

BOILING POINT(°C): 100.0 - 130.0(Aromatic Hydrocarbon)VAPOR PRESSURE(kPa @ 38°C): 8.3(Aromatic Hydrocarbon)SPECIFIC GRAVITY(@ 25°C): 1.125 ± 0.005 (Water =1)

VOC : $500 \pm 5 \text{ gm / Litre}$

% VOLATILES (by weight) : 45.0 ± 0.5

EVAPORATION RATE : 2.73 (Butyl Acetate =1) (Aromatic Hydrocarbon) TAG CLOSED CUP FLASH POINT $(^{\circ}C)$: < 0.0(Aromatic Hydrocarbon) (% volume) : 1.0 LEL / 7.5 UEL (Aromatic Hydrocarbon) FLAMMABILITY LIMITS AUTOIGNITION TEMPERATURE (°C) : > 250.0(Aromatic Hydrocarbon)

SOLUBILITY IN WATER (% by weight) : Negligible pH VALUE : Not Applicable CHEMICAL REACTIVITY : Stable.

OTHER PROPERTIES : Can readily form flammable mixture.



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10. STABILITY and REACTIVITY

REACTIVITY / COMPATIBILITY

Hazardous polymerization : Cannot occur

Stability : Stable under normal conditions

Conditions to Avoid : Heat, sparks, flame and build up of static electricity.

Incompatibility (materials to avoid for purpose of transport, handling & storage only)

: Avoid contact with strong alkalis, mineral acids, halogens, strong

oxidizers such as liquid chlorine, bromine, fluorine, concentrated oxygen, sodium

hypochlorite).

HAZARDOUS COMBUSTION PRODUCTS

Fumes, smoke and carbon monoxide, in the case of incomplete combustion.

HAZARDOUS COMPONENTS OF MIXTURES

The presence of approximately 0.20 % of Benzene in this product poses chronic toxic problems.

The most serious of the hazards is the gradual undetectable destruction of various components of the blood-forming organs. This occurs as a consequence of prolonged or repeated inhalation of Benzene vapor at concentrations greater than 10 ppm TLV. If these excessive exposures continue and if diagnosis is delayed, death may occur.

All components are registered in accordance with Australian Inventory of Chemical Substances(ACIS).



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11. TOXICOLOGICAL INFORMATION

TOXICITY

Evidence from animal tests is available to indicate that repeated or prolonged exposure to hydrocarbon solvents could result in liver, kidney and central nervous disorders as well as anaemia and leukopenia (lowered white cell count).

Aromatic hydrocarbons, such as those contained in this product, irritate the skin and mucous membranes and are narcotic if inhaled in high concentrations.

Do NOT induce vomiting if swallowed

Prolonged, repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Limits shown for guidance only.

Follow applicable regulations (refer WORKSAFE Australia Exposure Standards).

AROMATIC PETROLEUM HYDROCARBONS

Oral	LD_{50}	(rat)	: 5,000 mg/kg
Dermal	LD_{50}	(rabbit)	: > 2,000 mg/kg
Inhalation	LC_{50}	(mouse)	: 5,320 ppm/8 hours
Inhalation	TLCO	(human)	: 100 ppm Irritant

Inhalation Lowest Toxic Concentration (human) : 200 ppm (CNS recording changes, hallucinations)

Eyes (rabbit) : Moderate Irritant Skin (rabbit) : Mild Irritant

CHRONIC TOXICOLOGY

No evidence of skin carcinogenic activity in laboratory tests with toluene.

2 -year inhalation toxicity (rats): 300 ppm resulted in tissue changes.

US-NTP bioassay for TOLUENE - negative

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

GENETIC TOXICOLOGY

Negative in a series of assays on similar substances.

REPRODUCTIVE TOXICOLOGY

No adverse effects observed in developing embryos when pregnant rats were exposed to 400 ppm of similar materials.

NEUROTOXICOLOGY

Inhalation studies with toluene (1,500 ppm), 6 hours/day, 5 days /week for 6 months in rats showed no neurotoxicity.

SPECIAL PROPERTIES / EFFECTS

Over-exposure, especially during spraying operations without the necessary precautions entails the risk of concentration-dependent irritating effects on eyes, nose, throat, and respiratory tract.

Delayed appearance of the complaints and development of hyper-sensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low concentrations below the TWA-limit.



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12. ECOLOGICAL INFORMATION

This product may enter the environment from industrial discharges, municipal waste treatment plant discharges, or spills. It is a colorless liquid at room temperature and is flammable.

Do not allow to escape into waters, waste water or soil.

ACUTE (SHORT-TERM) ECOLOGICAL EFFECTS

Acute toxic effects may include the death of animals, birds, or fish, and death or low growth rate in plants.

Acute effects are seen two to four days after animals or plants come in contact with a toxic chemical substance.

This product has high acute toxicity to aquatic life and causes injury to various agricultural and ornamental crops.

Insufficient data are available to evaluate or predict the short-term effects of this product to birds or land animals.

CHRONIC (LONG-TERM) ECOLOGICAL EFFECTS

Chronic toxic effects may include shortened lifespan, reproductive problems, lower fertility, and changes in appearance or behaviour.

Chronic effects can be seen long after first exposure(s) to a toxic chemical.

This product has high chronic toxicity to aquatic life.

Insufficient data are available to evaluate or predict the long-term effects of this product to plants, birds, or land animals.

WATER SOLUBILITY

This product is moderately soluble in water. Concentrations of between 1 to 1,000 milligrams will mix with a litre of water.

DISTRIBUTION AND PERSISTENCE IN THE ENVIRONMENT

This product is non-persistent in water, with a half-life of less than 2 days.

The half-life of a pollutant is the amount of time it takes for one-half of the chemical to be degraded.

About 99.3% of the solvents in this product will eventually end up in the air; about 0.5% will end up in water; about 0.1%, respectively will end up in terrestrial soils and in aquatic sediments.

BIOACCUMULATION IN AQUATIC ORGANISMS

Some substances increase in concentration, or bio-accumulate, in living organisms as they breathe contaminated air, drink contaminated water, or eat contaminated food.

These chemicals can become concentrated in the tissues and internal organs of animals and humans.

The concentration of this product found in fish tissues is expected to be somewhat higher than the average concentration of this product in the water from which the fish was taken.

BIOLOGICAL EXPOSURE INDEX - BEI - TOLUENE

These represent the determinants observed in specimens collected from a healthy worker exposed at Exposure Standards (ES or TLV)

<u>Determinant</u>	Index	Sampling Time	Comment
1. Hippuric acid in urine	2.5 gm/gm	End of shift	B, NS
	creatinine	Last 4 hrs. of shift	
2. Toluene in venous blood	1 mg/L	End of shift	SQ
3. Toluene in end-exhaled air		End of shift	SQ

NS : Non-specific determinant; also observed after exposure to other material.

SQ : Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory

B : Background levels occur in specimens collected from subjects NOT exposed.



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13. **DISPOSAL CONSIDERATIONS**

This product is NOT suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers.

Consult an expert on disposal of any recovered material and ensure conformity to local disposal regulations.

It may be necessary to contain and dispose of this product as a HAZARDOUS WASTE.

Contact your state Environmental Program for specific recommendations.

Refer to State Land Waste Management Authority for specific recommendations. Advise of flammable/chemical nature. Recycle product where possible.

Recycle containers where possible, or dispose of in an authorised landfill.

Do NOT reuse empty containers without commercial cleaning or reconditioning.

Mix with a less combustible material and incinerate in appropriate equipment by an approved agent provided local regulations are observed.

Do NOT pressurise, cut, heat, or weld containers.

Empty product containers may contain product residue.



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14. TRANSPORT INFORMATION

Classified as a Dangerous Good (Class 3) (FLAMMABLE LIQUID) Dangerous Substance for the purpose of transport. Refer to relevant regulations for storage and transport requirements.

STORAGE AND TRANSPORT

Classified as a Dangerous Good (Class 3) for transport purposes.

SHIPPING NAME : Paint Related Material

UN No : 1263 PACKAGING GROUP : II

CLASS : 3.1 (Highly flammable Liquid) AS 1940 Class : PG II

SUBSIDIARY RISK : NOT ASSIGNED HAZCHEM CODE : •3YE

IMO HAZARD CLASS : INFLAMMABLE LIQUID/3.3 EPG : 3C1

STORAGE TEMPERATURE (°C) : Ambient
TRANSPORT TEMPERATURE (°C) : Ambient
LOADING / UNLOADING TEMPERATURE (°C) : Ambient
STORAGE / TRANSPORTATION PRESSURE (kPa) : Atmospheric

ELECTROSTATIC ACCUMULATION HAZARD? : Yes, use proper grounding procedure.

USUAL SHIPPING CONTAINERS : Drums, pails.

MATERIALS AND COATINGS SUITABLE : Carbon Steel / Stainless Steel.

MATERIALS AND COATINGS UNSUITABLE : Natural Rubber / Butyl Rubber / E P D M / Polystyrene /

Polyethylene / Polypropylene / Polyvinyl chloride /

Polyvinyl alcohol / Polyacrylonitrile

Class 3 flammable liquids shall NOT be loaded in the same vehicle with :-

- Class 1 Explosives

- Class 2.1 Flammable gases (when both in bulk)

- Class 2.3 Poisonous gases

- Class 4.2 Spontaneously combustible substances

- Class 5.1 Oxidizing agents- Class 5.2 Organic peroxides- Class 7 Radioactive substances

- Halogens (chlorinated compounds & etc.)

- Foodstuffs and foodstuff empties.

Refer to Australian Code for the Transport of Dangerous Goods By Road and Rail (6th Edition) for transport regulations and state Dangerous Goods regulations for storage requirements.

This material is a Scheduled Poison (\$5/\$6) and must be stored, maintained and used in accordance with the relevant regulations.

Materials are stable on storage, but should be stored in a cool, well ventilated area away from sources of ignition, oxidizing agents and odor sensitive materials.

Keep containers tightly closed when not in use and check regularly for leaks.

Use non-sparking tools and equipment.



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15. REGULATORY INFORMATION

Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flash point.

Hazardous according to criteria of Worksafe Australia

CLASSIFICATION AND LABELLING ACCORDING TO NOHSC CODES

CLASSIFICATION / SYMBOL : HIGHLY FLAMABLE / F

CLASSIFICATION / SYMBOL : HARMFUL / Xn

GOVERNING DIRECTIVE : National Code of practice for the Labelling of Hazardous Substances.

LABEL NAME : Paint Related Material

HAZARDS IDENTIFICATION

Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above flash point.

RISK PHRASES

R36/37 Irritating to eyes and respiratory system.

R11 Highly flammable.

R20/2122 Harmful by inhalation, in contact with skin and if swallowed.

R36/37/38 Irritating to eyes, respiratory system and skin.

R42/43 May cause sensitisation by inhalation and skin contact.

SAFETY ADVICE

S7/9 Keep container tightly closed and in a well ventilated place.

S16 Keep away from sources of ignition - No smoking.

S20/21 When using, do not eat, drink or smoke. S23 Do not breathe gas/fumes/vapour/spray

S25 Avoid contact with eyes. S29 Do not empty into drains.

Take precautionary measures against static discharges.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S43B In case of fire use sand, earth, chemical powder or alcohol type foam

Use only in well ventilated areas.

HAZARD RATINGS

Flammability : 2 Health Hazard : 1 Body Contact : 1 Reactivity : 0

SCALE : Min/Nil = 0 Low = 1 Moderate = 2 High = 3 Extreme = 4



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16. OTHER INFORMATION

LD₅₀ (Lethal Dose, 50 %)

 LD_{50} is the amount of a material, given all at once, which causes the death of 50 % (one half) of a group of test animals. The LD_{50} is one way to measure the short-term poisoning potential (acute toxicity) of a material.

The LD_{50} can be found for any route of entry or administration but dermal (applied to the skin) and oral (given by mouth) administration methods are the most common.

LC₅₀ (Lethal Concentration, 50 %)

LC values usually refer to the concentration of a chemical in air but in environmental studies it can also mean the concentration of a chemical in water.

For inhalation experiments, the concentration of the chemical in air that kills 50 % of the test animals in a given time (usually four hours) is the LC_{50} value.

EC₅₀ (half maximal effective concentration)

refers to the concentration of a drug, antibody or toxicant which induces a response halfway between the baseline and maximum after some specified exposure time. It is commonly used as a measure of drug's potency.

IC₅₀ (half maximal inhibitory concentration)

is a measure of the effectiveness of a compound in inhibiting biological or biochemical function.

This quantitative measure indicates how much of a particular drug or other substance (inhibitor) is needed to inhibit a given biological process (or component of a process, i.e. an enzyme, cell, cell receptor or micro-organism) by half.

TL_M (Median Tolerance Limit)

the concentration of toxicant or substance at which 50% of the test organisms survive over the test period.

log Pow / log P(o/w)

in chemistry and the pharmaceutical sciences, a partition- (P) or distribution coefficient (D) is the ratio of concentrations of a compound in the two phases of a mixture of two immiscible solvents at equilibrium. Hence these coefficients are a measure of differential solubility of the compound between these two solvents. The phrase "Partition Coefficient" is now considered obsolete by IUPAC, and the appropriate alternative ("partition constant", "partition ratio" or "distribution ratio") should be used as appropriate. Normally one of the solvents chosen is water while the second is hydrophobic such as octanol. Hence both the partition and distribution coefficient are measures of how hydrophilic ("water loving") or hydrophobic ("water fearing") a chemical substance is. A partition coefficient can also be used when one or both solvents is a solid though.

THEORETICAL OXYGEN DEMAND (ThOD)

is the calculated amount of oxygen required to oxidize a compound to its final oxidation products.

or

the amount of oxygen that theoretically can be consumed if the test substance is completely oxidized by micro-organisms. Calculated from the test substance's chemical structure; units mg O_2 per mg of test substance.

CHEMICAL OXYGEN DEMAND (COD) test is commonly used to indirectly measure the amount of organic compounds in water. Most applications of COD determine the amount of organic pollutants found in surface water (e.g. lakes and rivers), making COD a useful measure of water quality.

It is expressed in milligrams per litre (mg/L), which indicates the mass of oxygen consumed per litre of solution. Older references may express the units as parts per million (ppm).

BIOCHEMICAL OXYGEN DEMAND (BOD) is a chemical procedure for determining the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample at certain temperature over a specific time period.

It is not a precise quantitative test, although it is widely used as an indication of the organic quality of water.

It is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a robust surrogate of the degree of organic pollution of water.

BOD can be used as a gauge of the effectiveness of wastewater treatment plants.



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16. OTHER INFORMATION - continued

Date of last Revision : 12/11/10

PRINCIPAL REFERENCES

Supplier's Material Safety Data Sheet

In "Registry of Toxic Effects of Chemical Substances 1995" (Ed. D. Sweet), (US Dept. of Health & Human Services: Cincinnati 1995)

All components in this product are listed on the Australian Inventory of Chemical Substances (AICS).