



# Colorall Tinters Pty Ltd

ABN: 99 058 832 125

Issue Date: 8/10/2020

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**COLORALL METAL OXIDES AQUEOUS COLORANTS** MSDS # 0400 Version 2.0

## 1. IDENTIFICATION

### IDENTIFICATION OF THE SUBSTANCE / MIXTURE

#### 1.1 PRODUCT IDENTIFIERS

<b>PRODUCT NAME</b>	: COLORALL AQUEOUS COLORANT
<b>AVAILABLE COLOURS</b>	: WR-299 Terracotta / WR-301 Black Oxide / WR-305 Yellow Oxide / WR-306 Red Oxide / WR-306F Red Oxide / WR-313 White / WR-314 Green Oxide / WR-393 Blue Tone Red Oxide / WR-762 Black Oxide
<b>OTHER NAMES</b>	: Not Applicable
<b>U.N. NUMBER</b>	: Not Applicable
<b>DANGEROUS GOODS CLASS</b>	: Not Applicable
<b>SUBSIDIARY RISK</b>	: Nil
<b>PACKAGING GROUP</b>	: Not Applicable
<b>HAZCHEM CODE</b>	: Not Applicable
<b>POISONS SCHEDULE</b>	: Not Applicable
<b>EPG</b>	: Not Applicable
<b>PHYSICAL DESCRIPTION</b>	: Viscous, coloured liquid
<b>USE</b>	: Colouring of printing inks, paints, and coatings in water borne systems.
<b>ODOUR</b>	: Characteristic odour

**For industrial use ONLY in areas complying with relevant regulations.**

This Fact Sheet is a summary of potential and the most severe health hazards that may result from exposure. Always read the Material Safety Data Sheets (MSDS) for any products you use at work. Material Safety Data Sheets are current for a maximum of five 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.

### IDENTIFICATION OF THE COMPANY / UNDERTAKING

<b>COMPANY NAME</b>	: Colorall Tinters Pty. Ltd.
<b>ADDRESS</b>	: Unit 3 / 481 - 483 Victoria Street, Wetherill Park, NSW, 2164
<b>TELEPHONE</b>	: +61 2 9756 4771

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

<b>MANAGING DIRECTOR</b>	: Mr. Hector Almazan	
<b>AUSTRALIAN POISONS INFORMATION CENTRE</b>	<b>24 HOUR SERVICE</b>	: 13 11 26
<b>POLICE OR FIRE BRIGADE</b>	: 000	(exchange) : 1100

**EMERGENCY TELEPHONE No. : 0414 466 180 / +61 414 466 180**



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## 2. HAZARDS IDENTIFICATION

### STATEMENT OF HAZARDOUS NATURE

Not classified as Hazardous according to the criteria of SWA (Safe Work Australia)

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG) for transport by Road and Rail.  
Poisons Schedule (SUSMP) : None allocated.

### POTENTIAL HEALTH EFFECTS

**Skin Contact** : Prolonged contact may cause slight skin irritation with local redness.

**Skin Absorption** : Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**Eye Contact** : May cause eye irritation.

**Ingestion** : Low toxicity if swallowed.  
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

**Inhalation** : Prolonged excessive exposure to mist may cause serious adverse effects, even death.  
Vapour may cause irritation of the upper respiratory tract (nose and throat).

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

### RISK PHRASES

Would be hazardous in excessive amounts but in normal usage it does not present a problem and is not hazardous.

R22 : Harmful if swallowed.

R36 : Irritating to eyes

R38 : Irritating to the skin.

R51/53 : Toxic to aquatic organisms; may cause long term adverse effects in the aquatic environment.

R67 : Vapours may cause drowsiness and dizziness.

R65 : Harmful : May cause lung damage if swallowed.

### SAFETY ADVICE

S02 : Keep out of the reach of children

S3/7/9 : Keep container tightly closed in a cool, well ventilated place

S20/21 : When using, do not eat, drink or smoke

S23 : Do not breathe fumes/vapour/spray

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.

S29 : Do not empty into drains

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.

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

S46 : If swallowed, seek medical advice immediately and show this container or label.

S51 : Use only in well ventilated areas

S61 : Avoid release into the environment

S62 : If swallowed, do NOT induce vomiting: seek medical advice immediately and show this container or label.



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## 2. HAZARDS IDENTIFICATION - continued

### **INHALATION**

#### **Short Term Exposure**

High vapour pressures may cause drowsiness and dizziness.

In addition product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

#### **Long Term Exposure**

Vapours may cause drowsiness and dizziness.

### **SKIN CONTACT**

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

The material may accentuate any pre-existing skin condition.

#### **Short Term Exposure**

Available data shows that this product is harmful, but symptoms are not available.

In addition product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

#### **Long Term Exposure**

Repeated exposure may cause skin dryness or cracking.

### **EYE CONTACT**

#### **Short Term Exposure**

This product is an eye irritant.

Symptoms may include stinging and reddening of eyes and watering which may become copious.

Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased.

However, lengthy exposure or delayed treatment may cause permanent damage.

#### **Long Term Exposure**

No data for health effects associated with long term eye exposure.

### **INGESTION**

#### **Short Term Exposure**

Significant oral exposure is considered to be unlikely.

Available data shows that this product is harmful, but symptoms are not available.

However, this product is an oral irritant.

Symptoms may include burning sensation and reddening of skin in mouth and throat.

Other symptoms may also become evident, but all should disappear once exposure has ceased.

#### **Long Term Exposure**

No data for health effects associated with long term ingestion.

### **CARCINOGEN STATUS**

SWA : No significant ingredient is classified as carcinogenic by SWA.

NTP : No significant ingredient is classified as carcinogenic by NTP.

IARC : No significant ingredient is classified as carcinogenic by IARC.

See the IARC website for further details. A web address has not been provided as addresses frequently change.



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## 3. COMPOSITION

<u>CHEMICAL ENTITY</u>	<u>CAS No.</u>	<u>EINECS No.</u>	<u>INDEX No.</u>	<u>PROPORTION (% w/w)</u>
<b><u>WR-299 TERRACOATTA</u></b>				
Pigment Red 101 - C.I. 77491	1309-37-1	215-570-8	Not Available	65 - 70
Synthetic Iron Oxide, $\alpha$ -Fe <sub>2</sub> O <sub>3</sub>		/ 215-168-2		
<b><u>WR-301 BLACK OXIDE</u></b>				
Pigment Black 11 - C.I. 77499	1317-61-9	215-277-5	Not Available	65 - 70
Iron Oxide Black / Tri-Iron Tetraoxide				
<b><u>WR-305 YELLOW OXIDE</u></b>				
Pigment Yellow 42 - C.I. 77492	20344-49-4	243-746-4	Not Available	55 - 60
Hydrated Ferric Oxide, Synthetic	/ 51274-00-1			
<b><u>WR-306 RED OXIDE</u></b>				
Pigment Red 101 - C.I. 77491	1309-37-1	215-570-8	Not Available	65 - 70
Synthetic Iron Oxide, $\alpha$ -Fe <sub>2</sub> O <sub>3</sub>		/ 215-168-2		
<b><u>WR-306F RED OXIDE</u></b>				
Pigment Red 101 - C.I. 77491	1309-37-1	215-570-8	Not Available	65 - 70
Synthetic Iron Oxide, $\alpha$ -Fe <sub>2</sub> O <sub>3</sub>		/ 215-168-2		
<b><u>WR-313 WHITE</u></b>				
Pigment White 6 - C.I. 77891	13463-67-7	236-675-5	Not Available	65 - 70
Titanium Dioxide (Rutile, Chloride Process)				
<b><u>WR-314 GREEN OXIDE</u></b>				
Pigment Green 17 - C.I. 77288	1308-38-9	215-160-9	Not Available	60 - 65
Chromium Oxide Green				
<b><u>WR-393 BLUE TOBNE RED OXIDE</u></b>				
Pigment Red 101 - C.I. 77491	1309-37-1	215-570-8	Not Available	65 - 70
Synthetic Iron Oxide, $\alpha$ -Fe <sub>2</sub> O <sub>3</sub>		/ 215-168-2		
<b><u>WR-762 BLACK OXIDE</u></b>				
Pigment Black 11 - C.I. 77499	1317-61-9	215-277-5	Not Available	65 - 70
Iron Oxide Black / Tri-Iron Tetraoxide				
<b><u>GENERAL</u></b>				
Propylene Glycol	57-55-6	200-338-0	Not Available Depending on	4 - 8 % colour
Other Ingredients not considered to be hazardous or below reportable levels	Not Applicable	Not Applicable	Not Available Depending on	1.5 - < 3.0 colour
Water	7732-18-5	231-791-2	Not Available	To 100 %
			<b><u>TOTAL</u></b>	<b><u>100.0</u></b>

All components in this preparation are listed or registered in accordance with Australian Inventory of Chemical Substances (AICS).



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## 4. FIRST AID MEASURES

### GENERAL INFORMATION

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

### INHALATION

If symptoms of poisoning become evident, contact a Poisons Information Centre, or call a doctor at once. Remove source of contamination or move victim to fresh air. Rescuers to take care not to become affected themselves. If not breathing, give artificial respiration; if by mouth to mouth, use rescuer protection (pocket mask, etc.). If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. Do NOT allow victim to move about unnecessarily. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure. Seek medical attention.

### SKIN CONTACT

Quickly and gently blot away excess liquid. Wash gently and thoroughly with lukewarm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If exposure has been prolonged or severe or if swelling, redness or irritation occurs seek medical advice.

### EYE CONTACT

Quickly and gently blot material from eyes. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Ensure irrigation under the eyelids by occasionally lifting upper and lower lids. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention without delay, preferably from an ophthalmologist. Take special care if exposed person is wearing contact lenses. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

### INGESTION

If swallowed, do NOT induce vomiting due to the hazard of aspiration into the lungs which may cause mild to severe pulmonary injury and possibly death. Wash mouth with water and contact a Poisons Information Centre, or call a doctor. Should vomiting occur, place patient's head downwards, head lower than hips, to prevent vomit entering the lungs. Do NOT give anything by mouth to an unconscious person.

## ADVICE TO DOCTOR

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Principal routes of exposure are skin contact/absorption and inhalation of the vapour/spray mist.

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.  
Persons receiving significant exposure should be observed 24 - 48 hours for signs of respiratory distress.



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### 5. FIRE FIGHTING MEASURES

#### **FIRE AND EXPLOSION HAZARDS**

**NOT** considered to be a significant fire risk because of its high water content.

Non-combustible.

The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both) fire gases.

Even though this product is **NOT** classified as flammable, firefighters should take care and appropriate precautions.

Any explosion will likely spread the fire to surrounding materials.

Water spray may be used to cool drums involved in a fire, reducing the chances of an explosion.

Violent steam generation or eruption may occur upon application of direct water stream on hot liquids.

Fire decomposition products from this product may be toxic if inhaled.

Take appropriate protective measures.

#### **EXTINGUISHING MEDIA**

There is no restriction on the type of extinguisher which may be used.

Use extinguishing media appropriate for surrounding fire.

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

Try to contain spills, minimise spillage entering drains or water courses.

#### **FIRE FIGHTING**

If a significant quantity of this product is involved in a fire, call the fire brigade.

Even though the product is not classified as flammable, it may give off toxic fumes if involved in a large fire.

Recommended personal protective equipment is full fire kit and breathing apparatus.

Cool closed, undamaged containers exposed to fire with water spray.

### 6. ACCIDENTAL RELEASE MEASURES

#### **ACCIDENTAL RELEASE**

In the event of a major spill, prevent spillage from entering drains or water courses.

Evacuate the spill area and deny entry to unnecessary and unprotected personnel.

Wear protective clothing including eye/face protection.

Eye/face protective equipment should comprise as a minimum, protective goggles.

All skin areas should be covered.

See below under Personal Protection regarding Australian Standards relating to personal protective equipment.

Suitable materials for protective clothing include Viton, Nitrile, polyvinyl alcohol, Teflon, PE/EVAL.

If there is a significant chance that vapours or mists are likely to build up in the clean-up area, we recommend that you use a respirator.

It should be fitted with a type A cartridge, suitable for organic vapours.

Otherwise, not normally necessary.

Stop leak if safe to do so, and contain spill.

Absorb onto sand, vermiculite or other suitable absorbent material.

If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways.

Any equipment capable of building an electrostatic charge should be electrically grounded.

Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly.

Recycle containers wherever possible after careful cleaning.

After spills, wash area preventing runoff from entering drains.

If a significant quantity of material enters drains, advise emergency services.

Ensure legality of disposal by consulting regulations prior to disposal.  
Thoroughly launder protective clothing before storage or re-use.  
Advise laundry of nature of contamination when sending contaminated clothing to laundry



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### **7. HANDLING and STORAGE**

#### **HANDLING**

Keep exposure to this product to a minimum, and minimise the quantities kept in work areas.

Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed.

The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace.

Also, avoid contact or contamination of product with incompatible materials listed in Section 10

#### **STORAGE**

As this product contains water do not allow it to freeze.

Do not store below 5 °C or above 50 °C.

Store in a cool dry area.

Store out of direct sunlight.

Check containers periodically for leaks.

Containers should be kept closed in order to minimise contamination and possible evaporation.

Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10.

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.



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### 8. EXPOSURE CONTROLS

#### **ENGINEERING CONTROLS :**

No special equipment is usually needed when occasionally handling small quantities  
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.  
Keep containers closed when not in use.

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment : **AS/NZS 1715**  
Protective Gloves : **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008,  
Industrial Eye Protection : **AS1336** and **AS/NZS 1337**  
Occupational Protective Footwear : **AS/NZS2210**.

Refer also to protective measures for the other components used with this product.

The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

#### **VENTILATION**

This product should only be used in a well ventilated area.  
Ensure sufficient ventilation to maintain concentration below exposure standard in warehouse or closed storage areas.  
If natural ventilation is inadequate, use of a fan is suggested.

#### **EYE PROTECTION**

Protective glasses or goggles should be worn when this product is being used.  
Failure to protect your eyes may cause them harm.  
Emergency eye wash facilities are also recommended in an area close to where this product is being used.

#### **SKIN PROTECTION**

Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron.  
Make sure that all skin areas are covered.

#### **Protective Material Types**

We suggest that protective clothing be made from the following materials: Viton, nitrile, polyvinyl alcohol, Teflon, PE/EVAL

#### **RESPIRATOR**

Usually, no respirator is necessary when using this product.  
However, if you have any doubts consult the Australian Standard mentioned above.

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

Do **NOT** enter confined spaces where vapour 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.



**FLAMMABILITY :**

Not classified as flammable.

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

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 National Occupational Health & Safety Commission.

However, the Threshold Limit Value (TLV-TWA), for some of the individual constituents is listed below.

#### NOTE

The following TLV's are issued as guidelines only in the control of occupational health hazards.

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.

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

Follow applicable regulations. (refer SAFEWORK AUSTRALIA Exposure Standards)

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

If you think you are experiencing any work-related health problems, see a doctor trained to recognise occupational diseases.

#### PROPYLENE GLYCOL (Propane-1,2-diol - CAS No. 57-55-6) - Total: (Vapour & Particulates)

TWA : 474 mg/m<sup>3</sup> (150 ppm) (Total: Vapour & Particulates - 8 hour)

TWA : 10 mg/m<sup>3</sup> (Particulates Only - 8 hour)

#### TITANIUM DIOXIDE - AS RESPIRABLE DUST

Titanium Dioxide (CAS No. 13463-67-7) : TWA 10 mg/m<sup>3</sup> STEL : Not Set

Zirconium Dioxide (CAS No. 1314-23-4) : TWA 5 mg/m<sup>3</sup> STEL : 10 mg/m<sup>3</sup>

Silica Amorphous - Precipitated silica : TWA 2 mg/m<sup>3</sup> (as a component of Titanium Dioxide)

#### ALUMINIUM HYDROXIDE (CAS 21645-51-2) - as a component of Titanium Dioxide

Acute Oral toxicity : LD<sub>50</sub> : > 5,000 mg/kg, Rat

#### AMORPHOUS SILICA (CAS No. 7631-86-9) - as a component of Titanium Dioxide

Acute Oral toxicity : LD<sub>50</sub> : > 5,000 mg/kg, Rat

Acute Dermal Toxicity : LD<sub>50</sub> : > 2,000 mg/kg, Rabbit

Acute Inhalation Toxicity : LC<sub>50</sub> : > 2.2 mg/L (Rat) 4 hour

#### ACGIH CARCINOGENS - as components of Titanium Dioxide

Aluminium Hydroxide (CAS 21645-51-2) A4 Not classifiable as a human carcinogen

Titanium Dioxide (CAS 13463-67-7) A4 Not classifiable as a human carcinogen

Zirconium Dioxide (CAS 1314-23-4) A4 Not classifiable as a human carcinogen

#### IARC Monographs

Overall Evaluation of Carcinogenicity Titanium dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans

#### FERRIC OXIDE RED, SYNTHETIC / PIGMENT RED 101 (CAS No. 1309-37-1)

TLV : TWA 5 mg/m<sup>3</sup> (Dust & fume)

TLV : TWA 3.5 mg/m<sup>3</sup> as dust

A4 (not classifiable as a human carcinogen); (ACGIH 2004) / Carcinogen category: 3B

STEL : 10 mg/m<sup>3</sup>, (as Fe) 15 minute (Dust & fume)

**FERRIC OXIDE YELLOW, SYNTHETIC / PIGMENT YELLOW 42 (CAS No. 20344-49-4 / 51274-00-1)**

TLV : TWA 5 mg/ m<sup>3</sup> (Dust & fume)  
 TLV : TWA 3.5 mg/m<sup>3</sup> as dust  
 STEL A4 (not classifiable as a human carcinogen); (ACGIH 2004) / Carcinogen category: 3B  
 : 10 mg/m<sup>3</sup>, (as Fe) 15 minute (Dust & fume)

**BLACK IRON OXIDE (TRI-IRON TETRAOXIDE - CAS No. 1317-61-9)**

TLV : TWA 5 mg/ m<sup>3</sup> (as Fe) (Fume) 8 hours  
 STEL A4 (not classifiable as a human carcinogen); (ACGIH 2004) / Carcinogen category: 3B  
 : 10 mg/m<sup>3</sup>, (as Fe) 15 minute (Fume)

**CHROMIUM OXIDE (CAS No. 1308-38-9)**

TLV : TWA 0.5 mg/ m<sup>3</sup> (as Cr) 8 hours

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**COLORALL METAL OXIDES AQUEOUS COLORANTS MSDS # 0400 Version 2.0****8. EXPOSURE CONTROLS - continued****PERSONAL PROTECTION****WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT**

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

Eye wash fountains and safety showers should be available for emergency use.

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.

Skin contact should be avoided by wearing chemically resistant work clothing, boots and gloves.

Observe good personal hygiene.

Keep away from foodstuffs, drinks and tobacco.

Keep working clothes separate.

Take off immediately all contaminated clothing.

**ALWAYS** wash hands before eating, drinking, smoking, using the toilet, before breaks 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.
AS1336 & AS/NZS 1377	Industrial Eye Protection.
AS/NZS 1715	Selection, use and maintenance of respiratory protective devices.
AS 2161	Protective Gloves
AS/NZS 4501 set 2008	Occupational Protective Clothing
AS/NZS2210	Occupational Protective Footwear.

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 PROTECTION**

Avoid prolonged or repeated contact with skin by wearing impervious, chemically resistant work clothing (PVC apron and sleeves or full PVC covering or other work clothing), safety boots and barrier cream with chemical protective gloves.

Make sure that all skin areas are covered.

See below for suitable material types.

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.

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

Remove contaminated shoes, thoroughly dry before re-use.

At the end of the work shift, 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.

#### **PROTECTIVE MATERIAL TYPES**

We suggest that protective clothing be made from the following materials: PVC, Viton, nitrile, polyvinyl alcohol, Teflon, PE/EVAL.

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

These recommendations are advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use. It should not be construed as offering an approval for any specific use scenario.



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### **8. EXPOSURE CONTROLS - continued**

#### **PERSONAL PROTECTION - continued**

##### **RESPIRATOR**

Usually, no respirator is necessary when using this product.

However, if you have any doubts consult the Australian Standard mentioned above.

Avoid breathing vapours.

Enclose operations and use adequate 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.

If the possibility of exposures the recommended limits 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.

#### **IMPROPER USE OF RESPIRATORS IS DANGEROUS.**

Correct respirator fit is essential to obtain adequate protection.

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.

##### **EYE PROTECTION**

Eyes should be protected by chemical splash goggles, safety glasses fitted with side shields or full face shield when this product is being used.

Contact lenses should **NOT** be worn where eye contact with this product can occur.

Soft lenses may absorb irritants and all lenses concentrate irritants.

Failure to protect your eyes may cause them harm.

If vapour causes eye irritation or if an inhalation risk exists a full-face, organic vapour 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 in an area close to where this product is being used.



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## 9. PHYSICAL and CHEMICAL PROPERTIES

### PHYSICAL DESCRIPTION / PROPERTIES

APPEARANCE		: Viscous, liquid. Mixes with water.
ODOUR		: Characteristic odour.
pH VALUE		: 8.5 - 9.5
VAPOUR PRESSURE	(20°C)	: < 23mm Hg
VAPOUR DENSITY		: Not Available (Air =1)
BOILING POINT	(°C)	: > 100°C
MELTING POINT		: Not Applicable
FREEZING POINT	(°C)	: No specific data. Liquid at normal temperatures
SOLUBILITY IN WATER	(% Weight)	: Miscible
SPECIFIC GRAVITY	(@ 25°C)	: WR-299 Terracotta : 2.140 ± 0.005 (Water =1) : WR-301 Black Oxide : 2.200 ± 0.005 (Water =1) : WR-305 Yellow Oxide : 1.700 ± 0.005 (Water =1) : WR-306 Red Oxide : 2.140 ± 0.005 (Water =1) : WR-306F Red Oxide : 2.140 ± 0.005 (Water =1) : WR-313 White : 1.980 ± 0.005 (Water =1) : WR-314 Green Oxide : 1.800 ± 0.005 (Water =1) : WR-393 Blue Tone Red Oxide : 2.140 ± 0.005 (Water =1) : WR-762 Black Oxide : 2.200 ± 0.005 (Water =1)
% NVM	(w/w)	: WR-299 Terracotta : 72.5 ± 0.5 % : WR-301 Black Oxide : 77.5 ± 0.5 % : WR-305 Yellow Oxide : 65.0 ± 0.5 % : WR-306 Red Oxide : 72.5 ± 0.5 % : WR-306F Red Oxide : 75.0 ± 0.5 % : WR-313 White : 76.5 ± 0.5 % : WR-314 Green Oxide : 74.0 ± 0.5 % : WR-393 Blue Tone Red Oxide : 72.5 ± 0.5 % : WR-762 Black Oxide : 77.5 ± 0.5 %
FLASH POINT	(°C)	: Not Applicable
EXPLOSIVE LIMITS	(% Volume)	: Not Applicable
AUTOIGNITION TEMPERATURE	(°C)	: Not Available
VOC CONTENT		: Negligible at normal temperatures
EVAPOURATION RATE		: > 1 (Butyl Acetate =1)
% VOLATILES	(w/w)	: WR-299 Terracotta : 27.5 ± 0.5 % : WR-301 Black Oxide : 22.5 ± 0.5 % : WR-305 Yellow Oxide : 35.0 ± 0.5 %

: WR-306 Red Oxide	: 27.5 ± 0.5 %
: WR-306F Red Oxide	: 25.0 ± 0.5 %
: WR-313 White	: 23.5 ± 0.5 %
: WR-314 Green Oxide	: 26.0 ± 0.5 %
: WR-393 Blue Tone Red Oxide	: 27.5 ± 0.5 %
: WR-762 Black Oxide	: 22.5 ± 0.5 %

VISCOSITY (@ 20°C)  
OTHER PROPERTIES

: Viscous Paste  
: Contact with strong oxidisers may cause fire and explosion.



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### 10. STABILITY and REACTIVITY

#### REACTIVITY / COMPATIBILITY

##### REACTIVITY

This product is unlikely to react or decompose under normal storage conditions.  
However, if you have any doubts, contact the supplier for advice on shelf life properties.

##### HAZARDOUS POLYMERISATION

This product will not undergo polymerisation reactions.

##### STABILITY

Stable under normal conditions

##### CONDITIONS TO AVOID

Since this product contains water, do not allow it to freeze.  
This product should be kept in a cool place, preferably above 5 °C and below 50 °C.  
Keep containers tightly closed.  
Keep containers and surrounding areas well ventilated.  
Handle and open containers carefully.

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

Avoid contact with strong alkalis, mineral acids, halogens, strong oxidisers.

##### HAZARDOUS COMBUSTION PRODUCTS

Combustion forms carbon dioxide, and if incomplete, carbon monoxide, metal oxides and possibly smoke.  
Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.



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### 11. TOXICOLOGICAL INFORMATION

#### **TOXICITY**

No adverse effects expected if swallowed.

However swallowing large amounts may cause nausea and vomiting.

Do NOT induce vomiting if swallowed

Prolonged, repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis.

May be an eye irritant.

Breathing in vapour may produce respiratory irritation.

Limits shown for guidance only.

Follow applicable regulations (refer WORKSAFE Australia Exposure Standards).

No LD<sub>50</sub> data available for this specific product. Data for principal ingredients only.

#### **PROPYLENE GLYCOL (Propane-1,2-diol - CAS No. 57-55-6)**

Acute Oral Toxicity : LD<sub>50</sub> (Rat) : > 20,000 mg/kg

Acute Dermal Toxicity : LD<sub>50</sub> (Rabbit) : > 2,000 mg/kg

#### **CHRONIC EFFECTS**

Non-carcinogenic based on animal studies. Non-mutagenic. No reproductive or developmental effects.

Cats given high doses of MPG in diet showed a decrease in red blood cell survival.

#### **TITANIUM DIOXIDE ( CAS No. 13463-67-7)**

Acute Oral toxicity : LD<sub>50</sub> : > 5,000 mg/kg, Rat

Acute Inhalation toxicity : LC<sub>50</sub> : > 6.82 mg/L / 4hour, Rat

Acute Dermal toxicity : Quantitative data on the acute dermal toxicity of this product are not available

Respiratory or Skin Sensitization : Titanium dioxide does not show respiratory sensitising properties in animal studies or in exposure related observations in humans.

#### **ALUMINIUM HYDROXIDE (CAS 21645-51-2) - as a component of Titanium Dioxide**

Acute Oral toxicity : LD<sub>50</sub> : > 5,000 mg/kg, Rat

#### **AMORPHOUS SILICA (CAS No. 7631-86-9) - as a component of Titanium Dioxide**

Acute Oral toxicity : LD<sub>50</sub> : > 5,000 mg/kg, Rat

Acute Dermal Toxicity : LD<sub>50</sub> : > 2,000 mg/kg, Rabbit

Acute Inhalation Toxicity : LC<sub>50</sub> : > 2.2 mg/L (Rat ) 4 hour

#### **ACGIH CARCINOGENS - as components of Titanium Dioxide**

Aluminium Hydroxide (CAS 21645-51-2) A4 Not classifiable as a human carcinogen

Titanium Dioxide (CAS 13463-67-7) A4 Not classifiable as a human carcinogen

Zirconium Dioxide (CAS 1314-23-4) A4 Not classifiable as a human carcinogen

Acute Oral Toxicity	: Low toxicity	: LD <sub>50</sub> : > 5,000 mg/Kg, Rat
Acute Dermal Toxicity	: Low toxicity	: LD <sub>50</sub> : > 5,500 mg/Kg, Rat
Irritation/Corrosion Skin	: Non-irritating	
Ingestion	: Non-irritating.	
Eyes	: Non-irritating	
Sensitiser	: Not sensitising	(guinea pig)
Chronic Effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation	
Carcinogenicity Data	: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.	
Reproductive Data	: No adverse reproductive effects are anticipated.	
Mutagenicity Data	: No adverse mutagenic effects are anticipated.	
Teratogenicity Data	: No adverse teratogenic effects are anticipated.	



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### 11. TOXICOLOGICAL INFORMATION - continued

#### TOXICITY - continued

#### **FERRIC OXIDE YELLOW, SYNTHETIC / PIGMENT YELLOW 42 (CAS No. 20344-49-4 / 51274-00-1)**

Acute Oral Toxicity	: Low toxicity	: LD <sub>50</sub> : > 5,000 mg/Kg, Rat
Acute Inhalation Toxicity	: Dusts and mists	: LC <sub>50</sub> : > 195 gm /m <sup>3</sup> / 6 hours , Rat
Irritation/Corrosion Skin	: Non-irritating	
Ingestion	: Non-irritating.	
Eyes	: Non-irritating	
Sensitiser	: Not sensitising	(guinea pig)
Chronic Effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation	
Carcinogenicity Data	: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.	
Reproductive Data	: No adverse reproductive effects are anticipated.	
Mutagenicity Data	: No adverse mutagenic effects are anticipated.	
Teratogenicity Data	: No adverse teratogenic effects are anticipated.	

#### **BLACK IRON OXIDE (TRI-IRON TETRAOXIDE - CAS No. 1317-61-9)**

Acute Oral Toxicity	: Low toxicity	: LD <sub>50</sub> : > 5,000 mg/Kg, Rat, Female
Inhalation	: No known significant effects or critical hazards.	
Ingestion	: No known significant effects or critical hazards.	
Skin contact	: No known significant effects or critical hazards.	
Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes		
Sensitiser	: Not sensitising	(guinea pig)
Chronic Effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation	
Carcinogenicity Data	: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.	
Reproductive Data	: No adverse reproductive effects are anticipated.	
Mutagenicity Data	: No adverse mutagenic effects are anticipated.	
Teratogenicity Data	: No adverse teratogenic effects are anticipated.	

#### **CHROMIUM OXIDE (CAS No. 1308-38-9)**

Acute Oral Toxicity	: Low toxicity	: LD <sub>50</sub> : > 5,000 mg/Kg, Rat
Acute Inhalation Toxicity	: Dusts and mists	: LC <sub>50</sub> : > 5.41 g/m <sup>3</sup> / 4 hours , Rat
Eyes	: Non-irritating	
Skin	: Non-irritating	
Sensitiser	: Not sensitising	(guinea pig)
Carcinogenicity Data	: The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.	
Mutagenicity Data	: No adverse mutagenic effects are anticipated.	

**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.



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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 liquid at room temperature and is flammable.

Do not discharge product into the environment without control.

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

Product is miscible with water. May spread in water systems.

Make sure that water used in extinguishing any fires involving this product is disposed according to local regulations.

**PROPYLENE GLYCOL (Propane-1,2-diol - CAS No. 57-55-6)**

Acute toxicity to fish	: LC <sub>50</sub> (rainbow trout)	: 40,613 mg/L - 96 hours
Acute toxicity Aquatic Invertebrates	: EC <sub>50</sub> (Daphnia (water flea))	: 13,020 mg/L - 48 hours
Acute Toxicity Algae	: EC <sub>50</sub> (Selenastrum capricornutum)	: 24,200 mg/L - 72 hours
Persistence/Degradability	: Readily biodegradable.	
Bioaccumulation	: No data available	

**TITANIUM DIOXIDE ( CAS No. 13463-67-7)****TOXICITY**

Acute toxicity to fish	: LC <sub>50</sub> (fathead minnow)	: > 1000 mg/L - 96hour
Acute toxicity to daphnia	: EC <sub>50</sub> (Daphnia magna)	: > 100 mg/L - 48 hour
Acute toxicity to algae	: EC <sub>50</sub> (Pseudokirchnerella subcapitata)	: 61 mg/L - 72 hour
Acute toxicity to bacteria	: EC <sub>50</sub> (Escherichia coli)	: > 1000 mg/L - 1 hour

Persistence/Degradability : Titanium Dioxide can be considered as highly insoluble in water.

Degradation/biodegradation testing is not relevant for metals and metal compounds like Titanium Dioxide, which are considered as not (bio) degradable

Mobility : Titanium Dioxide pigments have very limited mobility, since they are insoluble in water and other solvents.

Ecotoxicity : The product is not expected to be hazardous to the environment.

Environmental Fate : Do NOT allow product to reach waterways, drains and sewers.

Bioaccumulative potential : Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

**AMORPHOUS SILICA (CAS No. 7631-86-9) - as a component of Titanium Dioxide**

Acute toxicity to fish	: LC <sub>50</sub> (Brachydanio rerio)	: 5,000 mg/L - 96 hour
Toxicity to Aquatic Invertebrates	: EC <sub>50</sub> (Daphnia Magna (Water Flea))	: 7,600 mg/L - 48 hour
Acute toxicity to algae	: EC <sub>50</sub>	: 440 mg/L - 72 hour

**FERRIC OXIDE RED, SYNTHETIC / PIGMENT RED 101 (CAS No. 1309-37-1)**

Acute Toxicity Fish	: LC <sub>0</sub> (Leuciscus idus (Golden Orfe))	: > 1,000 mg/L / 48 hour
Toxicity to aquatic invertebrates	: LC <sub>50</sub> (Daphnia Magna (Water Flea))	: > 100 mg/L / 48 hour
Bacterial toxicity	: Harmless (Pseudomonas putida)	: > 1,000 mg/L

No appreciable bio-concentration is expected in the environment.



As the product is practically insoluble in water, it is separated in almost any filtration and sedimentation process.  
No ecological problems have been identified with this product.  
Product has an un-aesthetic appearance and can be a nuisance.

### **FERRIC OXIDE YELLOW, SYNTHETIC / PIGMENT YELLOW 42 (CAS No. 20344-49-4 / 51274-00-1)**

Acute Immobilization Test : EC<sub>50</sub> (Daphnia Magna (Water Flea)) : > 100 mg/L - 48 hours  
Acute toxicity to fish mortality : LC<sub>0</sub> (Danio rerio) : > 10,000 mg/L  
: LC<sub>0</sub> (Leuciscus idus (Golden Orfe)) : > 1,000 mg/L  
Acute toxicity to bacteria : Harmless (Pseudomonas putida) : > 1,000 mg/L

No appreciable bio-concentration is expected in the environment.

As the product is practically insoluble in water, it is separated in almost any filtration and sedimentation process.

No ecological problems have been identified with this product.

Product has an un-aesthetic appearance and can be a nuisance.



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### **12. ECOLOGICAL INFORMATION - continued**

#### **BLACK IRON OXIDE (TRI-IRON TETRAOXIDE - CAS No. 1317-61-9)**

EU C.2 (Acute Toxicity for Daphnia) Acute : EC<sub>50</sub> > 1,000 mg/L - 48 hours - Daphnia magna (Water flea)  
OECD:209 Activated Sludge, Respiration Inhibition Test Acute : EC<sub>50</sub> > 1,000 mg/L - Fresh water Bacteria  
- adapted and activated sludge microorganism - 3 hours  
OECD 203 Fish, Acute Toxicity Test Acute : LC<sub>0</sub> > 1,000 mg/L Fresh water Fish - Danio rerio - 96 hours

No appreciable bio-concentration is expected in the environment.

As the product is practically insoluble in water, it is separated in almost any filtration and sedimentation process.

No ecological problems have been identified with this product.

Product has an un-aesthetic appearance and can be a nuisance.

#### **CHROMIUM OXIDE (CAS No. 1308-38-9)**

ISO8192 – Bacteria - Activated Sludge : EC<sub>50</sub> > 1,000 mg/L - 3 hours  
Acute toxicity to freshwater fish (Danio rerio) : LC<sub>50</sub> > 1,000 mg/L - 96 hours

No appreciable bio-concentration is expected in the environment.

As the product is practically insoluble in water, it is separated in almost any filtration and sedimentation process.

No ecological problems have been identified with this product.

Product has an un-aesthetic appearance and can be a nuisance.

### **13. DISPOSAL CONSIDERATIONS**

This product may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means.

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.

Refer to State Land Waste Management Authority for specific recommendations. Advise of chemical nature.

Do NOT reuse empty containers without commercial cleaning or reconditioning.

Do NOT pressurise, cut, heat, or weld empty containers as they may contain product residue.

### **14. TRANSPORT INFORMATION**

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code for Transport by Road & Rail.  
for the purpose of transport.

Refer to relevant regulations for storage and transport requirements.

This material is non-hazardous according to the criteria of the Australian Safety and Compensation Council (ASCC)

#### **STORAGE AND TRANSPORT**

UN No:	: None Allocated	PROPER SHIPPING NAME	: Not Applicable
DAINGEROUS GOODS CLASS	: None Allocated	SUBSIDIARY RISK CLASS	: None Allocated
HAZCHEM CODE	: None Allocated	POISON SCHEDULE	: None Allocated
PACKAGING GROUP	: None Allocated	EPG	: None Allocated

STORAGE TEMPERATURE (°C) : Ambient                      TRANSPORT TEMPERATURE(°C)                      : Ambient  
LOADING / UNLOADING TEMPERATURE (°C)                      : Ambient  
STORAGE / TRANSPORTATION PRESSURE (kPa)                      : Atmospheric  
ELECTROSTATIC ACCUMULATION HAZARD ?                      : Use proper grounding procedure.  
Do NOT be load in the same vehicle with :- Foodstuffs and foodstuff empties.

## 15. REGULATORY INFORMATION

### STATEMENT OF HAZARDOUS NATURE

Not classified as HAZARDOUS according to the criteria of SWA.

Not classified as DANGEROUS GOODS according to criteria of the ADG Code

### NOTIFICATION STATUS

AIIC                      : All components on the inventory, or in compliance with the inventory  
                              This product is compliant with AICIS regulations



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## 16. OTHER INFORMATION

**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.

**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.

**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.

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.

### **ODOUR THRESHOLD**

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

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

### **LD<sub>50</sub>** (Lethal Dose, 50 %)

LD<sub>50</sub> 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<sub>50</sub> is one way to measure the short-term poisoning potential (acute toxicity) of a material.

The LD<sub>50</sub> 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.

### **LC<sub>50</sub>** (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<sub>50</sub> value.

### **EC<sub>50</sub>** (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.

### **IC<sub>50</sub>** (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<sub>M</sub>** (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.

**NOEC**

No Observed Effect Concentration



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### 16. OTHER INFORMATION - continued

**NOAEL (No Observed Adverse Effect Level) / NOEL (No Observed Effect Level)**

The highest tested dose of a substance that has been reported to have no harmful (adverse) health effects on people or animals. Can apply to a particular study, species (e.g. rat, dog), or all studies on a particular substance.

The difference between NOAEL and NOEL rests on the definition of adverse effect only, that is, an experimental study that produced a NOAEL will have stated the adverse effect to be observed before initiation.

**AOX** stands for "Adsorbable organically bound halogens" expressed as chloride, and determined according to the relevant European Standard method.

The parameter AOX only exists as a combined analytical measurement of organically bound halogens for the monitoring and control of pollutants in effluents treated using chlorine (or more rarely) bromine and in effluents which still contain chlorine-containing products or intermediates.

**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<sub>2</sub> 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.

<b>ADG Code</b>	: Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)
<b>AICS</b>	: Australian Inventory of Chemical Substances
<b>SWA</b>	: Safe Work Australia, formerly ASCC and NOHSC
<b>CAS Number</b>	: Chemical Abstracts Service Registry Number
<b>Hazchem</b>	: Code Emergency action code of numbers and letters that provide information to emergency services especially firefighters
<b>IARC</b>	: International Agency for Research on Cancer
<b>N.O.S.</b>	: Not otherwise specified

**NTP** : National Toxicology Program (USA)  
**SUSMP** : Standard for the Uniform Scheduling of Medicines & Poisons  
**UN Number** : United Nations Number

### **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 are listed or registered in accordance with Australian Inventory of Chemical Substances.

DATE OF LAST REVISION : 8/10/2020

**END OF MSDS**