Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 4661-67

Hazard Alert Code:

MODERATE

Issue Date: 24-Mar-2009

CD 2010/1

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### **PRODUCT NAME**

#### **Dunlop Coloured Silicone**

PRODUCT USE

Used according to manufacturer's directions.

#### SUPPLIER

Company: Ardex Australia Pty Ltd Address: 20 Powers Road Seven Hills NSW, 2147 AUS Telephone: 1800 224 070 Fax: +61 2 9838 7817

#### HAZARD RATINGS



## Section 2 - HAZARDS IDENTIFICATION

## STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.			
POISONS SCHEDULE			
RISK	SAFETY		
Irritating to eyes and skin.	Avoid contact with skin.		
Cumulative effects may result following exposure*.	■ Wear eye/ face protection.		
* (limited evidence).	To clean the floor and all objects contaminated by this material use water and detergent.		
	In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.		
	If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).		

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ethyltriacetoxysilane	17689-77-9	<5
polydimethylsiloxane	63148-62-9	N/S
fillers		N/S
auxillary substances		N/S

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 24-Mar-2009

Revision No: 4

CD 2010/1

Chemwatch 4661-67

## Section 4 - FIRST AID MEASURES

## SWALLOWED

- •
- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor. **EYE**
- If this product comes in contact with eyes:
- Wash out immediately with water.
- If irritation continues, seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
- SKIN
- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### INHALED

- •
- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

#### NOTES TO PHYSICIAN

Treat symptomatically.

## Section 5 - FIRE FIGHTING MEASURES

## **EXTINGUISHING MEDIA**

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog Large fires only.

## FIRE FIGHTING

- •
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

#### **FIRE/EXPLOSION HAZARD**

Combustible. Will burn if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), other pyrolysis products typical of burning organic material.

- Hot organic vapours or mist are capable of sudden spontaneous combustion when mixed with air even at temperatures below their published autoignition temperatures.
- The temperature of ignition decreases with increasing vapour volume and vapour/air contact times and is influenced by pressure change.
- Ignition may occur under elevated-temperature process conditions especially in processes performed under vacuum subjected to sudden ingress of air or in processes performed at elevated pressure, where sudden escape of vapours or mists to the atmosphere occurs.

#### FIRE INCOMPATIBILITY

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

#### HAZCHEM

None

### PERSONAL PROTECTION

Glasses: Gloves:

Chemical goggles.

When handling larger quantities:

Respirator: Type A-P Filter of sufficient capacity

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Issue Date: 24-Mar-2009

Revision No: 4

CD 2010/1

Chemwatch 4661-67

Section 6 - ACCIDENTAL RELEASE MEASURES

## EMERGENCY PROCEDURES

#### MINOR SPILLS

- •
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety goggles.
- Trowel up/scrape up.
- Place spilled material in clean, dry, sealed container.
- Flush spill area with water.

MAJOR SPILLS

- •
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible.
- Put residues in labelled containers for disposal.
- If contamination of drains or waterways occurs, advise emergency services.

### Personal Protective Equipment advice is contained in Section 8 of the MSDS.

## Section 7 - HANDLING AND STORAGE

#### **PROCEDURE FOR HANDLING**

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

### SUITABLE CONTAINER

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

#### STORAGE INCOMPATIBILITY

- Avoid contamination of water, foodstuffs, feed or seed.
- Avoid reaction with oxidising agents

#### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

#### SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

http://full.chemwatch.net/cg2/msds.exe?print=Y&rCode=&prefname=&concise=&ms... 27/07/2010

Chemwatch Material Safety Data Sheet

Issue Date: 24-Mar-2009

Revision No: 4

Chemwatch 4661-67

Hazard Alert Code: MODERATE

CD 2010/1



X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### **EXPOSURE CONTROLS**

The following materials had no OELs on our records

• ethyltriacetoxysilane: CAS:17689-77-9

• polydimethylsiloxane: CAS:63148-62-9

### MATERIAL DATA

DUNLOP COLOURED SILICONE: Not available ETHYLTRIACETOXYSILANE: • for acetic acid: NOTE:Detector tubes for acetic acid, measuring in excess of 1 ppm, are commercially available. Exposure at or below the TLV-TWA and TLV-STEL is thought to protect the worker against conjunctival, nose and respiratory tract irritation. Odour Safety Factor(OSF) OSF=21 ("ACETIC ACID, GLACIAL"). No exposure limits set by NOHSC or ACGIH. POLYDIMETHYLSILOXANE: • Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically

• Sensory initiality are chemicals that produce temporary and undestrable side-enects of the eyes, hose of thoat. Instolically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

#### PERSONAL PROTECTION



### EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 4661-67

Issue Date: 24-Mar-2009

CD 2010/1

exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]

#### HANDS/FEET

Wear general protective gloves, eg. light weight rubber gloves.

#### OTHER

No special equipment needed when handling small quantities.

- OTHERWISE:
- Overalls.
- Barrier cream.
- Eyewash unit.

#### RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important. Breathing Zone Level ppr

(volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	A-AUS P	-
1000	50	-	A-AUS P
5000	50	Airline *	-
5000	100	-	A-2 P
10000	100	-	A-3 P
	100+		Airline**

\* - Continuous Flow \*\* - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

#### **ENGINEERING CONTROLS**

• General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:	
solvent, vapours, degreasing etc., evaporating from tank (in still air)	0.25-0.5 m/s (50-100 f/min)	
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)	
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min)	
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)	
Within each range the appropriate value depends on:		
Lower end of the range	Upper end of the range	
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity	
3: Intermittent, low production.	3: High production, heavy use	
4: Large hood or large air mass in motion	4: Small hood - local control only	

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

#### APPEARANCE

Transparents or tinted paste with a pungent odour; does not mix with water.

#### PHYSICAL PROPERTIES

Does not mix with water.

State	Non Slump Paste	Molecular Weight	Not Applicable
	Paste	0	••

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 4

CD 2010/1

Chemwatch 4661-67

Issue Date: 24-Mar-2009

Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	Not Available	Solubility in water (g/L)	Immiscible
Flash Point (°C)	Not Available	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°C)	460 approx.	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Available	Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Available	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

## Section 10 - CHEMICAL STABILITY

#### CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable and hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS SWALLOWED

• The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

#### EYE

• Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

#### SKIN

• The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

#### INHALED

• The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

### CHRONIC HEALTH EFFECTS

• Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

## TOXICITY AND IRRITATION

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 4661-67

Hazard Alert Code: MODERATE

CD 2010/1

Issue Date: 24-Mar-2009

Not available. Refer to individual constituents.

ETHYLTRIACETOXYSILANE:

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

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a nonallergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a nonatopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

No data of toxicological significance identified in literature search.

## Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows: DUNLOP COLOURED SILICONE:

ETHYLTRIACETOXYSILANE:

Acetic acid and its salts (the acetates) can be grouped together because of their close structural relationships, their natural occurrence in plants and animals, and their fundamental role in cell metabolism, particularly in the tricarboxylic acid cycle (also known as the citric acid or Kreb's cycle), which is where humans get their energy.

- Acetic acid is degraded photochemically in the atmosphere to produce hydroxyl radicals (estimated typical half-life of 22 days). Physical removal of acetates on atmospheric particulates may occur via wet or dry deposition.
- Natural water will neutralise dilute solutions of acetic acid.
- Spills of acetic acid on soil will readily biodegrade the biodegradation rate for acetic acid after 14 days under aerobic conditions is 74 days.
- In invertebrates the toxicity of acetic acid (EC50 = 50-450 mg/L, depending on test species) -under static conditions, the 48 hour EC50 value for acetic acid is 65 mg/L for aquatic invertebrates (the test media was not neutralised). When the test solutions are neutralised, to form acetates, the static 48 hour EC50 for acetic acid is 6000 mg/L. In renewal systems with aquatic invertebrates, 48 hour EC50s for acetic acid are 100 mg/L and 180 mg/L.
- Fish LC50 (96 h): 75-88 mg/L.
- Acetic acid is not expected to bioconcentrate in the aquatic system.
- Low concentrations of acetic acid are harmful to fish. .
- Drinking water standards: none available.
- Soil Guidelines: none available.
- Air Quality Standards: none available .
- Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

POLYDIMETHYLSILOXANE:

Fish LC50 (96hr.) (mg/l):

For siloxanes:

Environmental fate:

It is well accepted that polydimethylsiloxane fluids become permanent residents of sediment but should not exert adverse environmental effects.

Silicone fluids are very surface active because the flexible siloxane linkages permit alignment of the hydrophobic methyl substituents towards the non-polar phase, and of the polysiloxane backbone towards the polar phase. The polar medium is generally water, and a polar media to which polydimethylsiloxanes become attached may be textiles, sewage sludge, hair, algae, sediment etc. In aqueous environments, polydimethylsiloxanes are adsorbed onto sedimenting particles. Also, in the presence of nitrate ions, which exist at various concentrations in the environment, short chain siloxanes are photodegraded to the level of

silicate within days The stability of the siloxanes, desirable from a technical point of view, makes the siloxanes very persistent, and once released to the environment the siloxanes remain for many years.

The main source of releases of siloxanes to the air is volatile siloxanes used in cosmetics, wax, polishes, and to a minor extent in several other applications. the volatile siloxanes may account for a significant part of the siloxanes used for cosmetics.

Non-volatile silicone fluids used in cosmetics, wax, polishes, cleaning products and for textile applications (softeners) will to a large extent end up in wastewater and be directed to wastewater treatment plants.

The cyclic siloxanes and small-chain linear siloxanes are bioconcentrated (bioconcentration factors for long-chained siloxanes have not been assessed). The estimated bioconcentration factors (BCF) of the small siloxanes range from 340 for HMDS to 40,000 for a phenylated trisiloxane (phenyl trimethicone). The small phenylated siloxanes seem to have very high BCF, and model estimates indicate that these substances are the most toxic for aquatic organisms. PBT profiler screening

In order to make a first comparison between the substances as to persistence, bioaccumulation and toxicity, the substances were

CG2

10000

Hazard Alert Code: MODERATE

Chemwatch Material Safety Data Sheet

Revision No: 4

CD 2010/1

Chemwatch 4661-67

Issue Date: 24-Mar-2009

screened using the PBT profiler developed by U.S. EPA (U.S. EPA 2003). The profiler uses a procedure to predict persistence,

bioaccumulation, and toxicity of organic chemicals on the basis of the chemical structure and physical parameters of the substances combined with experimental parameters for substance with a similar structure, using a QSAR approach.

The results for six members of the siloxane family predict the highest bioconcentration factors for the two phenyl siloxanes, one order of magnitudes higher than the values for the cyclic siloxanes and two orders of magnitudes higher than the values for the small linear methyl siloxanes. The predicted toxicity is as well significantly higher (lowest ChV values) for the phenyl siloxanes. The predicted half-life is nearly the same for all substances.

Using U.S. EPA's criteria, the screening indicates that all substances are of high concern as to environmental toxicity, and that the phenyl siloxanes are considered very bioaccumulative.

Ecotoxicity:

The environmental fate and effects of volatile methylsiloxanes (mainly cyclosiloxanes) and polydimethylsiloxane (PDMS) have been reported:

For octamethylcyclosiloxane:

Fish acute LĆ50 (14 day):: rainbow trout 10 ug/l; sheepshead minnow >6.3 ug/l Daphnia magna acute EC50 (48 h): >15 ug/l; NOEC 15 ug/l Mysid shrimp acute LC50 (96 h): >9.1 ug/l; NOEC 9.1 ug/l

For PDMS

Daphnia magna NOEC 572 mg/kg

Physical effects such as surface entrapment have been observed when testing aquatic invertebrates in clean laboratory water, but similar effects are not expected in natural environments where a large variety of other surfaces provide opportunities for deposition.

Eco	toxi	city
		-

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
ethyltriacetoxysilane	HIGH		LOW	HIGH
polydimethylsiloxane			LOW	

## Section 13 - DISPOSAL CONSIDERATIONS

•

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION

## HAZCHEM:

None (ADG7) NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, UN, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

#### **POISONS SCHEDULE**

None

#### REGULATIONS

Regulations for ingredients

ethyltriacetoxysilane (CAS: 17689-77-9) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)","International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

polydimethylsiloxane (CAS: 63148-62-9) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)","IMO IBC Code Chapter 17: Summary of minimum requirements","IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances","OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Dunlop Coloured Silicone (CW: 4661-67)

## **Section 16 - OTHER INFORMATION**

 Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

• The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 4661-67

Hazard Alert Code: MODERATE

Issue Date: 24-Mar-2009

CD 2010/1

whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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