

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Ardex WPM 116

SYNONYMS

"Bitumen based polyethylene membrane", "Shelterbit Fibre Back Base Sheet"

PRODUCT USE

Used as a waterproofing membrane.

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

		Min	Max	
Flammability:	0			
Toxicity:	1			
Body Contact:	1			
Reactivity:	0			
Chronic:	0			

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

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.
--

POISONS SCHEDULE

None

RISK

- Vapours may cause drowsiness and dizziness.
- Ingestion may produce health damage*.
- Repeated exposure potentially causes skin dryness and cracking*.

* (limited evidence).

SAFETY

- Avoid contact with skin.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bitumen (petroleum)	8052-42-4	<60
polyethylene	9002-88-4	<10
fibre backing		N/S

No other ingredients disclosed by Manufacturer.

Section 4 - FIRST AID MEASURES

SWALLOWED

- Not normally a hazard due to physical form of product.

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

EYE

- If this product comes in contact with the eyes:
 - Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin contact occurs:
 - Immediately remove all contaminated clothing, including footwear.
 - 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.
 - Dry sand.

FIRE FIGHTING

- - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear breathing apparatus plus protective gloves for fire only.
 - Prevent, by any means available, spillage from entering drains or water courses.
 - Use fire fighting procedures suitable for surrounding 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

■ The emulsion is not combustible under normal conditions. However, it will break down under fire conditions and the hydrocarbon component will burn.

Not considered to be a significant fire risk.

May shrink, melt, or drip.

Decomposes on heating and produces acrid and toxic fumes of: carbon monoxide (CO) and carbon dioxide (CO₂).

HAZCHEM

None

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- - Clean up all spills immediately.
 - Secure load if safe to do so.
 - Bundle/collect recoverable product.
 - Collect remaining material in containers with covers for disposal.

MAJOR SPILLS

- - Minor hazard.
 - Clear area of personnel.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear physical protective gloves e.g. Leather.
 - Contain spill/secure load if safe to do so.

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

- Bundle/collect recoverable product and label for recycling.
- Collect remaining product and place in appropriate containers for disposal.
- Clean up/sweep up area.
- Water may be required.

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

Material is supplied in a roll form.

STORAGE INCOMPATIBILITY

Avoid storage with strong oxidising agents, solvents, oils and bitumen products.

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



+

+

+

+

X

+

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

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Australia Exposure Standards	bitumen (petroleum) (Bitumen fumes)		5						

The following materials had no OELs on our records

- polyethylene: CAS:9002-88-4

MATERIAL DATA

ARDEX WPM 116:

- None assigned. Refer to individual constituents.

BITUMEN (PETROLEUM):

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

■ bitumen (asphalt) fumes [8052-42-4]TLV* TWA: 0.5 mg/m³ A4 asphalt (petroleum, bitumen) fume, as benzene soluble aerosolES* TWA: 5 mg/m³ as fumesOES* TWA: 5 mg/m³; STEL: 10 mg/m³ as fumes

Based on surveys of asphalt workers in oil refineries and in the roofing industry the TLV-TWA is thought to reduce the risk of possible carcinogenicity.

Odour Threshold Value for hydrogen sulfide: 0.0011 ppm (detection), 0.0045 ppm (recognition)

NOTE: Detector tubes for hydrogen sulfide, measuring in excess of 0.5 ppm are available commercially.

The TLV-TWA is protective against sudden death, eye irritation, neurasthenic symptoms such as fatigue, headache, dizziness, and irritability, or permanent central nervous system effects that may result from acute, subchronic, or acute exposure to hydrogen sulfide. The offensive odour of hydrogen sulfide does not give a reliable warning signal because olfactory fatigue occurs at concentrations of 150 to 200 ppm.

Hydrogen sulfide is probably the leading cause of sudden death in the workplace. Lethal hydrogen sulfide toxicity following inhalation of 1000-2000 ppm paralyses the respiratory centre and causes breathing to stop. At concentrations between 500 to 1000 ppm, the carotid bodies are stimulated causing hypernea which is followed by apnea. Low concentrations

(50-1500 ppm) produce eye and respiratory tract irritation. Prolonged exposure to concentrations of the order of 250-500 ppm may produce pulmonary oedema although 50 ppm has also reportedly produced this effect.

Concentrations in excess of 50 ppm produce acute conjunctivitis with pain, lachrymation and photophobia. These acute changes may progress to keratoconjunctivitis and vesiculation of the corneal epithelium.

Concentrations between 5 and 30 ppm produce ocular toxicity.

Odour Safety Factor(OSF)

OSF=1.2E3 (HYDROGEN SULFIDE).

PERSONAL PROTECTION**EYE**

-
- Safety glasses.
- 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 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 impervious gloves.
- Safety footwear

OTHER

-
- Overalls.
- 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 ppm (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 inhalation risk of overexposure exists, wear SAA approved organic-vapour respirator.
- Correct respirator fit is essential to obtain adequate protection.

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Black membrane fibre backed sheet with a bitumen base. Insoluble in water.

PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

Molecular Weight: Not applicable.

Boiling Range (°C): 470 (bitumen)

Melting Range (°C): >100

Specific Gravity (water=1): 1-1.5

Solubility in water (g/L): Immiscible

pH (as supplied): Not applicable

pH (1% solution): Not applicable.

Vapour Pressure (kPa): Not applicable.

Volatile Component (%vol): Not available.

Evaporation Rate: Not available

Relative Vapour Density (air=1): Not applicable.

Flash Point (°C): 230 (bitumen)

Lower Explosive Limit (%): Not applicable

Upper Explosive Limit (%): Not applicable

Autoignition Temp (°C): 485 (bitumen)

Decomposition Temp (°C): Not available.

State: Manufactured

Viscosity: Not available

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

■

- Presence of incompatible materials.
- Product is considered stable.
- 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

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

Not normally a hazard due to physical form of product.

The material is discomforting to the gastro-intestinal tract if swallowed.

EYE

- The vapour from heated material is discomforting to the eyes.

SKIN

- The material is slightly discomforting to the skin.

INHALED

- Not normally a hazard due to non-volatile nature of product.

The vapour from heated material is discomforting to the upper respiratory tract and lungs.

Inhalation of vapour is more likely at higher than normal temperatures.

CHRONIC HEALTH EFFECTS

- Principal routes of exposure are usually by skin contact with the material and inhalation of fumes from the heated material.

TOXICITY AND IRRITATION

- Not available. Refer to individual constituents.

BITUMEN (PETROLEUM):

- 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 non-allergenic 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 non-atopic 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.

POLYETHYLENE:

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

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

TOXICITY

Oral (rat) LD50: 3000 mg/kg

Inhalation (mouse) LC50: 12000 mg/m³/30m

IRRITATION

- The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

polyethylene pyrolyzate

CARCINOGEN

Bitumens, extracts of steam-refined and air-refined	International Agency for Research on Cancer (IARC) Carcinogens	Group 2B
Bitumens, steam-refined, cracking-residue and air-refined	International Agency for Research on Cancer (IARC) Carcinogens	Group 3
Polyethylene	International Agency for Research on Cancer (IARC) Carcinogens	Group 3

Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

ARDEX WPM 116:

BITUMEN (PETROLEUM):

- for bitumens/ asphalts:

This family of hydrocarbon is expected to have similar boiling points, vapor pressures, log Kow values (>10), and water solubilities. Limited environmental fate data also support the grouping of bitumens/ asphalts under one category. Bitumen/ asphalts contain complex hydrocarbon mixtures with molecular weights ranging from 500-2000 and carbon numbers predominantly higher than C25, vapor pressures are negligible. The high molecular weights and similar hydrocarbon distributions among the bitumens/ asphalts support the conclusion that the toxicity of this group, in general, is not expected to vary significantly across members.

Environmental fate:

Upon release to the environment, bitumens/ asphalts are expected to distribute similarly because of their low volatility and limited water solubility. Bitumen/ asphalts are expected to be resistant to biodegradation, and those components that are soluble in water are expected to be resistant to hydrolysis. When bitumen/ asphalts are heated to facilitate paving or roofing applications, the lighter, more volatile components are distilled into the atmosphere. They condense as they cool, forming small droplets of liquid known as bitumen or asphalt fume condensate. The majority of hydrocarbons in bitumen/ asphalts are not susceptible to direct photolysis, since they do not have functional groups that absorb sunlight greater than 290 nm. However, certain aromatic and unsaturated compound members have the potential to undergo photolysis because they absorb light in the environmental UV region. Since bitumens/ asphalts contain high molecular weight hydrocarbons, partitioning to the atmosphere is not considered to be important.

When compositionally analysing bitumens/ asphalts for certain toxicity endpoints the percentage of 3- to 7-ring polyaromatic hydrocarbons (PAHs) is important. The levels of 3- to 7-ring PAHs are expected to be low considering the processes used to manufacture these substances. Fumes generated experimentally at high temperatures are more likely to contain carcinogenic PAHs than fumes generated at the lower temperatures usually seen in field samples. Therefore, generating conditions are expected to significantly affect toxicity.

Ecotoxicity:

Bitumens/ asphalts by analogy with other high molecular weight hydrocarbons are not likely to show adverse acute or chronic ecological effects in aquatic species.

- For hydrocarbons:

Environmental fate:

The lower molecular weight hydrocarbons are expected to form a "slick" on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxy radicals.

Some hydrocarbon will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions (isomerised olefins and alkenes show variable results). Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.

Under aerobic conditions hydrocarbons degrade to water and carbon dioxide, while under anaerobic processes they produce water, methane and carbon dioxide.

Alkenes have low log octanol/water partition coefficients (Kow) of about 1 and estimated bioconcentration factors (BCF) of about 10; aromatics have intermediate values (log Kow values of 2-3 and BCF values of 20-200), while C5 and greater alkanes have fairly high values (log Kow values of about 3-4.5 and BCF values of 100-1,500)

The estimated volatilisation half-lives for alkanes and benzene, toluene, ethylbenzene, xylene (BTEX) components were predicted as 7 days in ponds, 1.5 days in rivers, and 6 days in lakes. The volatilisation rate of naphthalene and its substituted derivatives were estimated to be slower

Indigenous microbes found in many natural settings (e.g., soils, groundwater, ponds) have been shown to be capable of degrading organic compounds. Unlike other fate processes that disperse contaminants in the environment, biodegradation can eliminate the contaminants without transferring them across media.

The final products of microbial degradation are carbon dioxide, water, and microbial biomass. The rate of hydrocarbon degradation depends on the chemical composition of the product released to the environment as well as site-specific environmental factors. Generally the straight chain hydrocarbons and the aromatics are degraded more readily than the highly branched aliphatic

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

compounds. The n-alkanes, n-alkyl aromatics, and the aromatics in the C10-C22 range are the most readily biodegradable; n-alkanes, n-alkyl aromatics, and aromatics in the C5-C9 range are biodegradable at low concentrations by some microorganisms, but are generally preferentially removed by volatilisation and thus are unavailable in most environments; n-alkanes in the C1-C4 ranges are biodegradable only by a narrow range of specialised hydrocarbon degraders; and n-alkanes, n-alkyl aromatics, and aromatics above C22 are generally not available to degrading microorganisms. Hydrocarbons with condensed ring structures, such as PAHs with four or more rings, have been shown to be relatively resistant to biodegradation. PAHs with only 2 or 3 rings (e.g., naphthalene, anthracene) are more easily biodegraded. In almost all cases, the presence of oxygen is essential for effective biodegradation of oil. The ideal pH range to promote biodegradation is close to neutral (6-8). For most species, the optimal pH is slightly alkaline, that is, greater than 7.

All biological transformations are affected by temperature. Generally, as the temperature increases, biological activity tends to increase up to a temperature where enzyme denaturation occurs.

Atmospheric fate: Alkanes, isoalkanes, and cycloalkanes have half-lives on the order of 1-10 days, whereas alkenes, cycloalkenes, and substituted benzenes have half-lives of 1 day or less. Photochemical oxidation products include aldehydes, hydroxy compounds, nitro compounds, and peroxyacyl nitrates. Alkenes, certain substituted aromatics, and naphthalene are potentially susceptible to direct photolysis.

Ecotoxicity:

Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.

The values of log Kow for individual hydrocarbons increase with increasing carbon number within homologous series of generic types. Quantitative structure activity relationships (QSAR), relating log Kow values of single hydrocarbons to toxicity, show that water solubility decreases more rapidly with increasing Kow than does the concentration causing effects. This relationship varies somewhat with species of hydrocarbon, but it follows that there is a log Kow limit for hydrocarbons, above which, they will not exhibit acute toxicity; this limit is at a log Kow value of about 4 to 5. It has been confirmed experimentally that for fish and invertebrates, paraffinic hydrocarbons with a carbon number of 10 or higher (log Kow >5) show no acute toxicity and that alkylbenzenes with a carbon number of 14 or greater (log Kow >5) similarly show no acute toxicity. QSAR equations for chronic toxicity also suggest that there should be a point where hydrocarbons with high log Kow values become so insoluble in water that they will not cause chronic toxicity, that is, that there is also a solubility cut-off for chronic toxicity. Thus, paraffinic hydrocarbons with carbon numbers of greater than 14 (log Kow >7.3) should show no measurable chronic toxicity.

■ Drinking Water Standards: hydrocarbon total: 10 ug/l (UK max.).

■ For hydrogen sulfide:

Environmental fate:

Since hydrogen sulfide exists as a gas at atmospheric pressure, partitioning to the air is likely to occur after environmental releases. However, the compound is also soluble in oil and water, and therefore, may partition as well to surface water, groundwater, or moist soil. In addition, sorption of hydrogen sulfide from air onto soil and plant foliage occurs. Hydrogen sulfide's solubility in pure water varies with temperature from 5.3 g/L at 10 °C to 3.2 g/L at 30 C. Once hydrogen sulfide is dissolved in water, it will dissociate into bisulfide ion (HS-) and sulfide ion (S2-); the ratio of the concentrations of these various ions will depend on the pH of the solution. Hydrogen sulfide can also form insoluble sulfide salts with various metals (i.e., copper, zinc, nickel, and iron) that may be present in soils or environmental waters .

Hydrogen sulfide evaporates easily from water, and the rate of evaporation depends on factors such as temperature, humidity, pKa, pH, and the concentration of certain metal ions. Hydrogen sulfide will cross the air-water interface with kinetics similar to other unreactive gases, such as oxygen (O2), nitrogen (N2), and carbon dioxide (CO2), at pHs <=6. At higher pHs, such as seawater, which has a pH of 8 or greater, hydrogen sulfide escape is enhanced due to an ionic species gradient in the water close to the surface. Complexation of bisulfide and sulfide ions to trace metal ions (i.e., Zn2+, Co2+, and Ni2+) found in seawater will also have an effect on the transport of hydrogen sulfide across the air-water interface.

Clay or organic matter may sorb hydrogen sulfide. Under natural conditions, it is likely that some of the hydrogen sulfide would be oxidized to sulfate, which may be removed by leaching or taken up by plants. This, in turn, may make gas sorption sites available for additional sorption. Several species of soil, aquatic, and marine microorganisms oxidize hydrogen sulfide to elemental sulfur, and its half-time in these environments usually ranges from 1 hour to several hours .Food chain bioconcentration and biomagnification are unlikely.

In the atmosphere, hydrogen sulfide may be oxidized by oxygen (O2) and ozone (O3) to give sulfur dioxide (SO2), and ultimately sulfate compounds. Sulfur dioxide and sulfates are eventually removed from the atmosphere through absorption by plants, deposition on and sorption by soils, or through precipitation. A residence time of approximately 1.7 days at an ozone concentration of 0.05 mg/m3 has been calculated for hydrogen sulfide. The effective life-times for hydrogen sulfide based on summer daytime and yearly average hydroxyl radical concentrations have been estimated to be 0.23 and 2.3 days, respectively, based a measured rate constant of 4.8x10-12 cm3/molecule second. Life-times in air ranging from approximately 1 day in the summer to 42 days in the winter have been estimated for hydrogen sulfide. Hydrogen sulfide is not expected to be decomposed by direct absorption of ultraviolet radiation and the reaction with ozone is not expected to be a significant environmental fate.

In aqueous solution, hydrogen sulfide is a weak acid, exhibiting two acid dissociation constants. The first dissociation yields bisulfide ion (HS-), and the second yields sulfide ion (S2-), with pKa values for each of these dissociations of 7.04 and 11.96, respectively. At a pH of 7.0, the ratio of the concentration of aqueous hydrogen sulfide to bisulfate ion is approximately 1-to-1. As the pH increases above 7.0, the ratio of the concentration of bisulfide ion to aqueous hydrogen sulfide increases. At a pH of 8, the ratio of the concentration of bisulfide ion to the concentration of aqueous hydrogen sulfide is approximately 10-to-1. The relative concentration of sulfide ion does not begin to increase until a pH of 11 is exceeded; only above pH 12 will the concentration of sulfide ion become significant (>50%). Hydrogen sulfide oxidation by O2 readily occurs in surface waters. At 25 °C and pH 8, half-times of 50 and 26 hours were reported for hydrogen sulfide in water and seawater, respectively. Above pH 8, however, the rate of oxidation was independent of pH.

Hydrogen sulfide in waste water may be controlled by addition of oxidizing chemicals, which react to form less toxic byproducts. In warm, damp environments (such as manholes and gravity sewers), hydrogen sulfide may be oxidized by autotrophic bacteria to sulfuric acid . Chemical oxidation of hydrogen sulfide dissolved in sewage water produces sulfur at pH 6-7, while sulfur, polysulfides, thiosulfates, and ultimately sulfate are formed at pHs of 7-9.

Hydrogen sulfide is one of the principal components in the natural sulfur cycle. Bacteria, fungi, and actinomycetes (a fungus-like bacteria) release hydrogen sulfide during the decomposition of sulfur containing proteins and by the direct reduction of sulfate (SO42-). Hydrogen sulfide is also consumed by bacteria found in soil and water that oxidize hydrogen sulfide to elemental sulfur. Photosynthetic bacteria can oxidize hydrogen sulfide to sulfur and sulfate in the presence of light and the absence of oxygen.

A number of microorganisms have been found to degrade hydrogen sulfide to elemental sulfur or sulfate. Among these are a heterotrophic bacterium of the genus Xanthomonas isolated from dimethyl disulfide-acclimated peat, heterotrophic fungi, and a marine isopod. Soils may sorb considerable amounts of hydrogen sulfide from the air, retaining most of it in the form of elemental

ARDEX WPM 116

Hazard Alert Code:
LOW

Chemwatch Material Safety Data Sheet

Revision No: 4

Chemwatch 8044-22

Issue Date: 27-Sep-2008

CD 2009/3

sulfur. Manganese compound found in these soils appeared to catalyze the oxidation of hydrogen sulfide to elemental sulfur
 Ecotoxicity:
 Fish LC50 (96 h): 075->0.4 mg/l.
 POLYETHYLENE:

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
Ardex WPM 116		No data		
bitumen (petroleum)		No data		
polyethylene		No data		

Section 13 - DISPOSAL CONSIDERATIONS

-
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- 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

bitumen (petroleum) (CAS: 8052-42-4) is found on the following regulatory lists;

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "International Agency for Research on Cancer (IARC) Carcinogens", "OECD Representative List of High Production Volume (HPV) Chemicals"

polyethylene (CAS: 9002-88-4) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "International Agency for Research on Cancer (IARC) Carcinogens"

No data for Ardex WPM 116 (CW: 8044-22)

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 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.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: 27-Sep-2008

Print Date: 4-Nov-2009