

ARDEX X23M**Hazard Alert Code:
MODERATE**

Chemwatch Material Safety Data Sheet

Revision No: 2

Chemwatch 4639-27

Issue Date: 16-Jun-2005

CD 2006/4

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME:** ARDEX X23M**SYNONYMS**

"polymer modified bitumen sheet."

PRODUCT USE

Isolation sheet.

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:	1			
Toxicity:	2			
Body Contact:	2			
Reactivity:	0			
Chronic:	2			

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

Section 2 - HAZARDS IDENTIFICATION**STATEMENT OF HAZARDOUS NATURE****HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.****POISONS SCHEDULE**

None

RISK

Inhalation may produce health damage*.

Cumulative effects may result following exposure*.

May produce discomfort of the eyes, respiratory tract and skin*.

Limited evidence of a carcinogenic effect*.

Possible skin sensitiser*.

Vapours potentially cause drowsiness and dizziness*.

* (limited evidence).

SAFETY

Wear eye/face protection.

Use only in well ventilated areas.

Keep container in a well ventilated place.

Take off immediately all contaminated clothing.

In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bitumen (petroleum)	8052-42-4	30-60
thermoplastic polymer		30-60
graded sand	14808-60-7.	<5

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 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:

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- 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.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

Burns : No attempt should be made to remove the bitumen (it acts as a sterile dressing). Cover the bitumen with tulle gras and leave for two days when any detached bitumen can be removed. Re-dress and leave for a further week. If necessary refer to a burns unit. [Manufacturer].

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

- 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.
- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Combustion products include:

sulfur oxides (SOx).

NOTE: Burns with intense heat. Produces melting, flowing, burning liquid and dense acrid black smoke.

May emit poisonous fumes.

May emit corrosive fumes.

FIRE INCOMPATIBILITY

None known.

HAZCHEM

None

Personal Protective Equipment

Breathing apparatus.

Gas tight chemical resistant suit.

Limit exposure duration to 1 BA set30 mins.

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

- Clean up all spills immediately.
- Wear protective clothing, safety glasses, dust mask, gloves.
- Secure load if safe to do so. Bundle/collect recoverable product.

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- Use dry clean up procedures and avoid generating dust.
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Water may be used to prevent dusting.
- Collect remaining material in containers with covers for disposal.
- Flush spill area with water.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

bitumen (petroleum) 250 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

bitumen (petroleum) 50 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

bitumen (petroleum) 1.5 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

bitumen (petroleum) 0.5 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according exceed the following cutoffs

Very Toxic (T+) >= 0.1% Toxic (T) >= 3.0%

R50 >= 0.25% Toxic (T) >= 3.0%

R51 >= 2.5% Corrosive (C) >= 5.0%

else >= 10%

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+

+

+

+

+

+

X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.**Section 7 - HANDLING AND STORAGE****PROCEDURE FOR HANDLING**

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- 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. Launder contaminated clothing before re-use.
- 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

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

None known.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.

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- 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.

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
Australia Exposure Standards	bitumen (petroleum) (Bitumen fumes)		5					
Australia Exposure Standards	graded sand (Silica crystalline - Quartz)		0.1					

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
graded sand	50	

MATERIAL DATA

Not available. Refer to individual constituents.

INGREDIENT DATA**BITUMEN (PETROLEUM):**

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

GRADED SAND:

NOTE: This product contains negligible amount of respirable dust.

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 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 chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash 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

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Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. 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**

Black sheeting in rolls with a mild bituminous odour; insoluble in water.

PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

Molecular Weight: Not Applicable
 Melting Range (°C): >100 approx.
 Solubility in water (g/L): Immiscible
 pH (1% solution): Not Applicable
 Volatile Component (%vol): Not Applicable
 Relative Vapour Density (air=1): Not Applicable
 Lower Explosive Limit (%): Not Applicable
 Autoignition Temp (°C): 485 (bitumen)
 State: Manufactured

Boiling Range (°C): 470 (bitumen)
 Specific Gravity (water=1): 1.0-1.5 (bulk)
 pH (as supplied): Not Applicable
 Vapour Pressure (kPa): Not Applicable
 Evaporation Rate: Not Applicable
 Flash Point (°C): 230 (bitumen)
 Upper Explosive Limit (%): Not Applicable
 Decomposition Temp (°C): Not Available
 Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION**CONDITIONS CONTRIBUTING TO INSTABILITY**

Product is considered stable and hazardous polymerisation will not occur.

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

There is some evidence to suggest that this material can cause eye irritation and damage in some persons. Workers exposed to fumes of blown bitumens developed inflammation of the cornea and conjunctiva.

SKIN

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There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Hydrogen sulfide poisoning can cause increased secretion of saliva, nausea, vomiting, diarrhoea, giddiness, headache, vertigo, memory loss, palpitations, heartbeat irregularities, weakness, muscle cramps, confusion, sudden collapse, unconsciousness and death due to paralysis of breathing (at levels above 300 parts per million). The "rotten egg" odour is not a good indicator of exposure since odour fatigue occurs and odour is lost at over 200 ppm. The gas can enter the body through a punctured ear drum and even when wearing some respiratory protection. Immediate supportive care is essential. Ensure medical help is addressed as part of the site emergency plan and that employees who may be accidentally exposed are made aware of the existence of such a plan.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.

Acute exposure to bitumen/asphalt vapours may cause coughing, chest tightness, muscle weakness, dizziness, tiredness, poor concentration, and even nausea and vomiting.

Workers exposed to hot blown bitumens show bronchitis, inflammation of the nose, mouth, pharynx and larynx; symptoms include cough, phlegm, burning of the throat and chest, hoarseness, headache and nasal discharge. Animals exposed to blown bitumen fumes, aerosols and smoke, developed patchy regions of emphysema, dilation of bronchioles, lung inflammation, and severe localized bronchitis, as well as abscess formation and necrosis.

Concentrations of asphalt in the workplace ranges from virtually zero in areas of good mechanical ventilation to 40 mg/m³ where there is very poor natural draft. Generally conditions are only considered satisfactory where the concentration is less than 10 mg/m³.

Inhaling high concentrations of mixed hydrocarbons can cause narcosis, with nausea, vomiting and lightheadedness. Low molecular weight (C₂-C₁₂) hydrocarbons can irritate mucous membranes and cause incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and stupor. Massive exposures can lead to severe central nervous system depression, deep coma and death. Convulsions can occur due to brain irritation and/or lack of oxygen. Permanent scarring may occur, with epileptic seizures and brain bleeds occurring months after exposure. Respiratory system effects include inflammation of the lungs with oedema and bleeding. Lighter species mainly cause kidney and nerve damage; the heavier paraffins and olefins are especially irritant to the respiratory system. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce sensation loss and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C₅-7 paraffins may also produce multiple nerve damage. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue, vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons can sensitise the heart and may cause ventricular fibrillation, leading to death.

CHRONIC HEALTH EFFECTS

Long term low level exposure to hydrogen sulfide may produce headache, fatigue, dizziness, irritability and loss of sexual desire. These symptoms may also result when exposed to hydrogen sulfide at high concentration for a short period of time.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

BITUMEN (PETROLEUM):

Not available. Refer to individual constituents.

GRADED SAND:

No data of toxicological significance identified in literature search.

MATERIAL	CARCINOGEN	REPROTOXIN	SENSITISER	SKIN
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bitumen (petroleum)	IARC:2B			
graded sand	IARC:1			

IARC: International Agency for Research on Cancer (IARC) Carcinogens: bitumen (petroleum) Category: 2B

CARCINOGEN

IARC: International Agency for Research on Cancer (IARC) Carcinogens: graded sand Category: 1

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

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NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION**POISONS SCHEDULE**

None

REGULATIONS

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

Australia Exposure Standards

Australia High Volume Industrial Chemical List (HVICL)

Australia Inventory of Chemical Substances (AICS)

European Inventory of Existing Commercial Substances - EINECS

European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous Substances and Preparations

International Agency for Research on Cancer (IARC) Carcinogens

OECD Representative List of High Production Volume (HPV) Chemicals

graded sand (CAS: 14808- 60- 7) is found on the following regulatory lists;

Australia - New South Wales Hazardous Substances Prohibited for Specific Uses

Australia - New South Wales Hazardous Substances Requiring Health Surveillance

Australia - South Australia Hazardous Substances Requiring Health Surveillance

Australia - Tasmania Hazardous Substances Prohibited for Specified Uses

Australia - Tasmania Hazardous Substances Requiring Health Surveillance

Australia - Western Australia Hazardous Substances Requiring Health Surveillance

Australia Exposure Standards

Australia Hazardous Substances Requiring Health Surveillance

Australia High Volume Industrial Chemical List (HVICL)

Australia Inventory of Chemical Substances (AICS)

Australia Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations 1994 - Hazardous Substances Requiring Health Surveillance

EU Directive 2002/72/EC Plastic materials and articles intended to come into

contact with foodstuffs - Annex III Section A Incomplete list of additives fully

harmonised at Community level

European Inventory of Existing Commercial Substances - EINECS

European Union (EU) Restrictions on the Marketing and Use of Certain Dangerous

Substances and Preparations

International Agency for Research on Cancer (IARC) Carcinogens

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Section 16 - OTHER INFORMATION

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Issue Date: 16-Jun-2005

Print Date: 16-Jan-2007