MATERIAL SAFETY DATA SHEET

Section 1 - Identification

Manufacturer's name and address:

ARDEX Engineered Cements
400 Ardex Park Drive
Aliquippa, PA, US
15001

Supplier's name and address:

Refer to Manufacturer

Information Telephone No.	:	(724) 203-5000 Visit our Website: http://www.ardex.com
24 Hr. Emergency Tel #	:	CHEM-TEL: 1-800-255-3924 OR 1-813-248-0585 (call collect)
Product Identifier	:	**ARDEX EP 2000 Hardener (Part B)**

Chemical Name	:	N/Ap	**Chemical Family**	:	N/Ap
Chemical Formula	:	N/Ap	**Trade Name/Synonyms**	:	ARDEX EP 2000
Molecular Weight	:	N/Ap	**Material Use**	:	Hardener.

SECTION 2 - HAZARDS IDENTIFICATION

Classification : WHMIS classification:
Class D1B (Materials Causing Immediate and Serious Toxic Effects, Toxic Material);
Class D2B (Materials Causing Other Toxic Effects, Toxic Material);
Class E (Corrosive Material).

OSHA: This material is classified as hazardous under OSHA regulations (29CFR 1910.1200). Hazardous classification:
Acute Health Hazard;
Chronic Health Hazard.

Emergency overview: : Colourless Liquid with an amine-like odor.
DANGER! Corrosive. Causes eye, skin and digestive tract burns. May be fatal if too much is inhaled. Severe respiratory irritant. May cause lung injury - effects may be delayed. May cause headache, nausea, dizziness and other symptoms of central nervous system depression. May cause an allergic skin reaction.

POTENTIAL HEALTH EFFECTS:

Signs and symptoms of short-term (acute) exposure

Inhalation : May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include coughing, shortness of breath, wheezing and reduced lung function. In extremely high concentrations, may also cause nausea, vomiting, dizziness, drowsiness and other symptoms of central nervous system depression. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. May be fatal if too much is inhaled. Extremely high concentrations could result in unconsciousness and death.

Skin : Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring. The product may be absorbed through the skin.

Eyes : Chemical burns, corneal damage, and possibly blindness can result from direct contact. Exposure to low vapour concentrations may cause swelling (edema) of the eyes, resulting in blurring of vision with a bluish haze and/or appearance of halos around lights.

Ingestion : May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.

Effects of long-term (chronic) exposure

: Prolonged overexposure may cause liver and kidney effects.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : Skin sensitizer. See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%
Isophorone diamine	2855-13-2	30.00 - 60.00
Benzyl alcohol	100-51-6	10.00 - 30.00
m-Phenylenebis(methylamine)	1477-55-0	10.00 - 30.00
1,2-Cyclohexanediamine	694-83-7	3.00 - 7.00
Trimethylhexane-1,6-diamine	25620-58-0	1.00 - 5.00
Nonylphenol	25154-52-3	1.00 - 5.00

SECTION 4 - FIRST AID MEASURES

Inhalation : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If not breathing, clear airway and start artificial respiration. Seek immediate medical attention/advice.

Skin contact : Remove/Take off immediately all contaminated clothing. Flush affected skin with gently flowing lukewarm water for at least 20 minutes. Seek immediate medical attention/advice.

Eye contact : Immediately flush eyes thoroughly with running water for at least 20 to 30 minutes. Seek immediate medical attention/advice.

Ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting. Have victim drink one to two glasses of water. Seek immediate medical attention/advice.

Notes For Physician : Treat symptomatically. Immediate medical attention is required. Corrosive liquid.

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

: Not flammable under normal conditions of use. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Vapours are heavier than air and collect in confined and low-lying areas.

Flammability classification (OSHA 29 CFR 1910.1200)

: Combustible Liquid Class III B.

Oxidizing properties : None.

Explosion data: Sensitivity to mechanical impact / static discharge

: Not expected to be sensitive to mechanical impact or static discharge.

Suitable extinguishing media : Use water fog or fine spray, foams, carbon dioxide or dry chemical.

Special fire-fighting procedures/equipment

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. After fires have been extinguished, carefully clean all equipment and surfaces exposed to fumes.

Hazardous combustion products

: Carbon oxides; nitrogen oxides (NOx); Ammonia; formaldehyde; other unidentified organic compounds.

NFPA Rating

0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

: *Health:* 3 *Flammability:* 1 *Instability:* 0 *Special Hazards:* None

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions : Corrosive! Wear chemically resistant personal protective equipment during cleanup. Restrict access to area until completion of clean-up. All persons dealing with clean-up should wear the appropriate chemically protective equipment. Refer to point 8 on this Safety Data Sheet, EXPOSURE CONTROLS / PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions : Do not allow product to enter waterways. Do not allow material to contaminate ground water system.

Spill response/cleanup : Ventilate area of release. Eliminate all ignition sources. Stop spill or leak at source if safely possible. Contain material, preventing it from entering sewer lines or waterways. Use inert, non-combustible absorbents to assist the pick up of material. Scrape up product and place it into a container for disposal. Residual of product, while still wet, can be cleaned up with warm soapy water. Notify the appropriate authorities as required.

Prohibited materials : None known.

Special spill response procedures

: If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002).
US CERCLA Reportable quantity (RQ): None reported.

SECTION 7 - HANDLING AND STORAGE

Safe Handling procedures : Corrosive! Wear chemically resistant protective equipment during handling. Use in a well-ventilated area. Training the workers on the potential health hazards associated with product vapor, dust or fume is important. Secondary inhalation exposures could occur when cleaning equipment, or when removing or laundering the clothing. Do not breathe vapours/dust. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid wet or humid conditions. Keep away from acids and incompatibles. Avoid and control operations which create dust. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Storage requirements : Store in a cool, dry, well-ventilated area. No smoking in the area. Do not store near any incompatible materials (see Section 10). Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Protect against physical damage.

Incompatible materials : See Section 10.

Special packaging materials : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

Ingredients	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Isophorone diamine	N/Av	N/Av	N/Av	N/Av
Benzyl alcohol	10 ppm (AIHA WEEL)	N/Av	N/Av	N/Av
m-Phenylenebis(methylamine)	0.1 mg/m³ (Ceiling) (skin)	N/Av	0.1 mg/m³ (Ceiling) (final rule limit)	N/Av
1,2-Cyclohexanediamine	N/Av	N/Av	N/Av	N/Av
Trimethylhexane-1,6-diamine	N/Av	N/Av	N/Av	N/Av
Nonylphenol	N/Av	N/Av	N/Av	N/Av

Ventilation and engineering measures

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : Respiratory protection is required if the concentrations exceed the TLV. If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised.

Skin protection : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers.

Eye / face protection : Chemical splash goggles must be worn when handling this material. A full face shield may also be necessary.

Other protective equipment : Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact. An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations

: Avoid contact with eyes, skin and clothing. Do not breathe vapours/dust. Do not eat, drink or smoke when using this product. Clean all equipment and clothing, and shower with mild soap and water to remove dusts, at end of each work shift.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquid
Appearance : Yellow to brown fluid.
Odour : Amine odor.
Odour threshold : N/Av
pH : N/Av
Boiling point : 96.1°C (205°F)
Specific gravity : N/Av
Melting/Freezing point : N/Av
Coefficient of water/oil distribution : N/Av
Vapour pressure (mmHg @ 20° C / 68° F) : 0.1 hPa @ 20°C (68°F)
Solubility in water : emulsifiable
Vapour density (Air = 1) : > 1
Evaporation rate (n-Butyl acetate = 1) : N/Av
Volatile organic Compounds (VOC's) : 0 g/L
Volatiles (% by weight) : N/Av
Particle size : N/Av
General Info. : Weight / Gallon: N/Av
Flash point : 101°C (213.8°F)
Flash point Method : Setaflash Closed Tester
Auto-ignition temperature : N/Av
Lower flammable limit (% by vol.) : N/Av
Upper flammable limit (% by vol.) : N/Av
Flame Projection Length : Not applicable.
Flashback observed : Not applicable.

SECTION 10 - REACTIVITY AND STABILITY DATA

Stability and reactivity : Stable under the recommended storage and handling conditions prescribed.
Hazardous polymerization : Hazardous polymerisation does not occur.
Conditions to avoid : Avoid heat and open flame.
Materials To Avoid And Incompatibility : Acids; Oxidizing agents; Halogenated compounds.
Hazardous decomposition products : None. Refer to Section 5 for additional 'Hazardous combustion products'.

SECTION 11 - TOXICOLOGICAL INFORMATION

Target organs : Lungs; eyes; Skin. Digestive system; Liver; Kidneys.

Routes of exposure : *Inhalation:* YES *Skin Absorption:* YES *Skin & Eyes:* YES *Ingestion:* YES

Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Ingredients	LC_{50}(4hr) inh, rat	LD_{50} oral	LD_{50} dermal
Isophorone diamine	N/Av	1030 mg/kg (rat)	N/Av
Benzyl alcohol	N/Av	1230 mg/kg (rat)	N/Av
m-Phenylenebis(methylamine)	800 mg/m³	980 mg/kg (rat)	2000 mg/kg (rabbit)
1,2-Cyclohexanediamine	N/Av	4556 mg/kg (rat)	N/Av
Trimethylhexane-1,6-diamine	N/Av	910 mg/kg (rat)	N/Av
Nonylphenol	N/Av	580 mg/kg (rat)	2140 µL/kg (rabbit)

Carcinogenic status : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
Reproductive effects : None known.
Teratogenicity : None known.
Mutagenicity : None known.
Epidemiology : Not available.

Sensitization to material : May cause severe skin sensitization with allergic contact dermatitis symptoms such as swelling, rash and eczema. There is limited evidence of occupational respiratory sensitization. If sensitization occurs, asthmatic symptoms may occur.

Synergistic materials : Not available.

Irritancy : Corrosive

other important hazards : See Section 3 for additional information.

Conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity : No data is available on the product itself. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself.

Bioaccumulation potential : No data is available on the product itself.

Other Adverse Environmental effects

: None known.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7.

Methods of Disposal : Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261.
It is the responsibility of the waste generator to determine the proper waste identification and disposal method.
For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 - TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN2735	AMINES, LIQUID, CORROSIVE, N.O.S. [Isophorone diamine; m-Phenylenebis(methylamine)]	8	III	
TDG Additional information	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				
49CFR/DOT	UN2735	Amines, liquid, corrosive, n.o.s. [Contains: Isophorone diamine; m-Phenylenebis(methylamine)]	8	III	
49CFR/DOT Additional information	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. Refer to 49 CFR Section 173.154.				

SECTION 15 - REGULATORY INFORMATION

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

Canadian WHMIS Classification: This product is a WHMIS Controlled Product. It meets one or more of the criteria for a controlled product provided in Part IV of the Canadian Controlled Products Regulations (CPR). Refer to Section 2 for a WHMIS Classification for this product.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): None reported.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This material is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above de minimus concentrations.

US State Right to Know Laws:

California Proposition 65: To the best of our knowledge, this product does not contain any chemicals known to the State of California to cause cancer or reproductive harm.

Other U.S. State "Right to Know" Lists: The following chemicals are specifically listed by individual States: Isophorone diamine [NJ]; m-Phenylenebis(methylamine) [CA, MA, MN, NJ, PA, RI]; Benzyl alcohol [MA, MN, NJ, PA]; Trimethylhexane-1,6-diamine [NJ]; Nonylphenol [MA, PA].

SECTION 16 - OTHER INFORMATION

Legend :

ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substances List
EPA: Environmental Protection Agency
IARC: International Agency for Research on Cancer
Inh: Inhalation
MA: Massachusetts
MN: Minnesota
N/Av: Not Available
N/Ap: Not Applicable
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WEEL: Workplace Environmental Exposure Level
WHMIS: Workplace Hazardous Materials Identification System

References :

1. ACGIH, Threshold Limit Values and Biological Exposure Indices for 2009.
2. International Agency for Research on Cancer Monographs, searched 2009.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2009 (Chempendium and RTECs).
4. Material Safety Data Sheet from manufacturer.
5. California Proposition 65 List - September 11, 2009 version.

DISCLAIMER OF LIABILITY

The Information presented herein is supplied as a guide to those who handle or use this product and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive. The manner and conditions of use and handling may involve other and additional considerations. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

No warranty of any kind is given or implied. ARDEX Engineered Cements will not be liable for any damages, losses, injuries or consequential damages which may result from the use or reliance on any information contained herein. This Material Safety Data Sheet is valid for three (3) years.

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