Safety Data Sheet

* * * Section 1 - Product and Company Identification * * *

Material Name: CERAM-KOTE TZM Part A

Manufacturer Information

CERAM-KOTE COATINGS INCORPORATED
3118 N US HWY 87
Big Spring, TX USA 79720

Phone: 432-263-8497

Emergency # ChemTel: +1 (800) 255-3924 Contract #: MIS1807449
Outside the USA: 1-813-248-0585 For Australia: 1-300-954-583
For Brazil: 0-800-591-6042, China: 400-120-0751, India: 000-800-100-4086, Mexico: 800-099-0731

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 2
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 2
Skin Sensitization - Category 1
Specific Target Organ Toxicity (Single Exposure) - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapour.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation, drowsiness or dizziness.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.

Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Avoid breathing mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Use only outdoors or in a well-ventilated area.

Response

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use foam, carbon dioxide, or dry chemical for extinction.
Avoid release to the environment.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
1344-28-1	Aluminum oxide	42-75
25068-38-6	Bisphenol A-epichlorohydrin polymer	10-25
78-93-3	Methyl ethyl ketone	7-15
67762-90-7	Dimethyl silicone polymer with silica	1-3

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Flush with running water for at least 15 minutes. Seek medical attention.

First Aid: Skin

Wash with flowing water. Remove contaminated clothing and launder before re-wearing. If irritation persists, seek medical attention.

First Aid: Ingestion

DO NOT induce vomiting. Seek medical attention.

First Aid: Inhalation

Remove individual to fresh air. If breathing is difficult, administer oxygen and obtain medical aid.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Highly flammable liquid and vapour. Prevent smoking, open flame, static and other electrical sparking. Excessive heat may cause lids of containers to pop open from excessive vapour pressure.

Hazardous Combustion Products

Primary combustion products are carbon monoxide, carbon dioxide, and low molecular weight hydrocarbons. Other undetermined compounds could be released in small quantities.

Extinguishing Media

Use foam, carbon dioxide, or dry chemical.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Treat as a flammable liquid type fire. In a sustained fire wear self-contained breathing apparatus and full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop the flow of material, if this is without risk.

Materials and Methods for Clean-Up

Land Spill: Prevent material from entering sewers or waterways. Remove all ignition sources. Ventilate area. Absorb with inert materials (e.g. vermiculite or sand) and place in a closed container for proper disposal. Wash spill area well with trisodium phosphate and water.

Water Spill: Material is mostly insoluble. The material will sink. Notify local environmental, health and wildlife authorities, and water intake operators. Contain with booms and minimize spread on water. Disperse any remaining residue to reduce aquatic harm.

Air Release: Spills of this material may release volatile organic compounds into the air. Spills should be cleaned or covered to prevent volatilization.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Wear appropriate protective equipment and clothing during clean-up.

Environmental Precautions

Avoid release to the environment.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid breathing vapors or mists of this product. Ground/bond container and receiving equipment. Use non-sparking tools.

Storage Procedures

Keep away from heat and ignition sources.

Incompatibilities

Avoid organic peroxides and oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Substance Exposure Limits

Aluminum oxide (215-691-6)

Austria:	10 mg/m3 STEL [KZW] (alveolar dust, respirable fraction, smoke, 2 X 60 min) 5 mg/m3 TWA [TMW] (alveolar dust, respirable fraction, smoke)
Belgium:	1 mg/m3 TWA (as Al)
Denmark:	5 mg/m3 TWA (total, as Al); 2 mg/m3 TWA (respirable, as Al)
France:	10 mg/m3 TWA [VME]
Germany:	4 mg/m3 TWA MAK (dust, inhalable fraction); 1.5 mg/m3 TWA MAK (dust, respirable fraction)
Greece:	10 mg/m3 TWA (inhalable fraction); 5 mg/m3 TWA (respirable fraction)
Portugal:	10 mg/m3 TWA [VLE-MP] (particulate matter containing no Asbestos and < 1% Crystalline silica)
Spain:	10 mg/m3 TWA [VLA-ED]
Sweden:	5 mg/m3 LLV (total dust, as Al); 2 mg/m3 LLV (respirable dust, as Al)

Methyl ethyl ketone (201-159-0)

ACGIH:	300 ppm STEL 200 ppm TWA
Austria:	200 ppm STEL [KZW] (4 X 30 min); 590 mg/m3 STEL [KZW] (4 X 30 min) 100 ppm TWA [TMW]; 295 mg/m3 TWA [TMW] skin notation
Belgium:	300 ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA
Denmark:	50 ppm TWA; 145 mg/m3 TWA Potential for cutaneous absorption 100
Finland:	ppm STEL; 300 mg/m3 STEL Potential for cutaneous absorption
France:	300 ppm STEL [VLCT] (restrictive limit); 900 mg/m3 STEL [VLCT] (restrictive limit) 200 ppm TWA [VME] (restrictive limit); 600 mg/m3 TWA [VME] (restrictive limit)
Germany:	200 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1); 600 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1) 5 mg/L Medium: urine Time: end of shift Parameter: 2-Butanone 200 ppm TWA MAK; 600 mg/m3 TWA MAK 200 ppm Peak; 600 mg/m3 Peak 300
Greece:	ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA
Ireland:	300 ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA Potential for cutaneous absorption
Italy:	200 ppm TWA; 600 mg/m3 TWA
Netherlands:	900 mg/m3 STEL 590 mg/m3 TWA skin notation
Portugal:	200 ppm TWA [VLE-MP]
Spain:	300 ppm STEL [VLA-EC]; 900 mg/m3 STEL [VLA-EC] 200 ppm TWA [VLA-ED] (indicative limit value); 600 mg/m3 TWA [VLA-ED] (indicative limit value)
Sweden:	50 ppm LLV; 150 mg/m3 LLV 100 ppm STV; 300 mg/m3 STV

Engineering Measures

General dilution ventilation and/or exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

Personal Protective Equipment: Respiratory

If irritation occurs, or if the TLV or PEL is exceeded, use a NIOSH approved air purifying respirator with organic vapor cartridges or canisters, or supplied air respirators.

Personal Protective Equipment: Hands

Use chemical resistant gloves such as neoprene or natural rubber gloves.

Personal Protective Equipment: Eyes

Chemical protective goggles.

Personal Protective Equipment: Skin and Body

Loose fitting long sleeved shirt and long pants are recommended.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Translucent	**Odor:**	Aromatic
Physical State:	Liquid	**pH:**	Slight Acidic
Vapor Pressure:	ND	**Vapor Density:**	3.2 (Air=1)
Boiling Point:	116°C (241°F)	**Melting Point:**	ND
Solubility (H2O):	Insoluble	**Specific Gravity:**	1.98 +/- 0.1
Evaporation Rate:	ND	**VOC:**	1.76 lb/gal (210.92 g/l) less water
Viscosity:	700 to 1000 cP	**Bulk Density:**	15.2 lb/gal (6.9 kg) +/- 0.50
Octanol/H2O Coeff.:	ND	**Flash Point:**	23.2°C (74°F)
Flash Point Method:	ND	**Upper Flammability Limit (UFL):**	8.0
Lower Flammability Limit (LFL):	ND	**Burning Rate:**	ND
Auto Ignition:	ND		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Product may undergo hazardous polymerization.

Conditions to Avoid

Avoid excessive heat, contamination and prolonged storage above 70°F (21.1°C).

Incompatible Products

Avoid organic peroxides and oxidizers.

Hazardous Decomposition Products

May form: carbon dioxide, carbon monoxide, and low molecular weight hydrocarbons.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Aluminum oxide (1344-28-1)

Oral LD50 Rat >5000 mg/kg

Bisphenol A-epichlorohydrin polymer (25068-38-6)
Oral LD50 Rat 11400 mg/kg

Methyl ethyl ketone (78-93-3)
Inhalation LC50 Mouse 32 g/m3 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause dryness, cracking and possible dermatitis with prolonged or repeated contact.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Direct eye contact may cause immediate irritation with redness, burning, tearing and blurred vision.

Potential Health Effects: Ingestion

May cause mouth, throat and gastrointestinal irritation, nausea, vomiting, and diarrhea if ingested.

Potential Health Effects: Inhalation

May cause respiratory irritation.

Respiratory Organs Sensitization/Skin Sensitization

May cause an allergic skin reaction.

Generative Cell Mutagenicity

Product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

Product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

Product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgment, and general weakness.

Specified Target Organ General Toxicity: Repeated Exposure

Product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

ADR Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

IATA Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

ICAO Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

IMDG Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

* * * Section 15 - Regulatory Information * * *

EU MARKING AND LABELLING:

Symbol(s):

F Xi N

Risk Phrases:

R11 Highly flammable.
R36/38 Irritating to eyes and skin.
R43 May cause sensitisation by skin contact
R67 Vapours may cause drowsiness and dizziness

Substance Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Aluminum oxide 1344-28-1	215-691-6	EINECS	DSL	Yes
Bisphenol A-epichlorohydrin polymer 25068-38-6	500-033-5	No	DSL	Yes
Methyl ethyl ketone 78-93-3	201-159-0	EINECS	DSL	Yes
Dimethyl silicone polymer with silica 67762-90-7	-	No	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

Available on request.

End of Sheet

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial preparation date: 09.20.21

Revision date: 7.1.22 Rev. 7

SECTION 1: Identification

Product identifier

Product name: Ceram-Kote TZM® Part B Curing Agent

Recommended use of the product and restriction on use

Relevant identified uses: Not determined or not applicable.

Uses advised against: Not determined or not applicable.

Reasons why uses advised against: Not determined or not applicable.

Manufacturer or supplier details

Manufacturer:

United States

Ceram-Kote Coatings, Inc.

3118 N US HWY 87

Big Spring, TX 79720

(432) 263-8497

Emergency telephone number:

United States

ChemTel within US and Canada 1-800-255-3924, outside USA 1-813-248-0585 (collect calls accepted)

For Brasil: 0-800-591-6042,China: 400-120-0751,India 000-0800-100-4086, Mexico 800-099-0731

Contract # MIS1807449

SECTION 2: Hazard(s) identification

GHS classification:

Skin corrosion, category 1A

Serious eye damage, category 1

Skin sensitization, category 1

Reproductive toxicity, category 1B

Specific target organ toxicity - single exposure, category 3, respiratory tract irritation

Acute toxicity (oral), category 4

Acute toxicity (dermal), category 4

Label elements

Hazard pictograms:

Signal word: Danger

Hazard statements:

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage
H317 May cause an allergic skin reaction
H360 May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
H335 May cause respiratory irritation
H302 Harmful if swallowed
H312 Harmful in contact with skin

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapors/spray
P264 Wash hands thoroughly after handling
P280 Wear protective gloves/protective clothing/eye protection/face protection
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P272 Contaminated work clothing must not be allowed out of the workplace
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P271 Use only outdoors or in a well-ventilated area
P270 Do not eat, drink or smoke when using this product
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P363 Wash contaminated clothing before reuse
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 Immediately call a POISON CENTER/doctor/...
P321 Specific treatment (see ... on this label)
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P302+P352 IF ON SKIN: Wash with plenty of water/ …
P333+P313 If skin irritation or rash occurs: Get medical advice/attention
P308+P313 IF exposed or concerned: Get medical advice/attention
P312 Call a POISON CENTER/doctor/.../if you feel unwell
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 Rinse mouth
P361+P364 Take off immediately all contaminated clothing and wash it before reuse
P405 Store locked up
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P501 Dispose of contents/container to…

Hazards not otherwise classified: None

SECTION 3: Composition/information on ingredients

Identification	Name	Weight %
CAS number: 111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	48-52
CAS number: 80-05-7	Bisphenol A	23-27
CAS number: 31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	23-27

Additional Information: None

SECTION 4: First aid measures

Description of first aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance.

Show this Safety Data Sheet to the doctor in attendance. Take precautions to ensure your own safety before attempting rescue. Wear appropriate safety eyewear, gloves, protective clothing and respiratory protection to prevent exposure. See Section 8 of this SDS for personal protective equipment recommendations. Do not use the mouth to mouth method if victim has ingested or inhaled the product. Give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper device.

After inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If experiencing respiratory symptoms, seek medical advice/attention.

If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration. If symptoms develop or persist, seek medical advice/attention.

After skin contact:

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After eye contact:

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

Rinse eyes with plenty of water for several minutes. Remove contact lenses, if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

After swallowing:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Exposure to skin may result in redness, pain, burning, inflammation and tissue damage. Exposure to eyes may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision. Exposure via inhalation may result in cough, sore throat, burning sensation and shortness of breath. Exposure via ingestion may result in burns of the mouth and throat, abdominal pain, burning

sensation in the throat and chest, nausea, vomiting, shock or collapse.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.

Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

Inhalation may have adverse effects on the respiratory tract. Symptoms may include cough, breathing difficulties, sore throat and inflammation of the mucous membrane lining the respiratory tract.

Acute oral exposure may lead to dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Adverse effects are dependent on exposure (dose, concentration, contact time).

Acute dermal exposure may lead to dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Adverse effects are dependent on exposure (dose, concentration, contact time).

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

Long term exposure may affect fertility. Symptoms include, but are not limited to: menstrual problems, altered sexual behavior/fertility/ and pregnancy outcome. Long term exposure may also affect development of the unborn child. Symptoms include, but are not limited to: intrauterine growth retardation, pre-term birth, birth defects and postnatal death.

Symptoms of exposure may be delayed.

Immediate medical attention and special treatment

Specific treatment:

In case of eye contact, seek prompt medical attention while rinsing is continued.

If respiratory symptoms persist, seek medical attention.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

Specific hazards during fire-fighting:

Thermal decomposition may produce irritating/toxic fumes/gases.

Special protective equipment for firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended

personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling. Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Do not get on skin, eyes or on clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling. Remove contaminated clothing and launder before reuse.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Harmful if swallowed. Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Harmful in contact with skin. Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Avoid breathing dust, mist, fumes, vapors or spray. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging. Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Do not get in eyes. Avoid contact with skin and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other

sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).
Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

SECTION 8: Exposure controls/personal protection

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
NIOSH	1,2-Ethanediamine, N1-(2-aminoethyl)-	111-40-0	TWA: 1 ppm (4.0 mg/m³)
ACGIH	1,2-Ethanediamine, N1-(2-aminoethyl)-	111-40-0	TWA: 1 ppm
United States	1,2-Ethanediamine, N1-(2-aminoethyl)-	111-40-0	TWA: 400 mg/m³ (100 ppm)

Biological limit values:

No biological exposure limits noted for the ingredient(s).

Information on monitoring procedures:

Not determined or not applicable.

Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:

Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).
Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).
Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear to straw yellow
Odor	Amine
Odor threshold	Not determined or not available.
pH	Alkaline
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	205 C
Flash point (closed cup)	105 C
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	Not determined or not available.
Density	8.9 #/gal
Relative density	1.07
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	4000cPs @25C
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

Other information

SECTION 10: Stability and reactivity

Reactivity:

Not reactive under recommended handling and storage conditions.

Chemical stability:

Stable under recommended handling and storage conditions.

Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

Conditions to avoid:

Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Incompatible materials:

None known.

Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Acute toxicity

Assessment:

Harmful if swallowed.

Harmful in contact with skin.

Product data: No data available.

Substance data:

Name	Route	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	dermal	LD50 Rabbit: 1090 mg/kg
	oral	LD50 Rat: 1080 mg/kg
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	oral	LC50 RAT: 540 mg/kg

Skin corrosion/irritation

Assessment:

Causes severe skin burns and eye damage.

Product data:

No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	Causes severe skin burns.

Serious eye damage/irritation

Assessment:

Causes serious eye damage.

Product data:

No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	Causes serious eye damage.
Bisphenol A	Causes serious eye damage.

Name	Result
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Causes serious eye damage.

Respiratory or skin sensitization

Assessment:

May cause an allergic skin reaction.

Product data:

No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	May cause an allergic skin reaction.
Bisphenol A	May cause an allergic skin reaction.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
1,2-Ethanediamine, N1-(2-aminoethyl)-	Not Applicable

National Toxicology Program (NTP):

Name	Classification
1,2-Ethanediamine, N1-(2-aminoethyl)-	Not Applicable

OSHA Carcinogens: Not applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Reproductive toxicity

Assessment:

May damage fertility or the unborn child.

Product data:

No data available.

Substance data:

Name	Result
Bisphenol A	May damage fertility.

Specific target organ toxicity (single exposure)

Assessment:
May cause respiratory irritation.

Product data:
No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	May cause respiratory irritation.
Bisphenol A	May cause respiratory irritation.
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	May cause respiratory irritation.

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:
No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:
No data available.

Substance data: No data available.

Information on likely routes of exposure:
No data available.

Symptoms related to the physical, chemical and toxicological characteristics:
No data available.

Other information:
No data available.

SECTION 12: Ecological information

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	LC50 Poecilia reticulata: 430 mg/L

Chronic (long-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	NOEC Daphnia magna: 5.6 mg/L (21 d)

Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Inherently biodegradable.
1,2-Ethanediamine, N1-(2-aminoethyl)-	Readily biodegradable in water (87% degradation after 21 days).

Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	No bioaccumulation is expected (BCF: >2.8 - <=6.3).

Mobility in soil

Product data: No data available.

Substance data:

Name	Result
1,2-Ethanediamine, N1-(2-aminoethyl)-	Slightly to hardly mobile (log Koc: >=3.4 - <=4.6).

Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

1,2-Ethanediamine, N1-(2-aminoethyl)-	The substance is not PBT.

vPvB assessment:

1,2-Ethanediamine, N1-(2-aminoethyl)-	The substance is not vPvB.

Other adverse effects: No data available.

SECTION 13: Disposal considerations

Disposal methods:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

Contaminated packages:

Not determined or not applicable.

SECTION 14: Transport information

United States Transportation of dangerous goods (49 CFR DOT)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, N.O.S., (Diethylenetriamine)
UN transport hazard class(es)	8 
Packing group	III
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, N.O.S., (Diethylenetriamine)
UN transport hazard class(es)	8 
Packing group	III
Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number	2735
UN proper shipping name	Amines, liquid, corrosive, N.O.S., (Diethylenetriamine)
UN transport hazard class(es)	8 
Packing group	III
Environmental hazards	None
Special precautions for user	None

SECTION 15: Regulatory information

United States regulations

Inventory listing (TSCA): All ingredients are listed or exempt.

Significant New Use Rule (TSCA Section 5): None of the ingredients are listed.

Export notification under TSCA Section 12(b): None of the ingredients are listed.

SARA Section 302 extremely hazardous substances: None of the ingredients are listed.

SARA Section 313 toxic chemicals:

111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	Not Listed
80-05-7	Bisphenol A	Listed
31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Not Listed

CERCLA: None of the ingredients are listed.

RCRA: None of the ingredients are listed.

Section 112(r) of the Clean Air Act (CAA): None of the ingredients are listed.

Massachusetts Right to Know:

111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	Listed
80-05-7	Bisphenol A	Listed
31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Not Listed

New Jersey Right to Know:

111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	Listed
80-05-7	Bisphenol A	Listed
31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Not Listed

New York Right to Know:

111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	Listed
80-05-7	Bisphenol A	Listed
31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Not Listed

Pennsylvania Right to Know:

111-40-0	1,2-Ethanediamine, N1-(2-aminoethyl)-	Listed
80-05-7	Bisphenol A	Listed
31326-29-1	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with diethylenetriamine	Not Listed

California Proposition 65:

⚠**WARNING:** This product can expose you to Bisphenol A; which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

Abbreviations and Acronyms: None

Disclaimer:

This product has been classified in accordance with OSHA HCS 2012 guidelines. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

NFPA: 3-1-0

HMIS: 3*-1-0-X

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End of Safety Data Sheet