

SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

EPIKURETM Curing Agent 3055

EPIKURE™ Curing Agent 3055

Section 1. Product and company identification

GHS product identifier

MSDS Number

Product type

Manufacturer/Supplier/Impor

ter

Hexion Inc.

180 East Broad Street Columbus, Ohio

K8130

Curing Agent

43215 USA

Contact person : 4information@hexion.com

Telephone : For additional health and safety or regulatory information, call

1 888 443 9466.

Emergency telephone number : For Emergency Medical Assistance

Call Health & Safety Information Services

1-866-303-6949

For Emergency Transportation Information CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887 CANUTEC CA Domestic (613) 996-6666

Section 2. Hazards identification

Classification of the substance or mixture

ACUTE TOXICITY:dermal - Category 4

SKIN CORROSION/IRRITATION - Category 1B

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

RESPIRATORY SENSITIZATION - Category 1

SKIN SENSITIZATION - Category 1

TOXIC TO REPRODUCTION [Fertility] - Category 2
TOXIC TO REPRODUCTION [Unborn child] - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

[eyes, mucous membranes] - Category 1

SPECIFIC TARGET ORGAN TOXICITY (REPEATED

EXPOSURE) [respiratory tract, skin, kidneys, liver] - Category 1

GHS label elements

Hazard pictograms

Signal word : Danger

Hazard statements

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties

if inhaled.

H317 May cause an allergic skin reaction.

H361f Suspected of damaging fertility.

H361d Suspected of damaging the unborn child.

H370 Causes damage to organs: (eyes, mucous membranes)
H372 Causes damage to organs through prolonged or repeated

exposure: (respiratory tract, skin, kidneys, liver)

Precautionary statements

General : Not applicable.

Prevention : Obtain special instructions before use.

Do not handle until all safety precautions have been read and

understood.

Use personal protective equipment as required.

Wear protective gloves. Wear eye or face protection. Wear protective clothing.

In case of inadequate ventilation wear respiratory protection.

Do not breathe vapor.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Contaminated work clothing should not be allowed out of the

workplace.

Response : Get medical attention if you feel unwell.

IF exposed:

Call a POISON CENTER or physician.

IF INHALED:

Remove victim to fresh air and keep at rest in a position comfortable

for breathing.

Immediately call a POISON CENTER or physician.

If experiencing respiratory symptoms: Call a POISON CENTER or physician.

IF SWALLOWED:

Immediately call a POISON CENTER or physician.

Rinse mouth.

Do NOT induce vomiting.

IF ON SKIN (or hair):

Take off immediately all contaminated clothing.

Rinse skin with water or shower.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or physician.

IF ON SKIN:

Wash with plenty of soap and water.

Call a POISON CENTER or physician if you feel unwell.

If skin irritation or rash occurs:

Get medical attention.

IF IN EYES:

Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Store locked up. Storage

Dispose of contents and container in accordance with all local, **Disposal**

regional, national and international regulations.

Other hazards which do not result

in classification

None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	% by weight	CAS
		number
Fatty acids, tall-oil, reaction products with tetraethylenepentamine	70 - 90	68953-36-6
Tetraethylenepentamine	12.5 - 15	112-57-2
Triethylenetetramine	3 - 5	112-24-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact Get medical attention immediately. Call a poison center or physician.

> Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be

treated promptly by a physician.

Inhalation Get medical attention immediately. Call a poison center or physician.

> Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms,

avoid further exposure.

Skin contact Get medical attention immediately. Call a poison center or physician.

Wash with plenty of soap and water. Remove contaminated clothing

02/07/2015 03/08/2012 Version: 13.0 Date of issue/Date of revision: Date of previous issue:

removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

and shoes. Wash contaminated clothing thoroughly with water before

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician In case of inhalation of decomposition products in a fire, symptoms

may be delayed. The exposed person may need to be kept under

medical surveillance for 48 hours.

Specific treatments Protection of first aid personnel No specific treatment.

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly

with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Unsuitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

None known.

Specific hazards arising from the chemical

Hazardous thermal decomposition products In a fire or if heated, a pressure increase will occur and the container may burst.

Decomposition products may include the following materials: carbon oxides nitrogen oxides other organic compounds

Special protective actions for firefighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

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

Version: 13.0 02/07/2015 03/08/2012 Date of issue/Date of revision: Date of previous issue:

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Tetraethylenepentamine	AIHA WEEL (2004-01-01) Time Weighted Average (TWA) 5 mg/m3
Triethylenetetramine	AIHA WEEL (1999-01-01) Time Weighted Average (TWA) 1 ppm NIOSH REL (2005-09-30)

Recommended monitoring procedures

: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash

contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used

when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be

required instead.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved

standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.

Body protection: 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.

Other skin protection : Appropriate footwear and any additional skin protection measures

should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this

product.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with

an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the

selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid

Color : Reddish-brown

Odor : amine.

Odor threshold:Not availablepH:Not availableMelting point/ Freezing point:Not available

Boiling point : $170 \,^{\circ}\text{C} \, (338.00 \,^{\circ}\text{F})$

Flash point : Setaflash Closed Cup: 93.4 °C (200.12 °F) (ASTM D 3828)

Burning time: Not availableBurning rate: Not availableEvaporation rate: Not availableFlammability (solid, gas): Not availableLower and upper explosive: Lower: 1.4 %(V)(flammable) limitsUpper: Not available

Vapor pressure : 133 Pa @ 20 °C (68.00 °F)

Vapor density : Not available

Relative density : 0.94

Density 944 kg/m3

Solubility : Not available Solubility in water : Partial

Partition coefficient: n-

octanol/water

Auto-ignition temperature : Not available
Decomposition temperature : Not available
SADT : Not available

Viscosity : Dynamic: Not available

Kinematic: Not available

Not available

Other information

No additional information.

Section 10. Stability and reactivity

Reactivity : Stable under normal conditions.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will

not occur.

Conditions to avoid : Avoid exposure - obtain special instructions before use. Keep away

from heat, sparks, flame and other ignition sources.

Incompatible materials : strong oxidizing agents,

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition

products should not be produced.

Other hazards Heating this substance above 300 deg. F in the presence of air may

cause slow oxidative decomposition; above 500 deg. F polymerization

may occur.

Some combinations of resins and curing agents can produce exothermic reactions which in large masses can cause runaway

polymerization and charring of the reactants

Fumes and vapors from the thermal and chemical decompositions

vary widely in composition and toxicity.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure

Triethylenetetramine				
	LD50 Oral	Rat	2,500 mg/kg	-

Conclusion/Summary : Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Triethylenetetramine	eyes - Moderate irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Severe irritant	Rabbit			-

Conclusion/Summary

Skin:Not availableeyes:Not availableRespiratory:Not available

Sensitization

Conclusion/Summary

Skin: Not availableRespiratory: Not available

Mutagenicity

Conclusion/Summary : Not available

Carcinogenicity

Conclusion/Summary : Not available

Reproductive toxicity

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Fatty acids, tall-oil, reaction products with tetraethylenepentamine	Category 3		Respiratory tract irritation
Tetraethylenepentamine	Category 1		eyes mucous membranes
Triethylenetetramine	Category 1		eyes

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Tetraethylenepentamine	Category 1 Category 2		skin respiratory tract liver kidneys
Triethylenetetramine	Category 1 Category 2		respiratory tract skin liver kidneys

Aspiration hazard

Not available

Information on the likely routes of

exposure

Not available

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to

the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following

exposure.

Skin contact: Causes severe burns. Harmful in contact with skin. May cause an

allergic skin reaction.

Ingestion : May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:

pain watering redness

Inhalation : Adverse symptoms may include the following:

wheezing and breathing difficulties

asthma

reduced fetal weight increase in fetal deaths skeletal malformations

Skin contact : Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations

Ingestion : Adverse symptoms may include the following:

stomach pains reduced fetal weight increase in fetal deaths skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available **Potential delayed effects** : Not available

Long term exposure

Potential immediate effects: Not availablePotential delayed effects: Not available

Potential chronic health effects

Conclusion/Summary : Not available

General : Causes damage to organs through prolonged or repeated exposure:

Once sensitized, a severe allergic reaction may occur when

subsequently exposed to very low levels.

Carcinogenicity: No known significant effects or critical hazards.Mutagenicity: No known significant effects or critical hazards.Teratogenicity: Suspected of damaging the unborn child.

Developmental effects: No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Not available

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
3,6-diazaoctanethylenediamin			
	Acute LC50 33,900 µg/l Fresh water	Aquatic invertebrates.	48 h
		Water flea	
	Acute EC50 3,700 µg/l Fresh water	Aquatic plants - Green	96 h
		algae	

Conclusion/Summary : Not available

Persistence/degradability

Conclusion/Summary : Not available

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Triethylenetetramine	-1.661.4	•	low

Mobility in soil

Soil/water partition coefficient

(KOC)

Other adverse effects

Not available

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory	UN/NA	Proper shipping name	Classes/*PG	Reportable
information	number			Quantity (RQ)

CFR Non-regulated

TDG Non-regulated

IMO/IMDG Non-regulated

IATA (Cargo) Non-regulated

*PG: Packing group

Special precautions for user : Transport within user's premises: always transport in closed

containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident

or spillage.'

Section 15. Regulatory information

United States

U.S. Federal regulations

United States - TSCA 12(b) - Chemical export notification: None

required.

United States - TSCA 5(a)2 - Final significant new use rules: Not listed United States - TSCA 5(a)2 - Proposed significant new use rules: Not

United States - TSCA 5(e) - Substances consent order: Not listed

California Prop. 65: None required.

United States inventory (TSCA

8b)

All components are listed or exempted.

Canada

WHMIS (Canada) Class D-1A: Material causing immediate and serious toxic effects (Very

Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI None required.

None required. **CEPA Toxic substances**

International regulations

Australia inventory (AICS): All components are listed or exempted. **International lists**

Taiwan inventory (CSNN): Not determined.

Canada inventory: All components are listed or exempted. **Japan inventory:** All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Korea inventory: All components are listed or exempted.

New Zealand Inventory (NZIoC): All components are listed or exempted. **Philippines inventory (PICCS):** All components are listed or exempted. United States inventory (TSCA 8b): All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System III (U.S.A.):

114241 Gods 114CT III III OT III GOSSIII (COSSIII)		
Health	*	2
Flammability		1
Physical hazards		0
	•	

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

13.0 02/07/2015 03/08/2012 Version: Date of issue/Date of revision: Date of previous issue:

Full text of abbreviated H : Not applicable.

statements

History

Date of printing02/20/2015Date of issue/Date of revision02/07/2015Date of previous issue03/08/2012Version13.0

Prepared by : Product Safety Stewardship Key to abbreviations : ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) RID = The Regulations concerning the International Carriage of Dangerous Goods by

Rail

UN = United Nations

References : Not available

Notice to reader

The information provided herein was believed by Hexion Inc. ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

® and (TM) Licensed trademarks of Hexion Inc.