SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:.....CCS Hardener
APPLICABLE PRODUCT CODES: .....CCS, CCS-1, CCS-2, CCS-3, CCS-4, CCS-5, CCS-6, CCS-7, CCS-8.
CHEMICAL FAMILY:.....Polyetheramine mixture.
INTENDED PRODUCT USES:.....Curing agent for epoxy resins.
PRODUCT RESTRICTIONS:.....None identified.
SDS VERSION: CCS-2019a

MANUFACTURER:
Gougeon Brothers, Inc.
100 Patterson Ave.
Bay City, MI 48706, U.S.A.
Phone: 310-882-2120 or 989-684-7286
www.entropyresins.com

EMERGENCY TELEPHONE NUMBERS (24 HRS):
Transportation
CHEMTREC:..... 800-424-9300 (U.S.)
703-527-3887 (International)
Non-transportation
Poison Hotline: 800-222-1222

2. HAZARDS IDENTIFICATION

Classification of Substance or Mixture

Acute toxicity, Oral, Category 4
Skin corrosion/irritation, Category 1C
Eye damage/irritation, Category 1
Acute aquatic toxicity, Category 3
Chronic aquatic toxicity, Category 3

Label Elements

Hazard Pictogram(s):

Signal Word:
DANGER

Hazard Statements:
H302 Harmful if swallowed
H314 Causes severe skin burns and eye damage
H412 Harmful to aquatic life with long lasting effects

Precautionary Statements:
Prevention
P260 Do not breathe dust/fumes/mist/vapors/spray
P264 Wash hands thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P273 Avoid release to the environment
P280 Wear protective gloves/protective clothing/eye protection/face protection
Response
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 or wash skin with soap and water (or shower).
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call POISON CONTROL CENTER or doctor.
P363 Wash contaminated clothing before reuse.
Storage
P405 Store locked up.
Disposal
P501 Dispose of contents and container according to local, state, national and International regulations

Other Hazards
None known.

3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

INGREDIENT NAME	CAS #	CONCENTRATION (%)
Polyoxypropylenediamine	9046-10-0	80-100
Polypropyleneglycol	25322-69-4	1-5

The exact chemical identity and/or exact percentage (concentration) of each ingredient may be held as a trade secret. Any ingredient not disclosed may have been determined not to pose a health or environmental hazard, or may only be present in concentrations that do not require disclosure. Refer to Section 15 for additional information regarding any CBI claim.

4. FIRST AID MEASURES

FIRST AID FOR EYES..... SYMPTOMS: Causes eye burns and eye damage. RESPONSE: Flush immediately with water for at least 15 minutes. Remove contact lenses if present and easy to do. Immediately call a POISON CONTROL CENTER or doctor.

FIRST AID FOR SKIN..... SYMPTOMS: Causes skin burns, redness and irritation. RESPONSE: Immediately wash skin with soap and water. Immediately call a POISON CONTROL CENTER or doctor.

FIRST AID FOR INHALATION..... SYMPTOMS: May be corrosive or irritating to the respiratory system. RESPONSE: Remove to fresh air if effects occur and keep comfortable for breathing. Immediately consult a physician if symptoms develop and persist.

FIRST AID FOR INGESTION..... SYMPTOMS: May cause gastrointestinal irritation or ulceration. May cause burns of the mouth and throat. RESPONSE: Rinse mouth with water. DO NOT induce vomiting. If vomiting should occur, keep airway clear. Immediately call POISON CONTROL CENTER or doctor.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: ..... SUITABLE: Foam, carbon dioxide (CO_2), dry chemical. NON-SUITABLE: Direct water stream.

FIRE AND EXPLOSION HAZARDS: ..... During a fire, smoke may contain the original materials in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include, but are not limited to: oxides of nitrogen, carbon monoxide, carbon dioxide, volatile amines. When mixed with sawdust, wood chips, or other cellulosic material, spontaneous combustion can occur under certain conditions. Heat is generated as the air oxidizes the amine. If the heat is not dissipated quickly enough, it can ignite the sawdust.

SPECIAL FIRE FIGHTING PROCEDURES: ..... Use full-body protective gear and a self-contained breathing apparatus. Use of water may generate toxic aqueous solutions. Do not allow water run-off from fighting fire to enter drains or other water courses.

6. ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES: ..... Keep unnecessary and unprotected personnel from entering area. Use appropriate safety and personal protective equipment as indicated in Section 8.

MITIGATION AND CLEAN UP PROCEDURES: ..... Stop leak without additional risk. Isolate area. Dike and absorb with inert material (*e.g.*, sand, diatomaceous earth) and collect in a suitable, closed container. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Warm, soapy water may be used to clean residual.

ENVIRONMENTAL PRECAUTIONS:..... Prevent from entering into soil, ditches, sewers, waterways and groundwater. See Section 12 for environmental impact information.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE (min./max.): ..... 40°F (4°C) / 90°F (32°C).

STORAGE:..... Store in cool, dry place away from high temperatures and moisture. Keep container tightly closed. Store away from incompatible materials listed in Section 10. Store in a secure location with restricted access or store locked up.

HANDLING PRECAUTIONS: ..... Use with adequate ventilation. Do not breathe vapors or mists from heated material. Avoid exposure to concentrated vapors. Avoid all skin and eye contact. Wash hands thoroughly after handling. When mixed with epoxy resin this product causes an exothermic reaction, which in large masses, can produce enough heat to damage or ignite surrounding materials and emit fumes and vapors that vary widely in composition and toxicity.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: ..... Use with adequate general ventilation and/or local ventilation to keep exposures below established limits.

EYE PROTECTION GUIDELINES: ..... Chemical splash-proof goggles or face shield.

SKIN PROTECTION GUIDELINES: ..... Wear liquid-proof, chemical resistant gloves (nitrile-butyl rubber, neoprene, butyl rubber or natural rubber). Body protective clothing should be used as needed based on the task being performed and the potential for exposure.

RESPIRATORY PROTECTION GUIDELINES: ..... When ventilation cannot be made adequate enough to keep exposures below established limits, use a NIOSH approved respirator with an organic vapor cartridge, organic vapor cartridge + P100, or a multi-contaminant cartridge, depending on specific workplace conditions. Consult with your respirator and cartridge supplier to ensure proper selection of respirator and cartridge based on ingredients listed in Section 3 and specific workplace conditions. Use and select a respirator according the guidelines established in OSHA 1910.134 or other applicable respiratory protection standard.

ADDITIONAL PROTECTIVE MEASURES: ..... Use where there is immediate access to safety shower and emergency eye wash. Wash thoroughly after use. Contact lens should not be worn when working with this material. Generally speaking, working cleanly and following basic precautionary measures will greatly minimize the potential for harmful exposure to this product under normal use conditions.

OCCUPATIONAL EXPOSURE LIMITS: ..... Exposure limits may not be established for this product as a whole. For established exposure limits of specific ingredients in this product, or other available exposure limit information, refer to the table below.

Ingredient Name	CAS#	Exposure Limit Information
Polyoxypropylenediamine (Avg. MW 230)	9046-10-0	No data available.
Polyoxypropylenediamine (Avg. MW 400)	9046-10-0	No data available.
Polypropyleneglycol	25322-69-4	USA WEEL; 10 mg/m^3 TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM: ..... Liquid.
COLOR: ..... Clear
ODOR: ..... Ammonia-like
ODOR THRESHOLD: ..... No data available
pH 11.7
MELTING POINT / FREEZING POINT ..... No data.
BOILING POINT (760mm/Hg): ..... > 400°F (204°C)
FLASH POINT: ..... >200°F (93.3°C)
AUTO IGNITION TEMPERATURE ..... No data.
LOWER EXPLOSIVE LIMIT (LEL) ..... No data.
UPPER EXPLOSIVE LIMIT (UEL) ..... No data.
VAPOR PRESSURE ..... <1 mm/Hg @ 20°C.
SPECIFIC GRAVITY/DENSITY (water = 1) ..... 0.95 (20°C).
BULK DENSITY ..... 7.95 lbs./gal. (0.95 kg/L)
VAPOR DENSITY (air = 1) ..... No data.
EVAPORATIOIN RATE (Butyl Acetate = 1) ..... No data.
WATER SOLUBILITY (% BY WT.) ..... Soluble.
PARTITION COEFFICIENT, n-OCTANOL/WATER (log Pow) ..... No data.
KINEMATIC VISCOSITY: ..... 15.8 (mm^2/s @ 25°C)
DECOMPOSITION TEMPERATURE: ..... No data available
% VOLATILE BY WEIGHT: ..... ASTM 2369-07 was used to determine the Volatile Matter Content of mixed epoxy resin and hardener. The combined VOC content for the resin and hardener system is listed below.

	VOC Content	
Resin/Hardener	**(g/L)**	**(lbs/gal)**
CCR / CCS	8.0	0.07

10. STABILITY AND REACTIVITY

STABILITY: ..... Product is stable at normal temperatures and pressures.

REACTIVITY/HAZARDOUS REACTIONS: ..... Product will not react by itself. A mass of more than one pound of product mixed with an epoxy resin will cause irreversible polymerization with significant heat buildup. Strong acids can cause polymerization.

INCOMPATIBILITIES: ..... Avoid acids, oxidizing materials, halogenated organic compounds (*e.g.*, methylene chloride). External heating or self-heating could result in rapid temperature increase and pressure build up. If such a condition were to occur in a drum, the drum could expand and rupture violently.

CONDITIONS TO AVOID: ..... Avoid excessive heat.

DECOMPOSITION PRODUCTS: ..... Very toxic fumes and gases when burned or otherwise heated to decomposition. Decomposition products may include, but not limited to: oxides of carbon, oxides of nitrogen, volatile amines.

11. TOXICOLOGICAL INFORMATION

Ingredient Name	CAS#	LD_{50} Oral	LD_{50} Dermal	LC_{50} Inhalation
Polyoxypropylenediamine (Avg. MW 230)	9046-10-0	2885 mg/kg	2980 mg/kg	>0.74 mg/l 8h
Polyoxypropylenediamine (Avg. MW 400)	9046-10-0	1100 mg/kg	1555 mg/kg	>0.74 mg/l 8h

Polypropyleneglycol	25322-69-4	>2000 mg/kg	>3000 mg/kg	No data available

Note: Results in this table were derived using the appropriate rat and rabbit species unless otherwise noted.

ACUTE TOXICITY: ..... Acute toxicity data does not exist for this mixture.
Oral: ..... Not classified. Based on available data product does not meet acute oral toxicity classification criteria. Ingestion may result in gastrointestinal tract irritation, pain and possible burns. Can cause burns to the mouth and throat.
Dermal: ..... Not classified. Based on available data product does not meet acute dermal toxicity classification criteria.
Inhalation:..... Not classified. Based on available data product does not meet acute inhalation toxicity classification criteria.

SKIN CORROSION / IRRITATION:..... Category 1C. Causes severe skin burns. Effects may be immediate.

SERIOUS EYE DAMAGE / IRRITATION:..... Category 1. Causes serious, irreversible eye damage. Effects may be immediate.

RESPIRATORY SENSITIZATION:..... Not classified. Based on available data product does not meet classification criteria.

SKIN SENSITIZATION:..... Not classified. Based on available data product does not meet classification criteria.

REPRODUCTIVE TOXICITY:..... Not classified. Based on available data product does not meet classification criteria.

MUTAGENICITY:..... Not classified. Based on available data product does not meet classification criteria.

CARCINOGENICITY:..... Not classified. Based on available data product does not meet classification criteria. No ingredient of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC, NTP, ACGIH or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):..... Not classified. Based on available data product does not meet classification criteria.

SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure): ..... Not classified. Based on available data product does not meet classification criteria.

ASPIRATION HAZARD: ..... Not classified. Based on available data product does not meet classification criteria.

OTHER HEALTH HAZARD INFORMATION:..... No data available.

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:..... Category 3. Harmful to aquatic life.

CHRONIC AQUATIC TOXICITY: ..... Category 3. Harmful to aquatic life with long lasting effects.

PERSISTANCE AND BIODEGRADABILITY: ..... Not biodegradable.

MOBILITY IN SOIL: ..... No specific test data available for the mixture.

ADDITIONAL ECOTOXICITY INFORMATION:..... In the liquid, uncured state, this is harmful to aquatic life with long lasting effects. Prevent release to the environment, sewers and natural waters.

Ingredient	CAS#	Ecotoxicity Classification Information
Polyoxypropylenediamine (Avg. MW 230)	9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Polyoxypropylenediamine (Avg. MW 400)	9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Polypropyleneglycol	25322-69-4	Not classified

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:..... Evaluation of this product using RCRA criteria shows that it is not a hazardous waste, either by listing or characteristics, in its purchased form. It is the responsibility of the user to determine proper disposal methods.

Incinerate, recycle (fuel blending) or reclaim may be preferred methods when conducted in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

US DOT
UN NUMBER: ..... UN 2735
SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.
TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine
HAZARD CLASS:..... Class 8
PACKING GROUP:..... PG III
MARINE POLLUTANT: ..... No

CANADA TDG
UN NUMBER: ..... UN 2735
SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.
TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine
HAZARD CLASS:..... Class 8
PACKING GROUP:..... PG III
MARINE POLLUTANT: ..... No

IMDG
UN NUMBER: ..... UN 2735
SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.
TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine
HAZARD CLASS:..... Class 8
PACKING GROUP:..... PG III
EmS Number: ..... F-A, S-B
MARINE POLLUTANT ..... No

ICAO/IATA
UN NUMBER: ..... UN 2735
SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.
TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine
HAZARD CLASS:..... Class 8
PACKING GROUP:..... PG III
MARINE POLLUTANT: ..... No

15. REGULATORY INFORMATION

COUNTRY	INVENTORY LIST	STATUS
United States	TSCA	All ingredients are listed or otherwise compliant.
Europe	EINECS or ELINCS	All ingredients are listed or otherwise compliant.
Canada	CEPA (DSL/NDSL)	All ingredients are listed or otherwise compliant.
Australia	AICS	All ingredients are listed or otherwise compliant.
Japan	ENCS	All ingredients are listed or otherwise compliant.
South Korea	KECI	All ingredients are listed or otherwise compliant.
China	IECSC	All ingredients are listed or otherwise compliant.
Philippines	PICCS	All ingredients are listed or otherwise compliant.

US EPA TSCA Specific Requirements: ..... No data available.

Canada WHMIS Confidential Business Information (CBI):..... No data available.

US EPA SARA TITTLE III Reporting and Notification Requirements:
Subject to Section 302 (TPQ)..... No data available.
Subject to Section 304 (RQ)..... Component RQ (propylene oxide) = 100 lbs. Calculated RQ not reasonably attainable.
Subject to Section 311 or 312 ..... Refer to the health and physical classifications in Section 2.
Subject to Section 313 ..... No data available.

US STATE REGULATORY INFORMATION:
The following chemicals may be specifically regulated by individual states. For details on state regulatory requirements you should contact the appropriate state agency.

COMPONENT NAME /CAS NUMBER		**STATE CODE**
Propylene oxide 75-56-9	< 0.05%	[1]CA

[1.] These substances are known to the state of California to cause cancer or reproductive harm, or both, and are regulated under Calif. Prop. 65.

16. OTHER INFORMATION

REASON FOR ISSUE:..... Update to all sections.
PREPARED BY:..... Gougeon Brothers, Inc.

SDS CONTACT: ..... safety@gougeon.com
TITLE: ..... Health, Safety & Environmental Manager
APPROVAL DATE: ..... May 14, 2019
SUPERSEDES DATE: ..... December 7, 2018
SDS VERSION: CCS-2019a

OTHER HAZARD INFORMATION AND RATING SYSTEMS:

HMIS® RATING

HEALTH:	**3**
FLAMMABILITY:	**1**
PHYSICAL HAZARD:	**0**
PERSONAL PROTECTION:	

NFPA® 704 CODES

Approximate HMIS and NFPA Risk Ratings Legend:
0 = Low or None; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe

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