



ENERGY GROUP LTD.

Safety Data Sheet

CX2

Version 1.1

Revision Date: 5-6-25

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CX2

Recommended use of the chemical and restrictions on use

Recommended use : Corrosion Inhibitor

Manufacturer or supplier's details

Company : Heartland Energy Group, LTD.
Address : 626 NW Valley Ridge Court
Grain Valley, MO 64029
816-867-2054

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)

Additional Information:

SDS Requests: 1-877-797-2811
Website: www.heartlandenergygroup.net

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 1 :
Acute toxicity (Oral) : Category 4 :
Skin corrosion : Category 1 :
Serious eye damage : Category 1 :
Skin sensitisation : Category 1
Reproductive toxicity : Category 1B
Specific target organ toxicity : Category 2 (Kidney)
- repeated exposure

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements

H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.



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H373 May cause damage to organs (Kidney) through prolonged or repeated exposure.

Precautionary statements

: **Prevention:**

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.



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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
107-21-1	Ethylene glycol	50 - 70
68-12-2	Dimethylformamide	5 - 20
127087-87-0	Nonylphenol polyethylene glycol ether	7 - 15
111-87-5	1-Octanol	2 - 10
104-55-2	Cinnamaldehyde	5 - 20

Actual concentration is withheld as a trade secret

Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact Wash off immediately with plenty of water also under the eyelids, for atleast 15 minutes. Get medical attention is conditions worsen or occur.

In case of eye contact Wash off immediately with plenty of water also under the eyelids, for atleast 15 minutes.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use water or spray, alcohol resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Evacuate personnel to safe areas.
Ensure adequate ventilation
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

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Advice on safe handling

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Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms. .
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage

:

Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
107-21-1	Ethylene glycol	C	50 ppm 125 mg/m3	OSHA P0
		C	100 mg/m3	ACGIH
		TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m3	ACGIH
		C (Vapour)	40 ppm 100 mg/m3	CAL PEL
68-12-2	Dimethylformamide	TWA	10 ppm	ACGIH
		TWA	10 ppm 30 mg/m3	NIOSH REL
		TWA	10 ppm 30 mg/m3	OSHA Z-1
		TWA	10 ppm	OSHA P0

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111-87-5	1-Octanol	TWA	30 mg/m ³ 50 ppm	US WEEL
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Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : Light Yellow

Odour :Mild

Odour Threshold :Cinnamon

pH :No data available

Freezing Point 4.5-5.5

Boiling Point : No data

Flash point available :No data

Evaporation rate No data available



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Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: 1.04@ 25 °C (77 °F) Reference substance: (water = 1)
Density	: 8.68 lb/gal : No
Water solubility	data available : No
Solubility in other solvents	data available : No
Partition coefficient: n-octanol/water	data available
Auto-ignition temperature	: No data available :
Thermal decomposition	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed.
Conditions to avoid	: Excess Heat
Incompatible materials	: Carbon Monoxide (CO), Carbon Dioxide (CO2)

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SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: 1,250 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 73.33 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg

Components:

107-21-1:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

68-12-2:

Acute inhalation toxicity : LC50 (Rat): 15 mg/l
Exposure time: 4 h
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : Assessment: The component/mixture is moderately toxic after single contact with skin.
Remarks: No data available

104-55-2:

Acute dermal toxicity : LD50 (Rat, male and female): 1,260 mg/kg
Assessment: The component/mixture is moderately toxic after single contact with skin.

Skin corrosion/irritation

Components:

127087-87-0:

Species: Rabbit
Result: Irritating to skin.

104-55-2:

Species: Rabbit
Result: Irritating to skin.

Serious eye damage/eye irritation

Components:

68-12-2:



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Species: Rabbit
Result: Irritating to eyes.

127087-87-0:

Species: Rabbit
Result: Risk of serious damage to eyes.

111-87-5:

Species: Rabbit
Result: Irritating to eyes.

104-55-2:

Species: Rabbit
Result: Irritating to eyes.

Respiratory or skin sensitisation

Components:

104-55-2:

Test Type: Maximisation Test
Species: Guinea pig
Result: May cause sensitisation by skin contact.

Germ cell mutagenicity

Components:

68-12-2:

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

68-12-2:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

68-12-2:

Effects on fertility : Test Type: Two-generation study

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	Species: Mouse, male and female Application Route: Oral Dose: 0, 1000, 4000, 7000 ppm General Toxicity - Parent: LOAEL: < 1,000 ppm General Toxicity F1: LOAEL: 1,000 ppm Fertility: NOAEL: < 1,000 ppm Symptoms: Reduced maternal body weight gain Reduced offspring weight gain Reduced fertility
Effects on foetal development	: Species: Rabbit Application Route: Inhalation Dose: 0, 0.15, 0.45, 1.36 mg/L Duration of Single Treatment: 13 d Frequency of Treatment: 6 hr/day General Toxicity Maternal: NOAEC: 0.15 mg/L Teratogenicity: NOAEC: 0.15 mg/L Symptoms: Maternal toxicity, Reduced body weight, Skeletal malformations, Visceral malformations
Reproductive toxicity - Assessment	Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.
Teratogenicity - Assessment	: Clear evidence of adverse effects on development, based on animal experiments.

STOT - repeated exposure

Components:

107-21-1:

Target Organs: Kidney

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Further information

Product:

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

127087-87-0:

Acute aquatic toxicity- Assessment : Harmful to aquatic life.

Chronic aquatic toxicity- Assessment : Harmful to aquatic life with long lasting effects.



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111-87-5:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 13.3 mg/l
Exposure time: 96 h
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 20 mg/l
Exposure time: 24 h
Test Type: static test
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 6.5 mg/l
End point: Biomass
Exposure time: 48 h
Test Type: static test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 21 d
- Acute aquatic toxicity- Assessment : Harmful to aquatic life.
- Chronic aquatic toxicity- Assessment : Harmful to aquatic life with long lasting effects.

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Product:

- Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
- Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Dispose of in accordance with all applicable local, state and



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federal regulations.

For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact your local disposal service

Do not dispose of waste into sewer.

Do not contaminate ponds, waterways or ditches with chemical or used container.

Send to a licensed waste management company.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):

IATA (International Air Transport Association):

IMDG (International Maritime Dangerous Goods):

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Dimethylformamide	68-12-2	100	666
Ethylene glycol	107-21-1	5000	12500

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards :Not applicable



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SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

107-21-1	Ethylene glycol
68-12-2	Dimethylformamide

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

107-21-1	Ethylene glycol
68-12-2	Dimethylformamide

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489):

107-21-1	Ethylene glycol
68-12-2	Dimethylformamide

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know


107-21-1	Ethylene glycol
68-12-2	Dimethylformamide

Pennsylvania Right To Know

107-21-1	Ethylene glycol
68-12-2	Dimethylformamide

104-55-2	Cinnamaldehyde
111-87-5	1-Octanol
127087-87-0	Nonylphenol polyethylene glycol ether
67-63-0	Isopropyl alcohol

California Prop 65

 **WARNING:** This product can expose you to chemicals including Dimethylformamide, which is/are known to the State of California to cause cancer, and Ethylene glycol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory

DSL : not determined

AICS : not determined

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NZIoC : not determined

ENCS : not determined

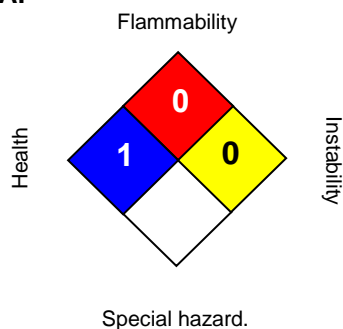
KECI : not determined

PICCS : not determined

IECSC : not determined

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	*1
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program



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CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		