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TESSENDERLO GROUP

Safety Data Sheet

Cyntrol® 2040

SDS Number: 196C **Revision:** February 24, 2023

Section 1: IDENTIFICATION

1.1 Product Name: **Cyntrol® 2040**

1.2 Other Identification:

Chemical Family: Inorganic salt solution.
Formula: $(NH_4)_2S_x$

1.3 Recommended Use of Chemical: Cyanide assisted corrosion control for petroleum industry.

1.4 Manufacturer: Tessenderlo Kerley, Inc.
2910 N. 44th Street, Suite 100
Phoenix, Arizona 85018
Information: (602) 889-8300

1.5 Emergency Contact:

Tessenderlo Kerley, Inc.:	(800) 877-1737
CHEMTREC:	(800) 424-9300 (Domestic)
	(703) 527-3887 (International)

Section 2: HAZARD(S) IDENTIFICATION

2.1 Hazard Classification:

Health	Acute Toxicity Oral	Category 3
	Acute Toxicity Inhalation	Category 3
	Skin Corrosion/Irritation	Category 1B
	Eye Damage/Irritation	Category 1
Physical	None	

2.2 Signal Word: **Danger**

2.3 Hazard Statement(s):

Toxic if swallowed.
Toxic if inhaled.
Causes severe skin burns and eye damage.
Causes serious eye damage.

2.4 Symbol(s):

2.5 Precautionary Statement(s):

If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison control center/doctor/regional medical center.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call poison center, doctor, or regional medical center. Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison control center, doctor, or regional medical center.
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 control center/doctor/regional medical center.
Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product.
Avoid breathing fumes/gas/mist/vapors/spray.
Wear neoprene rubber gloves, chemical suit, boots, chemical goggles and full-face shield.
Store locked up in well-ventilated place. Keep container tightly closed. Use only outdoors or in well-ventilated area.
Dispose of contents/container to chemical waste facility in accordance with local/state/federal regulations.
Do not allow release to aquatic waterways.

2.6 Unclassified Hazard(s): Aquatic Toxicity

2.7 Unknown Toxicity Ingredient: None

Section 3: COMPOSITION/INFORMATION on INGREDIENTS

3.1 Chemical Ingredients: (See Section 8 for exposure guidelines)

Chemical	Synonym Common Name	CAS No.	EINECS No.	% by Wt.
Diammonium polysulfide	Ammonium polysulfide	12259-92-6	235-512-5	49
Ammonium hydroxide	Aqua ammonia	1336-21-6	215-647-6	33
Water	Water	7732-18-5	231-791-2	Remaining %

Section 4: FIRST AID MEASURES

4.1 Symptoms/Effects:

Acute: Skin contact will cause skin corrosion. Eye contact will cause irritation/damage. Inhalation of product vapors will cause severe respiratory problems. Oral exposure will cause burns of mouth and throat.

Chronic: No known chronic effects.

4.2 Eyes: Immediately flush with large quantities of water for 15 minutes. Hold eyelids open during irrigation to ensure thorough flushing of the entire area of the eye and lids. Obtain immediate medical attention.

4.3 Skin: Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention.

4.4 Ingestion: DO NOT INDUCE VOMITING. Give 2-4 glasses of water. If vomiting should occur, repeat fluid administration. Obtain immediate medical attention.

4.5 Inhalation: Remove victim from contaminated atmosphere. If breathing is labored, administer Oxygen. If breathing has ceased, clear airway and start CPR. Obtain immediate medical attention.

Section 5: FIRE FIGHTING MEASURES

5.1 Flammable Properties:

NFPA: Health - 3 Flammability - 1 Reactivity - 1

5.2 Extinguishing Media:

5.2.1 Suitable Extinguishing Media: Not flammable, use media suitable for combustibles involved in fire.

5.2.2 Unsuitable Extinguishing Media: None known.

5.3 Protection of Firefighters:

5.3.1 Specific Hazards Arising from the Chemical:

Liquid is corrosive to skin and eyes. Vapors of Ammonia and small amounts of Hydrogen Sulfide exist in the vapor space over the liquid. Heating this product will evolve vapors of Ammonia and Hydrogen sulfide. Both of these vapors are very toxic and may form flammable mixtures with air.

Physical Hazards: Heating (flames) of closed or sealed containers may cause violent rupture of the container due to thermal expansion of compressed gasses.

Chemical Hazards: Dilution with water will increase the evolution of Hydrogen sulfide vapors.

5.3.2 Protective Equipment and Precautions for Firefighters:

Firefighters should wear self-contained breathing apparatus (SCBA) and full fire-fighting turnout gear. Keep containers/storage vessels in fire area cooled with water spray.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions: Use personal protective equipment specified in Section 8. Isolate the release area and deny entry to unnecessary, unprotected and untrained personnel.

6.2 Environmental Precautions: Keep out of "waters of the United States" because of potential aquatic toxicity (See Section 12).

6.3 Methods of Containment:

Small Release: Confine and absorb small releases with sand, earth or other inert absorbents.

Large Release: Shut off release, if safe to do so. Dike spill area with earth, sand or other inert absorbents to prevent runoff into surface waterways (aquatic toxicity), storm drains and sewers.

6.4 Method for Cleanup:

Small Release: Spray release area with weak (3-5%) solution of Hydrogen peroxide to limit the release of hydrogen sulfide and Ammonia vapors. Shovel up contaminated area and place in plastic drums for proper waste disposal. Use non-sparking tools.

Large Release: Recover as much of the spilled product as possible using an air-operated diaphragm pump, hoses and non-sparking tools. Use recovered product as originally intended or dispose of as a chemical waste. Treat remaining material as a small release (above).

Section 7: HANDLING and STORAGE

7.1 Handling: Avoid contact with skin and eyes. Use only in a well-ventilated area. Wash thoroughly after handling product. Avoid breathing product vapors.

7.2 Storage: Store in cool, dry well-ventilated areas. Do not store combustibles or incompatible materials in product storage areas or loading/unloading areas. Keep away from heat or flames. Storage in drums or totes is not recommended due to possible product degradation if containers are not properly handled and are allowed to overheat or come in contact with incompatible materials. Product degradation can cause toxic gas release. (See Section 10.5, for materials of construction)

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Guidelines:

Chemical	OSHA PELs		ACGIH TLVs	
	TWA	STEL	TWA	STEL
Ammonia	50 ppm	None	25 ppm	35 ppm
Hydrogen sulfide	None	20 ppm (Ceiling)	1 ppm	5 ppm
Diammonium polysulfide	None	None	None	None
Ammonium hydroxide	None	None	None	None
Water	None	None	None	None

8.2 Engineering Controls: Use adequate exhaust ventilation to prevent inhalation of product vapors. Keep eye wash/safety showers in areas where product is commonly handled.

8.3 Personal Protective Equipment (PPE):

8.3.1 Eye/Face Protection: Chemical goggles and a full face shield.

8.3.2 Skin Protection: Neoprene rubber gloves, boots and chemical suit should be worn to prevent contact with the liquid. Wash contaminated clothing prior to reuse.

8.3.3 Respiratory Protection: Respiratory protection is based on potential for exposure to Ammonia vapors and to a lesser degree Hydrogen sulfide. Both of these vapors exist in the vapor space over the liquid. Respiratory protection is recommended when connecting or disconnecting hoses to transfer product solutions between containers. Respiratory protection may consist of SCBA, pressure demand, (MSHA or NIOSH approved or equivalent), or an air-supplied respirator with full face mask or a full face mask with appropriate cartridges.

8.3.4 Hygiene Considerations: Common good industrial hygiene practices should be followed, such as, washing thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL and CHEMICAL PROPERTIES

9.1 Appearance: Ruby-red, liquid.
9.2 Odor: Strong ammonia odor.
9.3 Odor Threshold: 37 ppb (ammonia)
4.7 ppb (hydrogen sulfide)
9.4 pH: 10.8 to 11.5
9.5 Melting Point/Freezing Point: 0° to 20°F (-17.8° to -6.7°C)
9.6 Boiling Point: 100°F (38°C)
9.7 Flash Point: Not determined
9.8 Evaporation Rate: Not determined

9.9 Flammability:	Not applicable
9.10 Upper/Lower Flammability Limits:	15 to 28%, in air (ammonia)
9.11 Vapor Pressure:	314 mm Hg (41.9 kPa) @ 70°F (21.1°C)
9.12 Vapor Density:	Not determined
9.13 Relative Density:	1.13 to 1.15 (9.4 to 9.6 lbs/gal)
9.14 Solubility:	Completely soluble with precipitation of elemental sulfur.
9.15 Partition Coefficient:	No data available.
9.16 Auto-ignition Temperature:	Not applicable
9.17 Decomposition Temperature:	Not determined
9.18 Viscosity:	4.55 cP @ 20°C (68°F)

Section 10: STABILITY and REACTIVITY

10.1 Reactivity: Interaction with strong oxidizers or acidic or alkaline materials.

10.2 Chemical Stability: This product is stable under normal (ambient) temperature and pressure.

10.3 Possibility of Hazardous Reactions: Contact with acids or acidic materials will cause a significant increase in highly toxic Hydrogen sulfide vapors being released.

10.4 Conditions to Avoid: High temperatures and fire conditions.

10.5 Incompatible Materials: Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures, if heated to dryness. Acids will cause the release of Hydrogen sulfide, a highly toxic gas. Alkalies will accelerate the evolution of Ammonia. **Ammonium solutions are not compatible with Copper, Zinc or their alloys (i.e. bronze, brass, galvanized metals, etc.)**. These materials of construction should not be used in handling systems or storage containers for this product.

10.6 Hazardous Decomposition Products: Heating this product will evolve Ammonia vapors. As the pH of the solution decreases, Hydrogen sulfide vapors will increase significantly. Continued heating will cause Oxides of Nitrogen and Sulfur to be released.

Section 11: TOXICOLOGICAL INFORMATION

11.1 Oral: Oral-Rat LD_{50}: 152 mg/kg (ammonium polysulfide)
Oral-Rat LD_{50}: 350 mg/kg (ammonium hydroxide)

11.2 Dermal: Skin Rabbit LD_{50}: 1,790 mg.kg (ammonium polysulfide)

11.3 Inhalation: INH-Rat LC_{50}: 2,000 ppm, 4 hours (ammonia)
INH-Rat LC_{50}: 444 ppm, 1 hr. exposure (hydrogen sulfide)

11.4 Eyes: No data available.

11.5 Chronic/Carcinogenicity: Not listed in NTP, IARC or by OSHA.

11.6 Teratology: No data available.

11.7 Reproduction: No data available.

11.8 Mutagenicity: No data available.

Section 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity: No data available, however this is a strong Ammonia solution and ammonia solutions are typically detrimental to the aquatic environment.

12.2 Persistence & Degradability: No data available.

12.3 Bioaccumulative Potential: This product is not bioaccumulative.

12.4 Mobility in Soil: No data available.

12.5 Other Adverse Effects: None

Section 13: DISPOSAL CONSIDERATIONS

Consult federal, state and local regulations for disposal requirements.

Section 14: TRANSPORT INFORMATION

14.1 Basic Shipping Description:

14.1.1 Proper Shipping Name: Ammonium polysulfide, solution.
14.1.2 Hazard Classes: 8, 6.1
14.1.3 Identification Number: UN2818
14.1.4 Packing Group: III
14.1.5 Hazardous Substance: No, however a 315 gallon release would exceed the ammonium hydroxide RQ of 1,000 lbs.
14.1.6 Marine Pollutant: No

14.2 Additional Information:

14.2.1 Other DOT Requirements:

14.2.1.1 Reportable Quantity: No (See Section 14.1.5, above).
14.2.1.2 Placard(s): Corrosive
14.2.1.3 Label(s): Corrosive, Toxic

14.2.2 USCG Classification: No data available.

14.2.3 International Transportation:

14.2.3.1 IMO: Ammonium polysulphide solution.
14.2.3.2 IATA: Ammonium polysulphide solution.
14.2.3.3 TDG (Canada): Ammonium polysulphide solution.
14.2.3.4 ADR (Europe): Ammonium polysulphide solution.
14.2.3.5 ADG (Australia): Ammonium polysulphide solution.

14.2.4 Emergency Response Guide: 154

14.2.5 ERAP - Canada: Not applicable

14.2.6 Special Precautions: Not applicable

Section 15: REGULATORY INFORMATION

15.1 U.S. Federal Regulations:

15.1.1 OSHA: This product is considered hazardous under the criteria of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200).

15.1.2 TSCA: Product is contained in USEPA TSCA Inventory.

15.1.3 CERCLA: Reportable Quantity – No (See Section 14.1.5, above).

15.1.4 SARA Title III:

15.1.4.1 Extremely Hazardous Substance (EHS): No

15.1.4.2 Section 312 (Tier II) Ratings:

Immediate (acute)	Yes
Fire	Yes
Sudden Release	No
Reactivity	Yes
Delayed (chronic)	No

15.1.4.3 Section 313 (FORM R): Yes, Ammonia solution.

15.1.5 RCRA: Possible D003 hazardous waste.

15.1.6 CAA (Hazardous Air Pollutant/HAP): Not applicable

15.2 International Regulations:

15.2.1 Canada:

15.2.1.1 WHMIS: E, D2B

15.2.1.2 DSL/NDSL: On DSL Inventory, #9757.

15.3 State Regulations:

15.3.1 CA Proposition 65: ⚠**WARNING:** This product can expose you to chemicals including benzene, which is known to the State of California to cause cancer and

birth defects or other reproductive harm. For more information go to www.P65.Warnings.ca.gov.

Section 16: OTHER INFORMATION

REVISIONS: This SDS was reformatted to comply with the new Hazard Communication Standard dated March 26, 2012, by the Regulatory Affairs Department of Tessenderlo Kerley, Inc. 7/1/2014.

Revised Section 2, format and Precautionary Statements; Section 8, Exposure Guidelines; Section 10, formatting. 9/16/2014; Revised Section 2, multiple other sections for formatting and wording. 3/18/2015; Revised Section 2 Precautionary Statements. 4/14/2015; Revised sections 1, 2, 3, 10, 11, and 15. 6/10/2016; Revised section 15. 8/6/2018; Revised Section 1. 1/3/2020; Revised logo. 10/4/2021; Revised Section 7.2. 2/24/2023