



American Cyanamid Company
One Cyanamid Plaza
Wayne, NJ 07470

April 26, 1989

Christine Greene
Frank C. McCarthy School
4942 S. Salina St.
Syracuse, New York 13205

Re: MATERIAL SAFETY DATA SHEET (S) REQUEST

Dear Customer:

As per your request, enclosed please find the Material Safety Data Sheets on CYCOCCEL®.

Thank you for your interest in our Agricultural products, if you have any questions, please contact the undersigned.

A handwritten signature in cursive script that reads 'Audrey Sze'.

Audrey Sze
Senior Industrial Hygienist
AMERICAN CYANAMID COMPANY
(201) 831-2274

msds300/rc

AMERICAN CYANAMID
WAYNE, NEW JERSEY 07470

Page 1 of 5

MATERIAL SAFETY DATA SHEET

MSDS NO. 0647-04
CAS NO. 000999-81-5
DATE: 04/20/88

EMERGENCY TELEPHONE: (201) 835-3100

**PRODUCT
IDENTIFICATION**

TRADE NAME: CYCOCEL 11.8% Plant Growth Regulant

SYNONYMS: (2-chloroethyl)trimethylammonium
chloride. Chlormequat chloride;
Chlorocholine chloride; CCC.

CHEMICAL FAMILY: Quaternary ammonium compound

MOLECULAR FORMULA: C₅H₁₃Cl₂N

MOLECULAR WGT.: 158.11

**WARNING
STATEMENTS**

CAUTION. KEEP OUT OF REACH OF CHILDREN. HARMFUL IF
SWALLOWED. MAY BE ABSORBED THROUGH THE SKIN. AVOID
CONTACT WITH THE SKIN, EYES, AND CLOTHING.

**HAZARDOUS
INGREDIENTS**

| COMPONENT | CAS. NO. | % | TWA/CEILING |
|--|-------------|------|---------------------------|
| (2-Chloroethyl) trimethylammonium chloride | 000999-81-5 | 11.8 | No PEL/TLV Established |

REFERENCE: None

**PHYSICAL
PROPERTIES**

| | |
|--|-----------------------------|
| APPEARANCE | Colorless to pale yellow |
| AND ODOR: | liquid; slight fishy odor. |
| BOILING POINT: | 212°F, 100°C |
| MELTING POINT: | Not Applicable |
| VAPOR PRESSURE: | Not Applicable |
| SPECIFIC GRAVITY: | 1.02 (8.52 lbs. per gallon) |
| VAPOR DENSITY: | Not Applicable |
| % VOLATILITY (BY VOL.): | 88 |
| OCTANOL/H₂O PARTITION COEF.: | Not Applicable |
| PH: | 5.0 ± 0.2 |
| SATURATION IN AIR (BY VOL.): | Not Applicable |
| EVAPORATION RATE: | <1 (Butyl Acetate = 1) |
| SOLUBILITY IN WATER: | Complete |

**FIRE AND
EXPLOSION
HAZARD
INFORMATION**

| | |
|---|-----------------------|
| FLASH POINT: | >190°F TAG Closed Cup |
| FLAMMABLE LIMITS (% BY VOL.) | Not Applicable |
| AUTOIGNITION TEMP.: | Not Available |
| DECOMPOSITION TEMP: | Not Available |

FIRE EXTINGUISHING MEDIA:

Extinguish using an agent suitable for the surrounding fire. (Material itself does not burn or burns with difficulty). Use water, foam, dry chemical, or carbon dioxide.

FIRE CONTROL TACTICS:

Conduct fire fighting and rescue operations from upwind of the fire area. Avoid bodily contact with the material. Do not handle broken package without proper protective equipment. Wear self-contained, positive pressure breathing apparatus and full fire fighting protective clothing. Keep unnecessary people away. Isolate hazard area and deny entry. Wash away any material from exposed skin with copious amounts of soap and water. Control runoff water - If water enters drainage system, advise the authorities downstream.

**NFPA HAZARD
RATING**

Hazard rating not assigned by the NFPA

REACTIVITY DATA

| | |
|-----------------------------|--|
| STABILITY: | Stable |
| CONDITIONS TO AVOID: | To prevent product from freezing, do not store below 32°F (0°C). |

| | |
|------------------------|----------------|
| POLYMERIZATION: | Will not occur |
|------------------------|----------------|

| | |
|--|--|
| INCOMPATIBLE MATERIALS: | Strong alkalies |
| HAZARDOUS DECOMPOSITION PRODUCTS: | Combustion may produce carbon monoxide, carbon dioxide, and hydrogen chloride. |

**HEALTH HAZARD
INFORMATION****TOXICITY DATA AND
EFFECTS OF
OVEREXPOSURE:**

The acute oral LD₅₀ in male albino rats is greater than 3915 mg/kg indicating that this product is slightly toxic if ingested.

However, this product demonstrates a wide range of LD₅₀'s between different animal species with a tendency to be more toxic in higher species such as monkeys and dogs vs. mice and rats. Therefore, it is prudent to assume that it may be at least moderately toxic to humans on ingestion.

The acute dermal LD₅₀ in male albino rabbits is 5075 mg/kg indicating that this product is slightly toxic by single skin applications.

This product is nonirritating to rabbit eyes and skin.

Prolonged exposure to aerosols of this product may irritate the respiratory tract.

**EMERGENCY &
FIRST AID
PROCEDURES:**

If swallowed: Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Avoid alcohol. Get medical attention.

If on skin: Remove contaminated clothing without delay and wash skin thoroughly with soap and water. Do not reuse clothing without laundering.

If in eyes: Immediately flush with plenty of water.

NOTE TO PHYSICIANS: (2-chloroethyl) trimethyl ammonium chloride is a weak ganglionic stimulant with an action similar to that of nicotine. An effective antidote has not been established.

Based upon animal studies, atropine is definitely contraindicated as it may act synergistically with this choline derivative once poisoning has taken place.

**EXPOSURE
CONTROL METHODS**

Wear rubber gloves and splash goggles to prevent exposure to skin and eyes. Do not inhale spray mist. Do not eat, drink, or smoke while using this product.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing, launder before re-use.

**SPILL OR LEAK
PROCEDURES**

Cover with an inert absorbent material; sweep up and place in a closed container for disposal. Flush area with water.

WASTE DISPOSAL:

Dispose in accord with local, state, and federal regulations.

**SPECIAL
PRECAUTIONS**

**HANDLING AND
STORAGE:**

Do not contaminate water, food, or feed by storage or disposal.

Wear protective equipment when handling (see Exposure Control Methods Section).

Do not store below freezing temperatures.

Because of this materials flashpoint, area containing this material should conform to the codes (such as NFPA-30 and NFPA-70) governing class IIIA combustible liquids.

APPENDIX

CYCOCEL IS A REGISTERED TRADEMARK OF THE AMERICAN CYANAMID COMPANY

| | | |
|-------------------------|-------------------|-----------------|
| SOURCE AND | SHEET NO.: | 0647-04 |
| DATE INFORMATION | DATE: | 04/20/88 |

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE.