1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SUPERFLOC® C-1598 Flocculant
SYNONYMS: Cationic polyacrylamide in water-in-oil emulsion
CHEMICAL FAMILY: Cationic polymer
MOLECULAR FORMULA: Polymer
MOLECULAR WGT: Polymer

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WEST PATerson, NEW JERSEY 07424, USA
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.
EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC:
1-800/424-9300. Outside the USA and Canada call 1-703/527-3887.

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS. NO.</th>
<th>%</th>
<th>TWA/CEILING</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum distillate</td>
<td>064742-47-8</td>
<td>22-23</td>
<td>500 ppm</td>
<td>OSHA</td>
</tr>
<tr>
<td>hydrotreated light</td>
<td></td>
<td></td>
<td>165 ppm</td>
<td>Supplier</td>
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</table>

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR: Greenish to milky white viscous opaque liquid; slight hydrocarbon odor

STATEMENTS OF HAZARD:
WARNING! CAUSES SKIN IRRITATION
MAY CAUSE EYE IRRITATION

POTENTIAL HEALTH EFFECTS

EFFECTS OF OVEREXPOSURE:
Acute oral (rat) and dermal (rabbit) LD50 values are estimated to be greater than 5,000 mg/kg and greater than 2,000 mg/kg, respectively. The 4-hour inhalation LC50 (rat) value is estimated to be greater than 20 mg/L.
Direct contact with this material can cause moderate skin and mild eye irritation.
Overexposure to vapor may cause respiratory tract irritation and central nervous system depression.
Refer to Section 11 for toxicology information on the regulated components of this product.

4. FIRST AID MEASURES

If swallowed, call a physician immediately. ONLY induce vomiting at the instructions of a physician. Never give anything by mouth to an unconscious person.
In case of skin contact, remove contaminated clothing without delay. Flush skin thoroughly with water. Do not reuse clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.
In case of eye contact, immediately irrigate with plenty of water for 15 minutes.
If vapor or dust of this material is inhaled, remove from exposure. Administer oxygen if there is difficulty in breathing. Obtain medical attention immediately if necessary.
5. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES**
- **FLASH POINT:** >200 F; 93 C
- **METHOD:** Closed Cup

**FLAMMABLE LIMITS**
- (% BY VOL): Not available
- **AUTOIGNITION TEMP:** Not available
- **DECOMPOSITION TEMP:** Not available

**EXTINGUISHING MEDIA AND FIRE FIGHTING INSTRUCTIONS**
Use water spray, carbon dioxide or dry chemical to extinguish fires. Use water to keep containers cool. Wear self-contained, positive pressure breathing apparatus and full fire-fighting protective clothing. See Section 8 (Exposure Controls/Personal Protection) for special protective clothing.

6. ACCIDENTAL RELEASE MEASURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**
Where exposure level is not known, wear NIOSH approved, positive pressure, self-contained respirator. Where exposure level is known, wear NIOSH approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impervious boots. Spills of this product are very slippery. Spilled material should be absorbed onto an inert material and scooped up. The area should be thoroughly flushed with water and scrubbed to remove residue. If slipperiness remains, apply more dry-sweeping compound.

7. HANDLING AND STORAGE

Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.
To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment.
OSHA regulations (29 CFR 106.a.14), require that the flashpoint of materials of this type be determined by the Pensky-Martens Closed Tester method. The test for this product indicates it has a flashpoint greater than 200F (93.3C). Although there was no flashpoint detected below 200F (93.3C) by the Pensky-Martens Closed Tester method, some flammable vapors were evolved during the test as evidenced by the enlargement of the test flame; therefore, caution should be exercised in storage and handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT (PPE)**
Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands with soap and water. Avoid skin contact. Protective clothing such as impervious gloves, apron, workpants, long sleeve work shirt, or disposable coveralls are recommended to prevent skin contact. For operations where eye or face contact can occur, wear eye protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure. Where exposures are below the Permissible Exposure Limit (PEL), no respiratory protection is required. Where exposures exceed the PEL, use respirator approved by NIOSH for the material and level of exposure. See "GUIDE TO INDUSTRIAL RESPIRATORY PROTECTION" (NIOSH).

9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE AND ODOR:** Greenish to milky white viscous opaque liquid; slight hydrocarbon odor
10. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None known
POLYMERIZATION: Will Not Occur
CONDITIONS TO AVOID: None known
INCOMPATIBLE MATERIALS: Strong oxidizing agents. This material reacts slowly with iron, copper and aluminum, resulting in corrosion and product degradation.
HAZARDOUS DECOMPOSITION PRODUCTS: carbon monoxide; carbon dioxide; ammonia; hydrogen chloride vapor; sulfur dioxide; oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION. Toxicological information on the OSHA regulated components of this product is as follows:
Petroleum distillates, hydrotreated light (CAS# 64742-47-8) has acute oral (rat) and dermal (rabbit) LD50 values of >5 g/kg and >3.16 g/kg, respectively. Prolonged or repeated skin contact tends to remove skin oils, possibly leading to irritation and dermatitis. Direct contact may cause eye irritation. Overexposure to high vapor concentrations, >∼700 ppm, are irritating to the eyes and respiratory tract and may cause headaches, dizziness, drowsiness, and other central nervous system effects, including death. Aspiration of minute amounts during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death. In a 90-day oral gavage (rats) study at 100, 500, or 1000 mg/kg, no treatment-related mortalities were observed. There were no significant changes in body weights or food consumption in any dose groups. Increased liver weights were observed in male and female rats a 500 and 1000 mg/kg. Increased kidney weights were observed only in male rats at 500 and 1000 mg/kg. Testes weights were significantly elevated in male rats at 1000 mg/kg. Kidney effects, indicative of light hydrocarbon nephropathy, occurred in male rat kidneys at all dose levels. Histological findings of hepatocellular hypertrophy were seen in the livers of male rats at 1000 mg/kg and in female rats at 500 and 1000 mg/kg. All treatment-related effects were reversible within the 4-week recovery period. Observed kidney effects (including light hydrocarbon nephropathy and increased kidney weight) are a unique response by male rats to chronic hydrocarbon exposure, which the U.S. EPA has declared "not relevant to humans". High-dose liver effects (including hepatocellular hypertrophy, or enlarged liver cells) are a direct consequence of the sustained high-fat "hydrocarbon diet". The No Observed Adverse Effect Level (NOAEL) for this study was 1000 mg/kg.
California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause cancer.

12. ECOLOGICAL INFORMATION

No aquatic LC50, BOD, or COD data available.
13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the Cytec product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA "listed hazardous waste" or has any of the four RCRA "hazardous waste characteristics." Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA "listed hazardous waste"; information contained in Section 15 of this MSDS is not intended to indicate if the product is a "listed hazardous waste." RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 5 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. Cytec encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. Cytec recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. Cytec has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

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<th>IMO SHIPPI NG INFORMATION</th>
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<table>
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<td>Not Applicable</td>
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<tr>
<td>IMDG PAGE:</td>
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<tr>
<td>D.O.T. HAZARDOUS SUBSTANCES:</td>
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<th>ICAO/IATA</th>
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<th>SHIPPING NAME:</th>
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<th>SUBSIDIARY CLASS:</th>
<th>UN / ID NUMBER:</th>
<th>PACKING GROUP:</th>
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<td>Not Applicable</td>
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</table>
15. REGULATORY INFORMATION

INVENTORY INFORMATION

US TSCA: All components of this product are included on the TSCA Inventory in compliance with the Toxic Substances Control Act, 15 U. S. C. 2601 et. seq. This product contains a chemical substance that is subject to export notification under Section 12 (b) of the Toxic Substances Control Act, 15 U. S. C. 2601 et. seq. (This requirement applies to exports from the United States only.)

CANADA DSL: Components of this product have been reported to Environment Canada in accordance with subsection 25 of the Canadian Environmental Protection Act and are included on the Domestic Substances List.

EEC EINECS: All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) or the "No Longer Polymer" list, or are polymers of which the components are in EINECS, in compliance with Council Directive 67/548/EEC and its amendments.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS. NO.</th>
<th>%</th>
<th>TPQ(lbs)</th>
<th>RQ(lbs)</th>
<th>S313</th>
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<tr>
<td>Isopropanol</td>
<td>000067-63-0</td>
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<td>NONE</td>
<td>NONE</td>
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</tbody>
</table>

16. OTHER INFORMATION

NFPA HAZARD RATING (National Fire Protection Association)

Fire

1

Health 2 0 Reactivity

— Special

FIRE: Materials that must be preheated before ignition can occur.

HEALTH: Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

REACTIVITY: Materials that in themselves are normally stable, even under fire exposure conditions.
REASON FOR ISSUE:
Revised Sections 2, 3, 9, 15