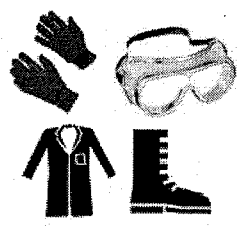
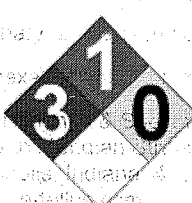
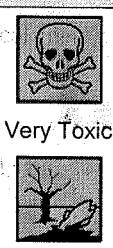

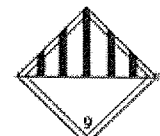


SAFETY DATA SHEET

Section 1: Identification of the Substance and of the Company

Product Name: Cetylpyridinium Chloride, monohydrate
Product Use: Personal care, used as a pharmaceutical intermediate; Used in xerography; Cationic surfactant.
Chemical Family: Quaternary ammonium compound
Synonyms: CPC, hexadecylpyridinium chloride
Manufacturer: Vertellus Health & Specialty Products LLC
 300 North Meridian Street, Suite 1500
 Indianapolis, Indiana 46204
 msds@vertellus.com
Phone Number: (317) 247-8141 (US)
 0044 (0)1642 546546 (UK)
Fax: (317) 248-6413 (US)
24-hour Emergency: CHEMTREC: (800) 424-9300; (703) 527-3887

Section 2: Hazards Identification

Protective Clothing	NFPA Rating (USA)	EU Classification	WHMIS (Canada)	Transport
		 <p>Very Toxic</p> <p>Dangerous for the environment</p>	 <p>D1B</p>	

Substance Hazards and Classification:

Very toxic by inhalation. Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to the eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Will release toxic fumes, such as hydrogen chloride, if involved in a fire.

USA: This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Canada: This is a controlled product under WHMIS.

European Union (EU): This substance is classified as dangerous according to Directive 1999/45/EC and its amendments. Classification: Very toxic. Harmful. Irritant. Dangerous for the environment.

Appearance, Color and Odor:

White to off-white granular or pelletized solid with a characteristic odor.

Primary Route(s) of Exposure:

Inhalation, Ingestion, Eye contact, Skin contact

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls

Inhalation: Irritating to the mucous membranes and respiratory system. Irritation may be severe.

This product is not expected to be toxic by inhalation due to its physical state. A size distribution analysis performed on this product demonstrated that less than 1% of the particles were smaller than 20 microns in diameter. Particle size analysis of CPC sampled after a trans-Atlantic shipment showed < 2.5% of the particles were less than 10 microns in diameter. This data indicates that CPC is not a finely divided particle and therefore, is not capable of penetrating into the lung alveoli and will not pose a toxicity hazard by inhalation.

SAFETY DATA SHEET

Section 2: Hazards Identification, continued

High concentrations of aerosolized CPC are very destructive to mucous membranes. Aerosolized CPC will cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. May cause circulatory system failure. May cause muscle paralysis, respiratory failure and possible death.

Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause circulatory system failure. May cause muscle paralysis, respiratory failure and possible death.

Skin: Direct contact causes severe skin irritation.

Eyes: Direct contact causes severe eye irritation. May result in permanent corneal injury.

CHRONIC (long term): see Section 11 for additional toxicological data

Teratogenicity: Limited evidence of birth defects. (See Section 11)

**Medical Conditions
Aggravated by Exposure:**

Not available

Section 3: Composition/Information on Ingredients

Common Name	Chemical Name	CAS No.	Wt. %	EINECS / ELINCS	Symbol	Risk Phrases
CPC	Cetylpyridinium chloride, monohydrate	6004-24-6	100	204-593-9	T+, Xn, N*	R26- R22- R37/38-R41- R50/53

Note: *This chemical substance is not classified in Annex 1 of Directive 67/548/EEC. See Section 8 of this SDS for exposure limit data for these ingredients. See Section 16 for the full text of the R-phrases above.

Section 4: First Aid Measures

- Inhalation:** Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment and use the buddy system). Remove source of contamination or move victim to fresh air. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. Do Not allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Immediately transport victim to an emergency care facility.
- Eye Contact:** Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at 20 minutes or until the chemical is removed, while holding the eyelids open. Neutral saline solution may be used as soon as it is available. Take care not to rinse contaminated water into the unaffected eye or onto face. If irritation persists, repeat flushing. Obtain medical attention immediately.
- Skin Contact:** Immediately flush with lukewarm gently flowing water for at least 20 minutes. Use soap if available. Remove contaminated clothing including shoes, watchbands and belts, after flushing has begun. Get prompt medical attention if symptoms occur. Thoroughly wash clothes and shoes before re-use, or discard.
- Ingestion:** NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Quickly transport victim to an emergency care facility.

SAFETY DATA SHEET

Section 5: Fire Fighting Measures

- Extinguishing Media:** Water spray, dry chemical, CO₂, alcohol foam.
- Unusual Fire and Explosion Hazards:** Sensitivity to mechanical impact: Not sensitive
 Sensitivity to static discharge: As with any organic powder, high dust concentrations may create a dust explosion hazard when exposed to sources of ignition.
 Material may burn, but does not ignite readily. Avoid high temperatures.
- Fire Fighting Instructions:** As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear.
- Hazardous Combustion Products:** During a fire, irritating and toxic gases, such as hydrogen chloride and nitrogen oxides, may be generated by thermal decomposition or combustion.

Section 6: Accidental Release Measures

- Personal Precautions:** Wear proper personal protective equipment as indicated in Section 8. Prevent skin and eye contact. Avoid inhaling dusts of this product.
- Environmental Precautions:** Prevent material from contaminating soil and from entering sewers or waterways.
- Methods for Containment:** Isolate the spill area. Shut off the leak if it is safe to do so.
- Methods for Clean-up:** Scrape or scoop the material into a chemical waste container. Avoid raising dust into the air. Scrub the area with detergent and water.

Section 7: Handling and Storage

- Handling:** Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not get on skin or in eyes. Do not ingest or inhale. Wash thoroughly with detergent and water after handling, before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse. Follow all SDS and label precautions even after the container is emptied because they may retain product residues.
- Storage:** Store in a cool, dry area, out of direct sunlight. Keep containers closed when not in use.

Section 8: Exposure Controls and Personal Protection

Exposure Limits

No specific exposure limits have been established for this product however, it is reported that an airborne, aerosol concentration of 90 mg/m³ is acutely toxic to rats, can cause respiratory difficulties and irritation of the nose, throat and eyes.

<u>Ingredient</u>	<u>ACGIH TLV (8-hr. TWA)</u>	<u>U.S. OSHA PEL (8-hr. TWA)</u>	<u>Ontario (Canada) TWA-EV</u>	<u>UK OEL (8-hr. TWA)</u>
Cetylpyridinium chloride, monohydrate	Not established	Not established	Not established	Not established

SAFETY DATA SHEET

Section 8: Exposure Controls and Personal Protection, continued

Exposure Controls

- Engineering Controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of dust.
- Personal Protection:**
- Respiratory Protection:** Wear an approved air-purifying respirator as needed to control exposure. Wear a positive pressure supplied air respirator for uncontrolled releases or when the air-purifying respirator limitations may be exceeded.
- A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 or Canadian Standards Association (CSA) Standard Z94.4-93 must be followed whenever workplace conditions warrant a respirator's use.
- Skin Protection:** Wear chemical protective gloves and body-covering clothing to prevent skin exposure.
- Eye Protection:** Wear chemical safety goggles. Wear a face-shield when necessary to prevent contact with skin and eyes.
- Other Protective Equipment:** Have a safety shower and eye-wash fountain readily available in the immediate work area.
- Hygiene Measures:** Remove contaminated clothing promptly. Keep contaminated clothing in closed containers. Launder contaminated clothing before re-wearing or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

Section 9: Physical and Chemical Properties

Physical State:	Solid	Vapor Pressure: (mm Hg @ 20°C)	Not available
Appearance:	White to off-white	Vapor Density: (Air = 1)	Not available
pH:	5.0 – 5.4 (10 g/L@20°C)	Solubility in Water:	Soluble (50 g/L @ 19.5°C)
Relative Density: (water = 1)	Not available	Water / Oil distribution coefficient:	Log K _{ow} = 1.71
Boiling Point:	120 – 124°C @ 0.09 hPa	Odor Type:	Characteristic odor
Melting Point:	80 – 84°C	Odor Threshold:	Not available
Viscosity:	Not available	Evaporation Rate: (n-Butyl Acetate = 1)	Not available
Oxidizing Properties:	Not available	Auto Ignition Temperature (°C):	Not available
Flash Point and Method (°C):	Not available	Flammability Limits (%):	Not available

SAFETY DATA SHEET

Section 10: Stability and Reactivity

- Stability:** Stable under normal temperatures and pressures.
- Conditions to Avoid:** Avoid contact with incompatible materials, dust generation and excess heat.
- Incompatible Materials:** Strong oxidizing agents, acids, acid anhydrides and acid chlorides.
- Hazardous Decomposition Products:** Hydrogen chloride, nitrogen oxides and carbon monoxide.
- Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

Section 11: Toxicological Information

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u> (mg/kg)	<u>LD₅₀ Dermal</u> (mg/kg)	<u>LC₅₀ Inhalation</u> (mg/L, 4 hrs.)
Cetylpyridinium chloride	560 (rat, OECD 425)	> 5 000 (rabbit, OECD 402)	0.09* (rat, OECD 403) For aerosolized CPC only

* Independent Laboratory test results for particle size indicate that CPC does not meet the requirements in 40 CFR 173.132(b)(3)(iii) for a solid substance that is considered a dust. Therefore, acute inhalation data (determined as a dust) is not applicable for determining transportation class. The same requirements apply for international air [2.6.1.0(c)], maritime [2.6.2.1.3] and ADR (European Agreement concerning the International Carriage of Dangerous Goods [2.2.61.1.3] transportation regulations.

Chronic Toxicity Data

- Carcinogenicity:** This product does not contain any substance that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA or NTP (National Toxicology Program).
- Irritation:** Product can cause severe irritation of the eyes, skin and respiratory system (OECD 404 & 405).
- Sensitization:** Not a contact sensitizer per Buehler dermal sensitization assay (OECD 406).
- Neurological Effects:** Not available
- Teratogenicity:** Limited evidence of teratogenic effects: Investigators studied the offspring of 292 women using this substance as a medication in the first trimester of pregnancy and found 9 malformations. The rate was 31 congenital defects per 1000 while the mean rate was 16 per 1000. This increase was not statistically significant.
- Reproductive Toxicity:** Not available
- Mutagenicity (Genetic Effects):** Negative in Ames assay, both with and without metabolic activation.
- Toxicologically Synergistic Materials:** Alcohol has been shown to increase the oral toxicity of cetylpyridinium chloride.

SAFETY DATA SHEET**Section 12: Ecological Information**

Ecotoxicity:	Very toxic to aquatic organisms. LC ₅₀ = 0.16 mg/L / 96 hr.; NOEC = 0.11 mg/L / 96 hr. (rainbow trout OECD 203) EC ₅₀ = 9.18 µg/L / 48 hr.; NOEC = 3.2 µg/L / 48 hr. (Daphnia magna OECD 202) EC ₅₀ = 26.9 µg/L / 72 hr.; NOEC = 3.2 µg/L / 72 hr. (Selenastrum capricornutum, growth rate OECD 201) EC50 = 20.7 mg/L/3 hr (activated sludge, OECD 209)
Mobility:	If released to soil, cetylpyridinium chloride is expected to have low mobility. Quaternary ammonium compounds are known to sorb strongly and rapidly in well-mixed systems, to a wide variety of materials, such as sewage sludge, sediment and clay.
Persistence and degradability:	25% Primary degradation after 38 days in OECD 301D closed bottle test.
Bioaccumulative potential:	An estimated BCF of 5.7, based on a measured log K _{ow} of 1.71, suggests the potential for bioconcentration in aquatic organisms is low.

Section 13: Disposal Considerations

Waste Disposal Method:	Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 Handling and Storage.
USA:	Dispose of in accordance with local, state and federal laws and regulations. RCRA Waste Codes: None listed
Canada:	Dispose of in accordance with local, provincial and federal laws and regulations.
EU:	Waste must be disposed of in accordance with relevant EU Directives and national, regional and local environmental control regulations. For disposal within the EU, the appropriate code according to the European Waste Catalogue (EWC) should be used.

Section 14: Transport Information:

U.S. Hazardous Materials Regulation (DOT 49CFR):	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cetylpyridinium chloride), CLASS 9, PG III; NAERG: 171
Canadian Transportation of Dangerous Goods (TDG):	For marine modes of transportation, this product is regulated as: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cetylpyridinium chloride), CLASS 9, PG III
ADR/RID:	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cetylpyridinium chloride), CLASS 9, PG III
IMDG:	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cetylpyridinium chloride), CLASS 9, PG III, EmS F-A, S-F
Marine Pollutants:	Cetylpyridinium chloride
ICAO/IATA :	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cetylpyridinium chloride), CLASS 9, PG III

Note: * Independent Laboratory test results for particle size indicate that CPC does not meet the requirements in 40 CFR 173.132(b)(3)(iii) for a solid substance that is considered a dust. Therefore, acute inhalation data (determined as a dust) is not applicable for determining transportation class. The same requirements apply for international air [2.6.1.0(c)], maritime [2.6.2.1.3] and ADR (European Agreement concerning the International Carriage of Dangerous Goods [2.2.61.1.3] transportation regulations.

SAFETY DATA SHEET

Section 15: Regulatory Information

USA

TSCA Status: This substance is listed on the TSCA inventory as the anhydrous form, CAS # 123-03-5.

SARA Title III:

Sec. 302/304: None

Sec. 311/312: Acute

Sec. 313: None

CERCLA RQ: None

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the SDS contains all the information required by the *Controlled Products Regulations*.

WHMIS Classification: D1B - Immediate and Serious Toxic Effects [Due to oral toxicity]
 D2B - Material Causing Other Toxic Effects [For eye and skin irritation]

NSNR Status: This substance is listed as the anhydrous form, CAS # 123-03-5 on the Canadian Domestic Substance List.

NPRI Substances : None

EU Classification for the Substance:
Symbol:


Very toxic



Dangerous for the Environment

Risk Phrases: R26: Very toxic by inhalation.
 R22: Harmful if swallowed.
 R37/38: Irritating to respiratory system and skin.
 R41: Risk of serious damage to the eyes.
 R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S28: After contact with skin, wash immediately with plenty of water.
 S38: In case of insufficient ventilation, wear suitable respiratory equipment.
 S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
 S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
 S57: Use appropriate containment to avoid environmental contamination.
 S61: Avoid release to the environment. Refer to special instructions/Safety Data Sheet.

German Water Hazard Class VwVwS: Class 3 - Severe Hazard to Waters

Switzerland - Toxic Substances Classification: Class 2

Other International Inventories:

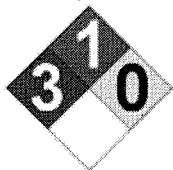
Australia: Present on Inventory of Chemical Substances (AICS).

China: Present on Chemical Inventory.

Japan: Present in the Japanese Pharmacopoeia or Existing and New Chemical Substances (ENCS); 5-2686; 5-3686; 9-1979.

Korea: Present on list of Existing and Evaluated Chemical Substances; 99-3-1228.

Philippines: Present on Inventory of Chemicals and Chemical Substances (PICCS).

SAFETY DATA SHEET**Section 16: Other Information****NFPA Hazard Rating****Full Text of R-phrases appearing in Section 2:**

R26: Very toxic by inhalation.
R22: Harmful if swallowed.
R37/38: Irritating to respiratory system and skin.
R41: Risk of serious damage to the eyes.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Preparation Information**Prepared by:**

LEHDER Environmental Services Limited
(519) 336-4101
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Revision Date:

August 25, 2009

Revision Summary:

September 14, 2004: This MSDS replaces the previous MSDS, dated March 12, 2003.
April 28, 2006: Revised European classification, R phrases, and Canadian WHMIS classification.
September 18, 2006: Changed manufacturer from Zeeland, A Division of Rutherford Chemicals LLC to Vertellus Health & Specialty Products LLC. Changed Section 16 Manufacturer Disclaimer. Added printed date to Section 16.
August 7, 2007: Removed R53 from European Classification. Transportation for DOT changed to UN3077, Class 9. Updated First Aid measures for ingestion exposure, Section 4. Updated Toxicity Information, Section 11. Updated Ecological Information, Section 12.
January 5, 2009: Revised European classification.
August 25, 2009: Revised SDS template, Sections 2 & 3; Section 1, Product use; Section 11, Acute inhalation toxicity data; Section 14, added note.

Disclaimer:

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