# SWADESH LIFE SCIENCE

**MATERIAL SAFETY DATA SHEET**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**1.1. Product identifier** **Cetylpyridinium Chloride, monohydrate**

**Synonyms:** CPC, Cetylpyridinium Chloride, Monohydrate, hexadecylpyridinium chloride

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

personal care
used as a pharmaceutical intermediate
Used in xerography
Cationic surfactant

### 1.3. Details of the supplier of the safety data sheet

**Swadesh Life Science**
H-103, Sumel 7, Near Soni ni chali
BRTS, Rakhiyal,
Ahmedabad,Gujarat, India

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture (According to Regulation (EC) No 1272/2008, 29 CFR 1910.1200 and the Globally Harmonized System)

Serious Eye Damage Category 1
Environmental Acute Category 1 (M-Factor = 100)
Hazard Not Otherwise Classified - Combustible Dust
Skin Irritation Category 2
Acute Toxicity Oral Category 4
Acute Toxicity Inhalation Dust / Mist Category 2
Specific Target Organ Systemic Toxicity Single Exposure Category 3

### 2.2. Label elements

**Hazard Symbols (Pictogram):**

**Signal Word:** Danger

**Hazard Precautions:** H400 - Very toxic to aquatic life.

H302 - Harmful if swallowed.

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H335 - May cause respiratory irritation.

H330 - Fatal if inhaled.

**Prevention Precautionary Statements:** P260 - Do not breathe dust/fume/gas/mist/vapours/spray.

P284 - Wear respiratory protection.

P270 - Do not eat, drink or smoke when using this product.

P273 - Avoid release to the environment.

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

**First Aid Precautionary Statements:** P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER or doctor/physician.

P362 - Take off contaminated clothing and wash before reuse.

P391 - Collect spillage.

**Storage Precautionary Statements:** P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

### 2.3. Other hazards

**Other Hazards:** WARNING! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR (DURING PROCESSING).

## SECTION 3: Composition/information on ingredients

### 3.1. Substances or 3.2. Mixtures

| Ingredient | CAS Number | Concentration (weight %) |
|---|---|---|
| Cetylpyridinium Chloride, monohydrate | 6004-24-6 | ~ 100 |

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Skin Contact:** Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician.

**Eye Contact:** Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 minutes, or until the chemical is removed. 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.

**Inhalation:** If exposed to excessive levels remove to fresh air and get medical attention if cough or other symptoms develop. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice.

**Ingestion:** If swallowed, contact physician or poison control center immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

**Acute:** Inhalation: Irritating to the mucous membranes and respiratory system. Irritation may be severe. Eyes: Direct contact with this product causes serious eye irritation and damage. Serious damage may result if treatment is delayed. May result in permanent corneal injury.
Skin: Direct skin contact causes severe irritation. Symptoms include local discomfort or pain, redness and swelling and blister formation.
Ingestion: Swallowing can cause irritation to the lips, tongue, throat and digestive tract, abdominal and chest pain, nausea and vomiting.

**Delayed Effects:** None known.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to Physician:** No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Appropriate Extinguishing Media:** Water spray, Foam, alcohol foam, carbon dioxide, dry chemical.

### 5.2. Special hazards arising from the substance or mixture

**Hazardous Products of Combustion:** During a fire, irritating and toxic gases, fumes and vapors may be generated. Hydrogen chloride Nitrogen oxides

**Potential for Dust Explosion:** Cetylpyridinium Chloride (CPC) was tested for dust explosion characteristics and the following results were obtained:

- minimum ignition energy (MIE): 5 - 10 mJ
- Explosion severity - 20L Sphere
- Maximum explosion pressure (bar): 8.5
- Maximum rate of pressure rise (bar/s): 682
- Kst value (bar.m/s): 185

The MIE data suggests a high sensitivity to ignition.
Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.
Refer to European standards: EN1127-1, EN14491, EN14797, EN14373, and EN15089 for safe handling of and controlling explosive atmospheres in the workplace.

**Special Flammability Hazards:** This product is an organic solid. As such, in its finely divided form, this product has the potential to present a dust explosion hazard under certain conditions. Please review the dust explosion data enclosed in this section. Handle this product in a manner that prevents dust generation and

accumulation, and refer to National Fire Protection Association (NFPA) Standard 654 for further information on prevention of dust explosions.

**5.3. Advice for firefighters** **Basic Fire Fighting Guidance:** Wear self-contained breathing apparatus and clothing that will not allow skin contact with material. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Evacuation Procedures:** Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Special Instructions:** See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded. CPC is extremely irritating to eyes and causes eye damage. Take all precautions needed to avoid eye contact and skin contact.

### 6.2. Environmental precautions

Prevent releases to soils, drains, sewers and waterways.

### 6.3. Methods and material for containment and cleaning up

Remove all ignition sources. Ventilate the area of spill or leak. Wear protective equipment during clean-up. Vacuum, scrape or scoop the material into a chemical waste container After collection of material, flush area with water. Dispose of contents & container in accordance with local, regional, national or international regulations. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used.

**6.4. Reference to other sections** Refer to section 8 for information on selecting personal protective equipment. Refer to section 13 for information on spilled product, absorbent and clean up material disposal instructions.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Precautions for Unique Hazards:** This material may present a dust explosion hazard in solid form and is sensitive to ignition by electrostatic discharge. Maintain areas below flammable vapor / explosive dust concentrations.

**Practices to Minimize Risk:** Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material. Do not eat, drink or smoke in work areas. Prevent contact with incompatible materials. Avoid spills and keep away from drains.

Handle in a manner to prevent generation of aerosols, vapors or dust clouds.

**Special Handling Equipment:** Not applicable.

## 7.2. Conditions for safe storage, including any incompatibilities

**Storage Precautions & Recommendations:** Do not store in direct sunlight Store in a cool dry place Keep container closed when not in use. Minimize dust generation and accumulation.
Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. This product should be stored at ambient temperature in a dry, well-ventilated location. Keep away from heat, sparks, and flame

**Dangerous Incompatibility Reactions:** Strong oxidizing agents Strong acids. acid anhydrides acid chlorides

**Incompatibilities with Materials of Construction:** None known

## 7.3. Specific end use(s)

If a chemical safety assessment has been completed an exposure scenario is attached as an annex to this Safety Data Sheet. Refer to this annex for the specific exposure scenario control parameters for uses identified in subsection 1.2.

# SECTION 8: Exposure controls/personal protection

## 8.2. Exposure controls

**Derived No Effect Levels (DNELs) – Workers:**

| **Route DNEL** Long-term - systemic effects (inhalation) No hazard identified | |
|---|---|
| Acute - systemic effects (inhalation) | No hazard identified |
| Long-term - local effects (inhalation) | High hazard (no threshold derived) |
| Acute - local effects (inhalation) | High hazard (no threshold derived) |
| Long-term - systemic effects (dermal) 0.05 mg/kg/bw/day Acute - systemic effects (dermal) No hazard identified. | |
| Long term - local effects (dermal) | Medium hazard (no threshold derived) |
| Acute - local effects (dermal) | Medium hazard (no threshold derived) |

**Derived No Effect Levels (DNELs) – General Population:**

| **Route** | **DNEL** |
|---|---|
| Long-term - systemic effects (oral) | No hazard identified |
| Long-term - systemic effects (dermal) | No hazard identified |
| Long-term - systemic effects (inhalation) | No hazard identified |
| Acute - systemic effects (oral, dermal, inhalation) | No hazard identified |
| Long-term - local effects (inhalation) | Low hazard (no threshold derived) |
| Acute - local effects (inhalation) | Low hazard (no threshold derived) |

| | |
|---|---|
| Long term - local effects (dermal) | Low hazard (no threshold derived) |
| Acute - local effects (dermal) | Low hazard (no threshold derived) |

**Predicted No Effect Concentrations (PNECs):**

| Route | PNEC |
|---|---|
| PNEC aqua (freshwater) | 0.0061 ug/L |
| PNEC aqua (marine water) | 0.00061 ug/L |
| PNEC aqua (intermittent releases) | 0.061 ug/L |
| PNEC aqua (STP) | 210 ug/L |
| PNEC sediment (freshwater) | 0.037 mg/kg |
| PNEC sediment (marine water) | 0.0037 mg/kg |
| PNEC soil | 0.0043 mg/kg |

Also see the annex to this SDS (if applicable) for specific exposure scenario controls.

**Other Engineering Controls:** All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided. Facilities storing or using this material should be equipped with an eyewash and safety shower. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

**Personal Protective Equipment:** A NIOSH approved chemical cartridge respirator or supplied-air breathing equipment should be used as conditions necessitate. Contact lenses should not be worn when handling this material. Do not smoke or eat in areas where this material is handled. Wear chemical protective gloves and body-covering clothing to prevent skin exposure. Wear chemical goggles. Wear a face-shield when necessary to prevent contact with skin and eyes.

**Respirator Caution:** Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.

**Thermal Hazards:** Not applicable.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**Appearance, State & Odor** White to off-white powder/solid with a slight amine odor. **(ambient temperature):**

| | | | |
|---|---|---|---|
| **Molecular Formula:** | C21H38NCl.H2O | **Molecular Weight:** | 358.01 |
| **Vapor Pressure:** | < 0.0000055 Pa @ 25°C | **Evaporation Rate:** | No data available. |
| **Specific Gravity or Density:** | 1.06 @ 20°C | **Vapor Density (air = 1):** | No data available. |
| **Boiling Point:** | 120 - 124 °C @ 0.09 hPa | **Freezing / Melting Point:** | 80 - 84 °C |
| **Solubility in Water:** | 111 g/L @ 20°C | **Octanol / Water Coefficient:** | Log Kow = 1.71 |
| **pH:** | 5.0 - 5.4 (10 g/L @ 20°C) | **Odor Threshold:** | No data available. |
| **Viscosity:** | Not applicable. | **Autoignition Temperature:** | >404°C |
| **Flash Point and Method:** | No data available. | **Flammable Limits:** | Not applicable. |
| **Flammability (solid, gas):** | Not flammable | **Decomposition Temperature:** | 160 °C |
| **Explosive Properties:** | Not explosive | **Oxidizing Properties:** | Not an oxidizer |

## SECTION 10: Stability and reactivity

| | |
|---|---|
| **10.1. Reactivity** | Not classified as dangerously reactive. |
| **10.2. Chemical stability** | Stable under normal conditions. |
| **10.3. Possibility of hazardous reactions** | Polymerization is not expected to occur |
| **10.4. Conditions to avoid** | Avoid contact with incompatible materials, dust generation, and sources of heat |
| **10.5. Incompatible materials** | Strong oxidizing agents; Strong acids.; acid anhydrides; acid chlorides |
| **10.6. Hazardous decomposition products** | Hydrogen chloride; Nitrogen containing gases; carbon monoxide |

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| | | |
|---|---|---|
| **Acute Oral $LD_{50}$:** | 560 mg/kg (rat) | Cetylpyridinium Chloride, monohydrate |
| **Acute Dermal $LD_{50}$:** | > 5000 mg/kg (rat) | Cetylpyridinium Chloride, monohydrate |
| **Acute Inhalation $LC_{50}$:** | 0.05 - 0.51 mg/L (4h, rat) | Cetylpyridinium Chloride, monohydrate (aerosolized) |
| **Skin Irritation:** | Moderately irritating to skin. | |
| **Eye Irritation:** | Severely irritating to eyes. | |
| **Skin Sensitization:** | Negative for sensitizing effects in guinea pig maximization test. | |
| **Mutagenicity:** | This product has been shown not to be mutagenic based on a battery of assays. | |
| **Reproductive / Developmental Toxicity:** | No data available. Not teratogenic or fetotoxic at levels below those associated with maternal toxicity. In both 28d and 6 month studies in rats & dogs, no evidence of adverse effects on reproductive organs; no effect on fertility. | |
| **Carcinogenicity:** | This material is not listed by IARC, NTP or OSHA as a carcinogen. No test data is available that indicates this material is a carcinogen. | |
| **Target Organs:** | None known | |
| **Primary Route(s) of Exposure:** | Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure. | |
| **Most important symptoms and effects, both acute and delayed** | Inhalation: Irritating to the mucous membranes and respiratory system. Irritation may be severe. Eyes: Direct contact with this product causes serious eye irritation and damage. Serious damage may result if treatment is delayed. May result in permanent corneal injury.<br>Skin: Direct skin contact causes severe irritation. Symptoms include local discomfort or pain, redness and swelling and blister formation.<br>Ingestion: Swallowing can cause irritation to the lips, tongue, throat and digestive tract, abdominal and chest pain, nausea and vomiting. Delayed Effects: None known. | |
| **Additive or Synergistic effects:** | None known. | |
| **Additional Toxicity Information:** | CPC was tested for inhalation toxicity using finely ground material that had been milled for 24 hours. CPC is never supplied in this finely ground state - typical particle size analysis shows ~2% of the volume by weight is <10 um (respirable fraction). Exposure to the micronized CPC cannot reasonably be expected to occur under normal conditions of shipment and handling, the assignment of hazard class for transportation purposes may also be modified appropriately as per 49 CFR 173.132. Contact SDS@vertellus.com with questions. | |

## SECTION 12: Ecological information

**12.1. Toxicity**

LC50 (96h) Oncorhynchus mykiss (rainbow trout) = 0.16 mg/L Cetylpyridinium Chloride,
EC50 (48h) Daphnia magna = 9.65 UG/L (STATIC) monohydrate
EC50 (72h) Selenastrum capricornutum (algae) = 26.9 µg/L
NOEC (96-hr) Oncorhynchus mykiss (rainbow trout) = 0.11 mg/L
NOEC (72-hr) Selenastrum capricornutum (algae) = 3.2 µg/L
NOEC (48-HR) Daphnia magna = 3.2 UG/L
(STATIC) EC50 (48h) Daphnia magna = 4.1 µg/L
NOEC (48-HR) Daphnia magna = 1.3 UG/L (SEMI-STATIC)

**12.2. Persistence and degradability**

While OECD 301D did not demonstrate "ready biodegradability", an OECD 307 test showed rapid biodegradability; mineralization of 70.7% @ 28 days.

**12.3. Bioaccumulative potential**

An estimated BCF of 5.7, based on a calculated Log Kow of 1.71, suggests the potential for bioconcentration in aquatic organisms is low. This is supported by rapid biodegradation results.

**12.4. Mobility in soil**

This material is expected to have only slight mobility in soil. It absorbs strongly to most soil types.
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. This material has been shown sorb readily to activated sludge solids.

**12.5. Results of PBT and vPvB assessment** This substance is not a PBT or vPvB.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**US EPA Waste Number:** Non-Hazardous

**Waste Classification: (per US regulations)** The waste may be classified as "special" or hazardous per State regulations.

**Waste Disposal:** NOTE: Generator is responsible for proper waste characterization. State hazardous waste
regulations may differ substantially from federal regulations. Dispose of this material responsibly, and in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws, and environmental protection duty of care principles. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate classification code according to the European Community List of Wastes should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.