

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	:
CAS-No.	: 57-09-0
Product code	: 283C
Formula	: C19H42BrN
Synonyms	: (1-hexadecyl)trimethylammonium bromide / 1-hexadecanaminium, N,N,N-trimethyl-, bromide / acetoquat CTAB // cetrimonium bromide / cetyl trimethylammonium bromide / cetylamine / cetyltrimethylammonium bromide / CTAB / CTABr /

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Biocide Detergent according to Regulation (EC) No 648/2004
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1.3. Supplier

Swadesh Life Science

H-103, Sumel 7, Near Soni ni chali
BRTS, Rakhiyal,
Ahmedabad, Gujarat, India

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (oral) Category 4	H302 Harmful if swallowed
Skin corrosion/irritation Category 2	H315 Causes skin irritation
Serious eye damage/eye irritation Category 1	H318 Causes serious eye damage
Specific target organ toxicity (single exposure) Category 3	H335 May cause respiratory irritation
Specific target organ toxicity (repeated exposure) Category 2	H373 May cause damage to organs through prolonged or repeated exposure
Hazardous to the aquatic environment - Acute Hazard Category 1	H400 Very toxic to aquatic life

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)	: Danger
Hazard statements (GHS US)	: H302 - Harmful if swallowed H315 - Causes skin irritation H318 - Causes serious eye damage H335 - May cause respiratory irritation H373 - May cause damage to organs through prolonged or repeated exposure H400 - Very toxic to aquatic life
Precautionary statements (GHS US)	: P260 - Do not breathe dust/fume/gas/mist/vapors/spray. P261 - Avoid breathing dust/fume/gas/mist/vapors/spray. P264 - Wash hands, forearms and face thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell P302+P352 - If on skin: Wash with plenty of water P304+P340 - If inhaled: Remove person to fresh air and keep 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 P312 - Call a poison center or doctor if you feel unwell P314 - Get medical advice/attention if you feel unwell. P321 - Specific treatment (see supplemental first aid instruction on this label) P330 - Rinse mouth. P332+P313 - If skin irritation occurs: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P391 - Collect spillage. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Common Name (Synonyms)	Product identifier
CTAB (Hexadecyltrimethylammonium bromide)	(1-hexadecyl)trimethylammonium bromide / 1-hexadecanaminium, N,N,N-trimethyl-, bromide / acetoquat CTAB / ammonium, hexadecyltrimethyl-, bromide / bromat / CEE DEE / centimide / cetarol / cetrimonium bromide / cetyl trimethylammonium bromide / cetylamine / cetyltrimethylammonium bromide / cirrasol-OD / CTAB / CTABr /	(CAS-No.) 57-09-0

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Harmful if swallowed. Causes skin irritation. Practically non-toxic through skin (LD50 skin 2000/5000 mg/kg). May cause respiratory irritation. Causes serious eye damage.
Symptoms/effects after inhalation	: AFTER INHALATION OF DUST/MIST: Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	: Tingling/irritation of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Lacrimation. Visual disturbances. ON CONTINUOUS EXPOSURE/CONTACT: Inflammation/damage of the eye tissue.
Symptoms/effects after ingestion	: No effects known.
Symptoms/effects upon intravenous administration	: No effects known.
Chronic symptoms	: Gastrointestinal complaints.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.
Unsuitable extinguishing media	: Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

Fire hazard	: DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard.
Explosion hazard	: DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Provide equipment/receptacles with earthing. Powdered form: no compressed air for pumping over spills.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.
- Other information : Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid raising dust. Keep away from naked flames/heat. Take precautions against electrostatic charges. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over. Keep container tightly closed.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.
- Storage area : Store in a dry area. Provide the tank with earthing. Store at room temperature. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing, watertight, dry, clean, correctly labelled, meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: cardboard, synthetic material, glass.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:

Dust production: dust mask with filter type P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Crystalline powder.
Color	: White
Odor	: Odourless
Odor threshold	: No data available
pH	: 7 (5.5 %, 20 °C)
Melting point	: 237 - 243 °C
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	:

MATERIAL SAFETY DATA SHEET

	< 0.01 hPa (25 °C)
Relative vapor density at 20 °C	: Not applicable (solid)
Relative density	: Not applicable
Specific gravity / density	: 500 kg/m ³ (20 °C)
Molecular mass	: 364.46 g/mol
Solubility	: Moderately soluble in water. Water: 5.5 g/100ml (20 °C, soluble)
Log Pow	: 3.18 (Estimated value, KOWWIN)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 235 °C
Viscosity, kinematic	: No data available
Viscosity, dynamic	: Not applicable (solid)
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

VOC content	: 0 %
Other properties	: Hygroscopic. May generate electrostatic charges.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with (strong) oxidizers.

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
LD50 oral rat	465 mg/kg (OECD 401: Acute Oral Toxicity, 14 day(s), Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	2150 mg/kg body weight (Other, 24 h, Rabbit, Male / female, Experimental value, Skin)
ATE US (oral)	465 mg/kg body weight
ATE US (dermal)	2150 mg/kg body weight

Skin corrosion/irritation	: Causes skin irritation. pH: 7 (5.5 %, 20 °C)
Serious eye damage/irritation	: Causes serious eye damage. pH: 7 (5.5 %, 20 °C)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: May cause respiratory irritation.
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Potential Adverse human health effects and symptoms	: Harmful if swallowed. Causes skin irritation. Practically non-toxic through skin (LD50 skin 2000/5000 mg/kg). May cause respiratory irritation. Causes serious eye damage.
Symptoms/effects after inhalation :	AFTER INHALATION OF DUST/MIST: Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	: Tingling/irritation of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Lacrimation. Visual disturbances. ON CONTINUOUS EXPOSURE/CONTACT: Inflammation/damage of the eye tissue.
Symptoms/effects after ingestion	: No effects known.
Symptoms/effects upon intravenous administration	: No effects known.
Chronic symptoms	: Gastrointestinal complaints.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Dangerous for the environment.
Ecology - air	: Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Very toxic to crustacea. Toxic to crustacea with long lasting effects. Very toxic to fishes. Nitrification of activated sludge is inhibited. Very toxic to algae. Very toxic to algae, with long lasting effects. Harmful to bacteria.

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
LC50 fish 1	0.2 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)

EC50 Daphnia 1	26 µg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, Locomotor effect)
ErC50 (algae)	4.11 µg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

12.2. Persistence and degradability

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Log Pow	3.18 (Estimated value, KOWWIN)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

12.4. Mobility in soil

CTAB (Hexadecyltrimethylammonium bromide) (57-09-0)	
Surface tension	39 mN/m (25 °C, 0.8 mmol/l, Wilhelmy plate method: surface tension)
Ecology - soil	Adsorbs into the soil.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	: Waste treatment methods.
Product/Packaging disposal recommendations	: Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent.
Additional information	: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.