SAFETY DATA SHEET

Classified in accordance 29 CFR 1910.1200

1. Identification

Product identifier: Quab® 151

Other means of identification
None.

Recommended restrictions
Recommended use: Intermediate
Restrictions on use: Not known.

Manufacturer/Importer/Distributor Information

Company Name	:	Quab Chemicals, Inc. 250 Pehle Avenue, Suite 403 Saddle Brook, NJ 07663 USA
Telephone	:	+1 201 556 0300
Fax	:	+1 201 556 0335

Manufacturer
Emergency telephone number:

24-Hour Health Emergency	:	+1 800 424 9300 (CHEMTREC - US & CANADA) +1 800 681 9531 (CHEMTREC MEXICO) +1 703 527 3887 (CHEMTREC WORLD) +1 973 929 8060 (Product Regulatory Services)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 4
Acute toxicity (Dermal)	Category 4
Serious Eye Damage/Eye Irritation	Category 1
Skin sensitizer	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Toxic to reproduction	Category 2
Specific Target Organ Toxicity - Repeated Exposure	Category 2

Environmental Hazards

Chronic hazards to the aquatic environment	Category 3

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
Harmful if swallowed or in contact with skin.
Causes serious eye damage.
May cause an allergic skin reaction.
Suspected of causing genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention:
Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

Response:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Wash with plenty of water/… If skin irritation or rash occurs: Get medical advice/attention. IF SWALLOWED: Call a POISON CENTRE/doctor/… if you feel unwell. Rinse mouth. Immediately call a POISON CENTER/doctor. Specific treatment (see on this label). Wash contaminated clothing before reuse. Collect spillage.

Storage: Store locked up.

Disposal:
Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
3-Chloro-2-hydroxypropyltrimethylammonium chloride		3327-22-8	>=2 - <=4%
2,3-Epoxypropyltrimethylammonium chloride		3033-77-0	>=70%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The exact concentration has been withheld as a trade secret.

4. First-aid measures

Description of necessary first-aid measures

General information: Pay attention to self-protection. Remove victims from hazardous area. Immediately remove soiled or soaked clothing and remove it to a safe distance. Keep victim warm, in a stabilized position and covered. Do not leave victims unattended. If the casualty is unconscious: Place the victim in the recovery position.

Inhalation: Potential for exposure by inhalation if aerosols or mists are generated. Move victims into fresh air. With labored breathing: Provide with oxygen. Consult a doctor. If the casualty is not breathing: Perform mouth-to-mouth resuscitation, notify emergency physician immediately.

Skin Contact: Wash off affected area immediately with plenty of water for at least 15 minutes. If symptoms persist, consult a physician for treatment.

Eye contact: With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes. Consult an ophthalmologist immediately if the symptoms persist.

Ingestion: Rinse mouth. Immediately give large quantities of water to drink. Obtain medical attention.

Personal Protection for First-aid Responders: In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

Most important symptoms/effects, acute and delayed

Symptoms: daze, Headache, vertigo, somnolence (sleepiness), nausea.May cause lung damage if swallowed. Health injuries may be delayed.

Hazards: Harmful in contact with skin and if swallowed. Vapours may cause drowsiness and dizziness.

Indication of immediate medical attention and special treatment needed

Treatment: After accidental absorption in the body, the pathology and clinical findings are dependent on the kinetics of the noxious substance (quantity of absorbed substance, the absorption time, and the effectiveness of early elimination measures (first aid)/ excretion - metabolism). Continue with first aid measures. Depending on the pathology and clinical findings, patient

monitoring and symptomatic treatment are necessary.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water. mist quenching powder foam Carbon Dioxide.
Unsuitable extinguishing media:	alkaline agent
Specific hazards arising from the chemical:	Danger of decomposition under influence of heat. Use water spray to cool unopened containers. In the case of fire, the following hazardous smoke fumes may be produced: trimethylamine, chloroacetone, chloromethane, chlorinated hydrocarbons. Also keep emptied containers away from sources of heat and ignition.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Water used to extinguish fire should not enter drainage systems, soil or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities. Fire residues should be disposed of in accordance with the regulations.
Special protective equipment for fire-fighters:	In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Avoid contact with skin and eyes. Wear personal protective equipment; see section 8. Do not inhale aerosol.
Methods and material for containment and cleaning up:	Absorb spill with inert material, then place in a chemical waste container.
Environmental Precautions:	Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, rivers, groundwater or soil.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation):	The substance must be handled under strictly controlled conditions in accordance with Article 17/18 of the REACH regulation.Refill and handle product only in closed system. Leak detection recommended Wastewater can be added to a biological wastewater treatment plant. Minimization of emissions by means of suitable technical measures such as flanges and valves with low leakage rates, recirculation of vapours. All precautionary measures indicated have to be observed.Ensure adequate ventilation, especially in confined areas.
Safe handling advice:	All precautionary measures indicated have to be observed. Risk assessment and risk monitoring of all work places required. Health, Safety and Emergency Management System recommended. Regular safety training is a must. Written approval necessary in case of non-routine jobs, e.g. maintenance activities.Use permissible in closed systems only. Handle and transfer product in closed systems only (gas displacement device). Ensure that apparatus and pipelines are free from leaks. Do not ventilate into the open. Suitable loading and unloading device required. The product should only be handled by trained personnel.Recommendations for the safe handling of aqueous solutions of 2,3-epoxypropyl trimethylammonium chlorideWear suitable protective clothing, gloves and eye/face protection.
Contact avoidance measures:	No data available.
Hygiene measures:	Avoid contact with eyes, skin, and clothing. No eating, drinking, smoking, or snuffing tobacco at work. Wash face and/or hands before break and end of work. Preventive skin protection is recommended. Private clothes and working clothes should be kept separately. All protective equipment that has been contaminated should be cleaned before reuse.

Storage

Safe storage conditions:	Store in the original receptacle, keeping this tightly sealed, under cool and dry conditions.Store under lock and key or in a way that only skilled persons have access to it. In order to ensure due transportation, make certain that stacks are of the correct height, containers are securely fastened so as not to fall off, and labelled according to the regulations.In case of fire cool containers or take them to a safe place. see section 5.Storage capability limited; dependent on storage temperature.
Safe packaging materials:	No data available.

8. Exposure controls/personal protection

Control Parameters
Occupational Exposure Limits
None of the components have assigned exposure limits.

Appropriate Engineering Controls	The substance must be handled under strictly controlled conditions in accordance with Article 17/18 of the REACH regulation. Refill and handle product only in closed system. Leak detection recommended Wastewater can be added to a biological wastewater treatment plant. Minimization of emissions by means of suitable technical measures such as flanges and valves with low leakage rates, recirculation of vapours. All precautionary measures indicated have to be observed. Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face protection: wear basket-shaped glasses Accidental release measures Face shield Use chemical splash goggles or face shield.

Skin Protection

Hand Protection: Material: Kächele-Cama Latex GmbH (KCL), Germany
Guideline: DIN EN 374
Additional Information: Accidental release measuresMaterial: Kächele-Cama Latex GmbH (KCL), Germany
Guideline: DIN EN 374Material: Natural rubber.
Break-through time: > 480 min
Additional Information: Use impermeable gloves.Material: Polychloroprene with natural-latex liner.
Break-through time: > 480 min
Additional Information: The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use., Use impermeable gloves.

Skin and Body Protection: This product may be a skin sensitizer. Exposed users should shower and change to clean clothing after the work shift. Precautions should be taken to prevent re-exposure of sensitized individuals. Personal protective equipment to prevent dermal exposure is recommended. A safety shower and eye wash fountain should be readily available. To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Respiratory Protection: In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit. A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hygiene measures: Avoid contact with eyes, skin, and clothing. No eating, drinking, smoking, or snuffing tobacco at work. Wash face and/or hands before break and end of work. Preventive skin protection is recommended. Private clothes and working clothes should be kept separately. All protective equipment that has been contaminated should be cleaned before reuse.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid, hygroscopic.
Color:	colourless to yellow
Odor:	odourless
Odor Threshold:	No data available.

pH:	approx. 12
Freezing point:	Not applicable
Boiling Point:	110 °C
Flash Point:	138 °C (DIN 51758) -70 %
Evaporation Rate:	No data available.
Flammability (solid, gas):	Not combustible.
Explosive limit - upper (%):	Not applicable
Explosive limit - lower (%):	Not applicable
Vapor pressure:	6 hPa (20 °C)
Vapor density (air=1):	No data available.
Density:	1.129 g/cm3 (20 °C) 1.127 g/cm3 (20 °C)
Relative density:	No data available.
Solubility in Water:	in all proportions
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Self Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Kinematic viscosity:	No data available.
Dynamic viscosity:	80 mPa.s (20 °C)

Other information

Bulk density:	
Explosive properties:	No data available.
Oxidizing properties:	Not to be expected in view of the structure
Minimum ignition temperature:	Not applicable

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	No data available.
Possibility of hazardous reactions:	Hydrolysis Approx. 3 % (30 days; 20 °C)
Conditions to avoid:	Do not heat above 20 °C.
Incompatible Materials:	alkalis Sodium hypochlorite.
Hazardous Decomposition Products:	trimethylamine chloracetone chloromethane

11. Toxicological information

General information: Skin sensitization quite often occurs.

Information on likely routes of exposure

Inhalation:	No data available.
Skin Contact:	No data available.

Eye contact: No data available.

Ingestion: No data available.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: No data available.

Skin Contact: No data available.

Eye contact: No data available.

Ingestion: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: LD 50 (Rat): 1,088 mg/kg

Dermal
Product: LD 50 (Rat): 1,600 mg/kg

Inhalation
Product: 8.17 mg/l
Not classified for acute toxicity based on available data.

Repeated dose toxicity
Product: (Target Organ(s): Kidney) Long-term tests 28 day test (sub-acute)

Skin Corrosion/Irritation
Product: Not irritating OECD 404 (Rabbit): Not irritating

Serious Eye Damage/Eye Irritation
Product: strongly corrosive Rabbit: strongly corrosive

Respiratory or Skin Sensitization
Product: Maximization Test, OECD 406 (Guinea Pig): not sensitizing

Carcinogenicity
Product: Suspect cancer hazard - may cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

US. National Toxicology Program (NTP) Report on Carcinogens:

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

Germ Cell Mutagenicity

In vitro
Product: positive Tests for mutagenic potential with various end points.

In vivo
Product: Micronucleus test (OECD 474) intraperitoneal (i.p.) ((mouse)): positive

Reproductive toxicity
Product: No data available.

Specific Target Organ Toxicity - Single Exposure
Product: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure
Product: Category 2

Aspiration Hazard
Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC 50 ((Brachydanio rerio), 96 h): 2,748 mg/l

Aquatic Invertebrates
Product: EC 50 (Daphnia magna, 24 h): 46 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: NOEC (Daphnia magna, 21 d): 0.16 mg/l

Toxicity to Aquatic Plants
Product: NOEC (Desmodesmus subspicatus (green algae), 72 h): 580 mg/l
IC 50 (Desmodesmus subspicatus (green algae), 72 h): > 1,000 mg/l

Persistence and Degradability

Biodegradation
Product:
Abiotic degradation Hydrolysis; medium: alkaline.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: No data available.

Mobility in soil: No data available.

Other adverse effects: No further information available

13. Disposal considerations

Disposal methods: Waste must be disposed of in accordance with local, state, provincial and federal laws and regulations. Empty containers must be handled with care due to product residue.

Contaminated Packaging: Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities. Offer rinsed packaging material to local recycling facilities.

14. Transport information

Domestic regulation

49 CFR

Not regulated as a dangerous good

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Remarks : Accessible on deck, as cool as possible, away from sources of heat.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)
None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Acute toxicity (any route of exposure), Serious eye damage or eye irritation, Respiratory or Skin Sensitization, Germ Cell Mutagenicity, Carcinogenicity, Reproductive toxicity, Specific target organ toxicity (single or repeated exposure)

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

US. EPCRA (SARA Title III) Section 312 Extremely Hazardous Substances Reporting Quantities (40 CFR 355, Appendix A)

Chemical Identity	Threshold Planning Quantity

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required
None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65
No ingredient requiring a warning under CA Prop 65.

US. New Jersey Worker and Community Right-to-Know Act
No ingredient regulated by NJ Right-to-Know Law present.

US. Massachusetts RTK - Substance List
No ingredient regulated by MA Right-to-Know Law present.

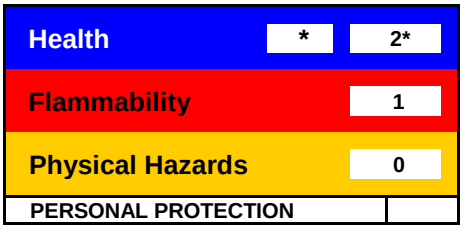
US. Pennsylvania RTK - Hazardous Substances
No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

16.Other information, including date of preparation or last revision

HMIS Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

Issue Date: 07/29/2022

Version #: 1.4

Further Information: Data for the production of the safety data sheet from the studies available and from the literature. Further information about the characteristics of the product can be found in the product code of practice or in the Product-Brochure .

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer: This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall QUAB Chemicals, Inc. assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. QUAB CHEMICALS, INC. EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NON-INFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE
(EVEN IF QUAB CHEMICALS, INC. IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. QUAB Chemicals, Inc. reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.