

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifier**

Catalog Number: M6016
Product Name: [Tiotropium Bromide](#)
CAS Number: 136310-93-5

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

Identified uses: For research use only, not for human or veterinary use.

1.3 Details of the supplier of the safety data sheet

Abmole Bioscience Inc.
8300 FM 1960 West, Suite 450
Company: Houston, TX 77070, USA
www.abmole.com

1.4 Emergency telephone number

Emergency contact: +1 800-660-8580

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances**

Synonyms: Tiotropium
Formula: $C_{19}H_{22}BrNO_4S_2$
Molecular Weight: 472.42
CAS Number: 136310-93-5

4. FIRST AID MEASURES**4.1 Description of first aid measures**

In case of Inhalation: Immediately relocate self or casualty to fresh air. If breathing is difficult, give cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation.

In case of Skin contact: Rinse skin thoroughly with large amounts of water. Remove contaminated clothing and shoes and call a physician.

In case of Eye contact: Remove any contact lenses, locate eye-wash station, and flush eyes immediately with large amounts of water. Separate eyelids with fingers to ensure adequate flushing. Promptly call a physician.

Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES**5.1 Suitable extinguishing media**

Use water spray, dry chemical, foam, and carbon dioxide fire extinguisher.

5.2 Special hazards arising from the substance or mixture

During combustion, may emit irritant fumes.

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Use full personal protective equipment. Avoid breathing vapors, mist, dust or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Refer to protective measures listed in sections 8.

6.2 Environmental precautions

Try to prevent further leakage or spillage. Keep the product away from drains or water courses.

6.3 Methods and materials for containment and cleaning up

Absorb solutions with finely-powdered liquid-binding material (diatomite, universal binders); Decontaminate surfaces and equipment by scrubbing with alcohol; Dispose of contaminated material according to Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation, contact with eyes and skin. Avoid dust and aerosol formation. Use only in areas with appropriate exhaust ventilation.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly sealed in cool, well-ventilated area. Keep away from direct sunlight and sources of ignition.
Recommended storage temperature: Store at -20°C.

7.3 Specific end use(s)

No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

This product contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering controls

Ensure adequate ventilation. Provide accessible safety shower and eye wash station.

Personal protective equipment

Eye protection: Safety goggles with side-shields.

Hand protection: Protective gloves.

Skin and body protection: Impervious clothing.

Respiratory protection: Suitable respirator.

Environmental exposure controls: Keep the product away from drains, water courses or the soil. Clean spillages in a safe way as soon as possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical states:	Solid
Odor:	No data available
Odor threshold:	No data available
pH:	No data available
Melting/freezing point:	No data available
Boiling point/range:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	No data available
Water solubility:	< 1 mg/mL
Partition coefficient:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

9.2 Other safety information

No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Strong acids/alkalis, strong oxidising/reducing agents.

10.6 Hazardous decomposition products

Under fire conditions, may decompose and emit toxic fumes.

Other decomposition products - no data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

The toxicological effects of this product have not been thoroughly studied. For more details, see section 2.

Carcinogenicity:

NTP? No IARC Monographs? No OSHA Regulated? No ACGIH? No

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Avoid release into the environment.

Runoff from fire control or dilution water may cause pollution.

12.2 Results of PBT and vPvB assessment

PBT/vPvB assessment unavailable as chemical safety assessment not required or not conducted.

13. DISPOSAL CONSIDERATIONS

13.1 Waste disposal methods

Dispose substance in accordance with prevailing country, federal, state and local regulations.

Contaminated packaging

Conduct recycling or disposal in accordance with prevailing country, federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (US)

This substance is considered to be non-hazardous for transport.

IMDG

This substance is considered to be non-hazardous for transport.

IATA

This substance is considered to be non-hazardous for transport.

15. REGULATORY INFORMATION

SARA 302 components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 hazards:

No SARA Hazards.

Massachusetts Right to Know components:

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know components:

No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right to Know components:

No components are subject to the New Jersey Right to Know Act.

California Prop. 65 components:

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

The above information is believed to be correct based on our present knowledge but does not purport to be complete. The product is for research use only and for trained personnel. The burden of safe use of this material rests entirely with the user. AbMole BioScience disclaims all liability for any damage resulting from use of this material.

