SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Tm)  
SDS ID: MSDS (Tm) Rev: 06
Catalog ID number: 201169 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Contact information

General  
Fluidigm Corporation  
2 Tower Place, Suite 2000, South San Francisco, CA 94080  
Main (U.S.): +1 (650) 266-6000  
E-mail: techsupport@fluidigm.com

Emergency telephone number  
+ (650) 266-6100 (outside US)  
+ (866) 358-4354 (toll free)

Product identifier  
Maxpar® Antibody Labeling Kit (Tm)

Synonyms  
None identified

Trade names  
None identified

Chemical family  
Mixture - contains nitric acid

Relevant identified uses of the substance or mixture and uses advised against  
For research use only. Not for use in diagnostic procedures.

Note  
This SDS is written to address potential health and safety issues associated with the handling of the formulated product.

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture  

Globally Harmonized System [GHS]  
Not classified.

AU Hazard Classification (NOHSC)  
Hazardous Substance. Non-hazardous goods.

Label elements  

GHS hazard pictogram  
None required

GHS signal word  
None required

GHS hazard statements  
None required

GHS precautionary statements  
None required

Other hazards  
May cause eye/skin irritation. Mixture not yet fully tested.

Note  
This mixture is not classified as hazardous according to Regulation EC No 1272/ 2008 (EU CLP) and Hazard Communication Standard No. 1910.1200 (US OSHA). The pharmacological, toxicological and ecological properties of this mixture have not been fully characterized.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS #</th>
<th>EINECS/ ELINCS#</th>
<th>Amount</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thulium (III) Chloride</td>
<td>13537-18-3</td>
<td></td>
<td>1.3%</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ammonium Acetate</td>
<td>631-61-8</td>
<td>211-162-9</td>
<td>&lt;1%</td>
<td>EI2; H319; AA3; H402</td>
</tr>
</tbody>
</table>

Note  
Ammonium acetate is considered hazardous. Thulium (III) Chloride is not considered hazardous. The remaining components are non-hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

SECTION 4 - FIRST AID MEASURES
Description of first aid measures

Immediate Medical Attention Needed  No

Eye Contact  If easy to do, remove contact lenses, if worn. Immediately flush eyes with copious quantities of water for at least 15 minutes. If irritation occurs or persists, notify medical personnel and supervisor.

Skin Contact  Wash exposed area with soap and water and remove contaminated clothing/shoes. If irritation occurs or persists, notify medical personnel and supervisor.

Inhalation  Immediately move exposed subject to fresh air. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Immediately notify medical personnel and supervisor.

Ingestion  Do not induce vomiting unless directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person. Notify medical personnel and supervisor.

Protection of first aid responders  See Section 8 for Exposure Controls/Personal Protection recommendations.

Most important symptoms and effects, both acute and delayed  See Sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary  Medical conditions aggravated by exposure: None known or reported. Treat symptomatically and supportively.

SECTION 5 - FIREFIGHTING MEASURES

Extinguishing media  Use water spray (fog), foam, dry powder, or carbon dioxide, as appropriate for surrounding fire and materials.

Specific hazards arising from the substance or mixture  No information identified. May emit carbon monoxide, carbon dioxide, nitrogen-, chloride-, and metal-containing compounds.

Flammability/Explosivity  Not expected to be flammable or explosive.

Advice for firefighters  Wear full protective clothing and a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. Decontaminate all equipment after use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures  If product is released or spilled, take proper precautions to minimize exposure by using appropriate personal protective equipment (see Section 8). Area should be adequately ventilated. Do not breathe mist/vapors/spray.

Environmental precautions  Do not empty into drains. Avoid release to the environment.

Methods and material for containment and cleaning up  Dike area to contain spill. Maintain ventilation until all vapors have been eliminated. Take precautions as necessary to prevent contamination of ground and surface waters. If vials are crushed or broken, DO NOT CAUSE MATERIAL TO BECOME AIRBORNE. For small spills, soak up material with absorbent, e.g., paper towels. For large spills, cordon off spill area and minimize the spreading of spilled material. Soak up material with absorbent. Collect spilled material, absorbent, and rinse water into suitable containers for proper disposal in accordance with applicable waste disposal regulations (see Section 13). Decontaminate the area twice.

Reference to other sections  See Sections 8 and 13 for more information.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling  Follow recommendations for handling pharmaceutical agents (i.e., use of engineering controls and/or other personal protective equipment if needed). Avoid breathing vapor or mist. Do not permit eating/drinking/smoking near this material. All materials used for transferring or preparing this product must be considered contaminated and disposed of properly.
Conditions for safe storage including any incompatibilities
Keep from contact with clothing and other combustible materials. Store at 2-8°C in tightly closed container. Avoid strong oxidizers. Store in sealed containers that are appropriately labeled. Do not store in metal or glass containers. Do not store in direct sunlight. Do not store near organic substances.

Specific end use(s)
No information identified.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters/Occupational Exposure Limit Values

<table>
<thead>
<tr>
<th>Compound</th>
<th>Issuer</th>
<th>Type</th>
<th>OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thulium (III) Chloride</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Ammonium Acetate</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Exposure/Engineering controls
Selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. Use local exhaust and/or enclosure at mist/aerosol/spray-generating points. Emphasis is to be placed on closed material transfer systems and process containment, with limited open handling. High-energy operations such as spraying or fluidizing should be done within an approved emission control or containment system.

Respiratory protection
Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. For routine handling tasks, an approved and properly fitted air-purifying respirator with appropriate HEPA filters should provide ancillary protection based on the known or foreseeable limitations of existing engineering controls. Use a powered air-purifying respirator equipped with appropriate HEPA filters or combination filters or a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, when exposure levels are not known, or in any other circumstances where a lower level of respiratory protection may not provide adequate protection.

Hand protection
Wear nitrile or other impervious gloves if skin contact is possible. When the material is dissolved or suspended in an organic solvent, wear gloves that provide protection against the solvent.

Skin protection
Wear appropriate gloves, lab coat, or other protective overgarment if skin contact is likely. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use.

Eye/face protection
Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

Environment Exposure Controls
Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release or spread of contamination and to prevent inadvertent contact by personnel.

Other protective measures
Wash hands in the event of contact with this product/mixture, especially before eating, drinking or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>No information identified.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information identified.</td>
</tr>
<tr>
<td>pH</td>
<td>No information identified.</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>No information identified.</td>
</tr>
<tr>
<td>Initial boiling range</td>
<td>No information identified.</td>
</tr>
</tbody>
</table>
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Flash point
No information identified.

Evaporation rate
No information identified.

Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits
No information identified.

Vapor pressure
No information identified

Vapor density
No information identified.

Relative density
No information identified.

Water solubility
Fully soluble in water.

Solvent solubility
No information identified.

Partition coefficient (n-octanol/water)
No information identified.

Auto-ignition temperature
No information identified.

Decomposition temperature
No information identified.

Viscosity
No information identified.

Explosive properties
No information identified.

Oxidizing properties
No information identified.

Other information

Molecular weight
Not applicable (Mixture)

Molecular formula
Not applicable (Mixture)

SECTION 10 - STABILITY AND REACTIVITY

Reactivity
Not expected to be reactive.

Chemical stability
Stable under normal handling and storage conditions.

Possibility of hazardous reactions
Not expected to occur.

Conditions to avoid
Keep away from incompatible materials.

Incompatible materials
Strong oxidizers.

Hazardous decomposition products
Hydrogen chloride gas, metal oxides.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

Route of entry
May be absorbed by inhalation, skin contact and ingestion.

Acute toxicity

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Route</th>
<th>Species</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thulium (III) Chloride</td>
<td>LD50</td>
<td>Intravenous</td>
<td>Mice</td>
<td>98 mg/kg</td>
</tr>
<tr>
<td>Ammonium Acetate</td>
<td>LD50</td>
<td>Intravenous</td>
<td>Rat</td>
<td>632 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>Intravenous</td>
<td>Mice</td>
<td>736 mg/kg</td>
</tr>
</tbody>
</table>

Irritation/Corrosion
No studies identified.

Sensitization
No studies identified.
SECTION 12 - ECOLOGICAL INFORMATION

Toxicity

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Species</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thulium (III) Chloride</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Ammonium Acetate</td>
<td>LC₅₀/48h</td>
<td>Cyprinus carpio</td>
<td>1.06 mg/L</td>
</tr>
</tbody>
</table>

Persistence and Degradability
No data identified.

Bioaccumulative potential
No data identified.

Mobility in soil
No data identified.

Results of PBT and vPvB assessment
Not performed.

Other adverse effects
No data identified.

Note
The environmental characteristics of this product/mixture have not been fully investigated. Releases to the environment should be avoided.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods
Dispose of wastes in accordance to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Do not send down the drain or flush down the toilet. All wastes containing the material should be properly labeled. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g., appropriately permitted municipal or on-site wastewater treatment facility.

SECTION 14 - TRANSPORT INFORMATION

Transport
Based on the available data, this product/mixture is not regulated as a hazardous material/dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.

UN number
None assigned.

UN proper shipping name
None assigned.

Transport hazard classes and packing group
None assigned.

Environmental hazards
Based on the available data, this product/mixture is not regulated as an environmental hazard or a marine pollutant.

Special precautions for users
Avoid release to the environment.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Hazardchem Code/HIN
None assigned.
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SECTION 15 - REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

This SDS complies with the requirements under US, EU and GHS (EU CLP - Regulation EC No 1272/2008) guidelines. Consult your local/regional authorities for more information.

Chemical safety assessment

Not conducted.

WHMIS classification

Not classified.

TSCA status

Thulium (III) chloride is not listed. Ammonium acetate is listed.

SARA section 313

Not listed.

California proposition 65

Not listed.

Component Analysis - State

Thulium (III) chloride is not listed as hazardous. Ammonium acetate is listed as hazardous in CA, HI, MA, NJ, and PA.

Component Analysis – Chemical Inventory

Thulium (III) chloride is listed in the chemical inventory of the following countries:

Taiwan

Ammonium acetate is listed in the chemical inventory of the following countries:

Australia, Canada, China, EU, Japan, Korea, New Zealand, the Philippines, Taiwan and USA

Additional information

No other information identified.

SECTION 16 - OTHER INFORMATION

NFPA Ratings

<table>
<thead>
<tr>
<th>Substance</th>
<th>Health: --</th>
<th>Fire: --</th>
<th>Reactivity: --</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thulium (III) chloride</td>
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<td>Ammonium acetate</td>
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</tbody>
</table>

Sources of data

Information from published literature and internal company data.

Abbreviations

ACGIH - American Conference of Governmental Industrial Hygienists; ADR/RID - European Agreement Concerning the International Carriage of Dangerous Goods by Road/Rail; AIHA - American Industrial Hygiene Association; CA – California; CAS# - Chemical Abstract Services Number; CLP - Classification, Labelling, and Packaging of Substances and Mixtures; DNEL - Derived No Effect Level; DOT - Department of Transportation; EINECS - European Inventory of New and Existing Chemical Substances; ELINCS - European List of Notified Chemical Substances; EU - European Union; GHS - Globally Harmonized System of Classification and Labeling of Chemicals; HI – Hawaii; IARC - International Agency for Research on Cancer; IDLH - Immediately Dangerous to Life or Health; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; LOEL - Lowest Observed Effect Level; LOAEL - Lowest Observed Adverse Effect Level; MA – Massachusetts; NIOSH - The National Institute for Occupational Safety and Health; NJ – New Jersey; NOEL - No Observed Effect Level; NOAEL - No Observed Adverse Effect Level; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA - Occupational Safety and Health Administration; PA – Pennsylvania; PNEC - Predicted No Effect Concentration; SARA - Superfund Amendments and Reauthorization Act; STEL - Short Term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWCA - Time Weighted Average; US – United States; WHMIS - Workplace Hazardous Materials Information System

Issue Date

May-2020

Revisions

Revision 06: CHG-001511

Summary of revision: Summary of revision: Updated Fluidigm Corporate Address in section 1, Issue date and revision in header, footer and section 16.

Disclaimer

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