

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (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 (Ho)

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

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
Holmium (III) Chloride	10138-62-2	N/A	1.3%	Not classified
Ammonium Acetate	631-61-8	211-162-9	<1%	EI2: H319; AA3: H402

Note Ammonium acetate is considered hazardous. Holmium (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

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)
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.
--------------------------------------	--

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)

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

Note Dispose of broken vials/syringes in a sharps container.

Control Parameters/Occupational

Exposure Limit Values

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
Holmium (III) Chloride	--	--	--
Ammonium Acetate	--	--	--

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.

Environmental 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

Appearance Clear liquid

Color Colorless

Odor No information identified.

Odor threshold No information identified.

pH No information identified.

Melting point/freezing point No information identified.

Initial boiling point and boiling range No information identified.

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)

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

<u>Compound</u>	<u>Type</u>	<u>Route</u>	<u>Species</u>	<u>Dose</u>
Holmium (III) Chloride	--	--	--	--
Ammonium Acetate	LD50	Intravenous	Mice	98 mg/kg
	LD50	Intraperitoneal	Rat	632 mg/kg
	LD50	Intraperitoneal	Mice	736 mg/kg

Irritation/Corrosion No studies identified.

Sensitization No studies identified.

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)

STOT-single exposure	No studies identified.
STOT-repeated exposure/Repeat-dose toxicity	No studies identified.
Reproductive toxicity	No studies identified.
Developmental toxicity	No studies identified.
Genotoxicity	No studies identified.
Carcinogenicity	No studies identified. The ingredients in this mixture are not listed by NTP, IARC, ACGIH or OSHA as a carcinogen.
Aspiration hazard	No data available.
Human health data	See Section 2 - "Other hazards"

SECTION 12 - ECOLOGICAL INFORMATION
Toxicity

<u>Compound</u>	<u>Type</u>	<u>Species</u>	<u>Concentration</u>
Holmium (III) Chloride	--	--	--
Ammonium Acetate	LC50/48h	Cyprinus carpio	1.06 mg/L

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.

SAFETY DATA SHEET

Product Identifier: Maxpar® Antibody Labeling Kit (Ho)
SDS ID: MSDS (Ho) Rev: 06
Catalog ID number: 201165 (subcomponent of Cat# 201300, Maxpar® X8 Multimetal Labeling Kit - 40 Rxn)
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	Holmium (III) chloride is not listed. Ammonium acetate is listed.
SARA section 313	Not listed.
California proposition 65	Not listed.
Component Analysis - State	Holmium (III) chloride is not listed as hazardous. Ammonium acetate is listed as hazardous in CA, HI, MA, NJ, and PA
Component Analysis – Chemical Inventory	Holmium (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 border="0" style="width: 100%;"> <tr> <td style="border-bottom: 1px dotted black;">Holmium (III) chloride</td> <td style="border-bottom: 1px dotted black;">Health: --</td> <td style="border-bottom: 1px dotted black;">Fire: --</td> <td style="border-bottom: 1px dotted black;">Reactivity: --</td> </tr> <tr> <td style="border-bottom: 1px dotted black;">Ammonium acetate</td> <td style="border-bottom: 1px dotted black;">Health: --</td> <td style="border-bottom: 1px dotted black;">Fire: --</td> <td style="border-bottom: 1px dotted black;">Reactivity: --</td> </tr> </table>	Holmium (III) chloride	Health: --	Fire: --	Reactivity: --	Ammonium acetate	Health: --	Fire: --	Reactivity: --
Holmium (III) chloride	Health: --	Fire: --	Reactivity: --						
Ammonium acetate	Health: --	Fire: --	Reactivity: --						
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; TWA - Time Weighted Average; US – United States; WHMIS - Workplace Hazardous Materials Information System								
Issue Date	May-2020								
Revisions	Revision 06: CHG-001511 Summary of revision: Updated Fluidigm Corporate Address in section 1, Issue date and revision in headed, footer and section 16.								
Disclaimer	The information and recommendations in this safety data sheet are, to the best of Supplier's knowledge, accurate as of the date of issue. Supplier gives no warranty whatsoever, including the warranties of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser shall determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental, consequential or any other damages arising out of the use or misuse of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product. For Research Use Only. Not for use in diagnostic procedures.								