SAFETY DATA SHEET

Product Identifier: CyTOF® Washing Solution
Catalog ID number: Cat# 201070, and 201071

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
CyTOF® Washing Solution

Synonyms
None identified

Trade names
None identified

Chemical family
Mixture - contains Hydrofluoric 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.

Issue Date
May-2020

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture

Globally Harmonized System [GHS]
Not classified

AU Hazard Classification (NOHSC)

Label elements

CLP/GHS hazard pictogram
None required

CLP/GHS signal word
None required

CLP/GHS hazard statements
None required

CLP/GHS precautionary statements
None required

Other hazards
Mixtures - contains Hydrofluoric Acid

The most common adverse effects reported with exposure to hydrofluoric acid include dizziness, headache, nausea and vomiting, rapid breathing and heart rate, restlessness, weakness, runny nose, cough, and red eyes. Overexposure to hydrofluoric acid may cause convulsions, low blood pressure, loss of consciousness, lung injury, reduced heart rate, and potentially fatal respiratory failure. Inhalation of hydrofluoric acid may cause respiratory irritation.
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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>Hydrofluoric Acid</td>
<td>7664-39-3</td>
<td>231-634-8</td>
<td>0.05%</td>
<td>ATO2: H300; H310,H314,H330</td>
</tr>
</tbody>
</table>

Note
The ingredient(s) listed above are considered hazardous however are provided in the mixture at a level that is considered non-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
Yes

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
Contains low levels of hydrofluoric acid. 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 nitrogen-containing compounds.

Flammability/Explosivity
No information identified.
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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
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
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
Store in a cool, dry ventilated storage area with acid resistant floors and good drainage. Avoid strong oxidizers. Store in sealed containers that are appropriately labeled.

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

<table>
<thead>
<tr>
<th>Compound</th>
<th>Issuer</th>
<th>Type</th>
<th>OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluoric Acid</td>
<td>ACGIH, Australia, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, U.S.- California</td>
<td>OEL-STEEL</td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>New Zealand, OSHA, United Kingdom</td>
<td>Ceiling</td>
<td>3 ppm</td>
</tr>
<tr>
<td></td>
<td>Portugal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Washing Solution
Revision date: May-2020, Revision: 6.0
SAFETY DATA SHEET

Product Identifier: CyTOF® Washing Solution
Catalog ID number: Cat# 201070, and 201071

<table>
<thead>
<tr>
<th>ACGIH, Australia, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, U.S.-California OSHA, United Kingdom</th>
<th>OEL-TWA</th>
<th>0.3 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIOSH, U.S.-California OSHA</td>
<td>Ceiling</td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td>Germany</td>
<td>OEL-STEI</td>
<td>2.5 mg/m³</td>
</tr>
<tr>
<td>Germany</td>
<td>OEL-TWA</td>
<td>2.5 mg/m³</td>
</tr>
</tbody>
</table>

Exposure/Engineering controls
If handling bulk product or vials are opened/crushed/broken: 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 aerosol/mist-generating points. Emphasis is to be placed on closed material transfer systems and process containment, with limited open handling. High-energy operations should be done within an approved emission control or containment system.

Respiratory protection
If handling bulk product or vials are opened/crushed/broken: Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. For routine powder handling tasks, an approved and properly fitted air purifying respirator should provide ancillary protection based on the known or foreseeable limitations of existing engineering controls.

Hand protection
Wear nitrile or other impervious gloves if skin contact is possible. When the material is diluted 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: Strong odor.
Odor threshold: No information identified.
\( pH \): 2.5
Melting point/freezing point: -37°C
Initial boiling point and boiling range: 108°C
Flash point: No information identified.
Evaporation rate: No information identified.
Flammability (solid, gas): No information identified.
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: Hydrofluoric acid may react with metals, chlorine, organic materials, strong alkali, cyanides.

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: No information identified.

Conditions to avoid: Keep away from strong oxidizing agents.

Incompatible materials: Strong oxidizing agents

Hazardous decomposition products: No information identified.
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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>Hydrofluoric acid</td>
<td>LC50</td>
<td>Vapor</td>
<td>Mouse</td>
<td>342 ppm 4 hrs</td>
</tr>
</tbody>
</table>

Irritation/Corrosion  No studies identified.
Sensitization       No studies identified.
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. This mixture is 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

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Species</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluoric acid</td>
<td>Not Available</td>
<td>Not available</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Additional toxicity information

Hydrofluoric acid is toxic to aquatic organisms and should not be allowed to accumulate in metal piping as it has the potential to form explosive mixtures.

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. The above data are for the active ingredient and/or any other ingredient(s) where applicable. Although present at low concentrations, disposal should consider that hydrofluoric acid is present. Releases to the environment should be avoided.

SECTION 13 - DISPOSAL CONSIDERATIONS
Waste treatment methods
Dispoze 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 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 mixture is not regulated as an environmental hazard or a marine pollutant.

Special precautions for users No special precautions needed. 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.

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 Not listed.

SARA section 313 Not listed.

California proposition 65 Not listed.

Component Analysis – State Hydrofluoric acid is listed as hazardous in CA, MA, MN, NJ, PA.

Component Analysis – Chemical Inventory Hydrofluoric acid is listed in the chemical inventory of the following countries: Australia, Canada, EU, Japan, Korea, New Zealand, and the Philippines.

Additional information No other information identified.

SECTION 16 - OTHER INFORMATION

NFPA Ratings Hydrofluoric acid
Health: 1 Fire: 0 Reactivity: 0

Full text of H phrases and GHS classifications
SAFETY DATA SHEET

Product Identifier: CyTOF® Washing Solution
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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; MN – Minnesota; NJ – New Jersey; NIOSH - The National Institute for Occupational Safety and Health; 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; RI – Rhode Island; 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; VT – Vermont; WA – Washington; WHMIS - Workplace Hazardous Materials Information System

Revisions
Revision 2.0: CHG-001511
Summary of revision: Updated Fluidigm Corporate Address in section 1, Issue date and revision in footer and section 1 and 16.

Disclaimer
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