



# Safety Data Sheet

Canada

## Section 1. Identification

Product name

**Formulation Buffer (10X); part of 'GenVoy-ILM™ T Cell Kit for mRNA on NanoAssemblr® Spark™'**

Catalogue Number

1000701



9 0 1 0 0 7 0 1

Component Number

1000681

Product type

Liquid.

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

Analytical chemistry.  
Laboratory chemicals  
Scientific research and development

**Supplier** Cytiva  
Amersham Place  
Little Chalfont  
Buckinghamshire  
HP7 9NA United Kingdom  
+44 1494 508000

**Importer** Cytiva Canada  
250 Howe Street, Suite 1400-C  
Vancouver, British Columbia, Canada, V6C 3S7  
1 800 463 5800

### In case of emergency

INFOTRAC  
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)  
In the United States, call 24 Hour number: 1-800-535-5053

## Section 2. Hazard identification

**Classification of the substance or mixture**

SKIN IRRITATION - Category 2  
SERIOUS EYE DAMAGE - Category 1

### GHS label elements

Hazard pictograms



Signal word

Danger

Hazard statements

Causes skin irritation.  
Causes serious eye damage.

### Precautionary statements

Prevention

Wear protective gloves. Wear eye or face protection. Wash thoroughly after handling.

Response

IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.



9 5 3 1 1 5 9 3 3 4 2

<b>Storage</b>	Not applicable.
<b>Disposal</b>	Not applicable.
<b>Supplemental label elements</b>	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 13.6%

### Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	Mixture
<b>Other means of identification</b>	Not available.

<b>Ingredient name</b>	<b>Synonyms</b>	<b>% (w/w)</b>	<b>CAS number</b>
Sodium acetate trihydrate	Acetic acid, sodium salt, trihydrate; Sodium acetate, trihydrate; sodium acetate trihydrate; E 262 (i); ACETATE, SODIUM, TRIHYDRATE	≥10 - ≤30	CAS: 6131-90-4
Hydrochloric acid 10,2 N		≥1 - ≤5	CAS: 7647-01-0

**There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

### Section 4. First-aid measures

#### Description of necessary first aid measures

<b>Eye contact</b>	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
<b>Inhalation</b>	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Skin contact</b>	Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

#### Most important symptoms/effects, acute and delayed

##### Potential acute health effects

<b>Eye contact</b>	Causes serious eye damage.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	Causes skin irritation.
<b>Ingestion</b>	No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

<b>Eye contact</b>	Adverse symptoms may include the following: pain watering redness
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	Adverse symptoms may include the following: pain or irritation redness blistering may occur



<b>Ingestion</b>	Adverse symptoms may include the following: stomach pains
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**Indication of immediate medical attention and special treatment needed, if necessary**

<b>Notes to physician</b>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	No specific treatment.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

**Section 5. Fire-fighting measures**

**Extinguishing media**

<b>Suitable extinguishing media</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	None known.

<b>Specific hazards arising from the chemical</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
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<b>Hazardous thermal decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
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<b>Special protective actions for fire-fighters</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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**Section 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

<b>For non-emergency personnel</b>	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

<b>Environmental precautions</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
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**Methods and materials for containment and cleaning up**

<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
<b>Large spill</b>	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.



## Section 7. Handling and storage

### Precautions for safe handling

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
<b>Conditions for safe storage, including any incompatibilities</b>	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

<b>Ingredient name</b>	<b>Exposure limits</b>
Hydrochloric acid 10,2 N	<b>CA Saskatchewan Provincial (Canada, 4/2021)</b> CEIL: 2 ppm. <b>CA British Columbia Provincial (Canada, 9/2024)</b> C: 2 ppm. <b>CA Ontario Provincial (Canada, 6/2019)</b> Ceiling Limit: 2 ppm. <b>CA Quebec Provincial (Canada, 2/2024)</b> C: 2 ppm. <b>CA Alberta Provincial (Canada, 3/2023)</b> C: 3 mg/m³. C: 2 ppm.

#### Biological exposure indices

No exposure indices known.

<b>Appropriate engineering controls</b>	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Environmental exposure controls</b>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

<b>Hygiene measures</b>	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b>Eye/face protection</b>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
<b>Skin protection</b>	
<b>Hand protection</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
<b>Body protection</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.



<b>Other skin protection</b>	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Respiratory protection</b>	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

<b>Physical state</b>	Liquid.
<b>Color</b>	Colorless. Clear.
<b>Odor</b>	Not available.
<b>Odor threshold</b>	Not available.
<b>pH</b>	3.8 to 4.4
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	[Product does not sustain combustion.]
<b>Burning time</b>	Not applicable.
<b>Burning rate</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not available.
<b>Vapor pressure</b>	Not available.

		Vapor Pressure at 20°C			Vapor pressure at 50°C		
	Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
	water	17.5	2.3				
<b>Relative vapor density</b>	Not available.						
<b>Relative density</b>	Not available.						
<b>Solubility in water</b>	Not available.						
<b>Partition coefficient: n-octanol/ water</b>	Not applicable.						
<b>Auto-ignition temperature</b>	Not available.						
<b>Decomposition temperature</b>	Not available.						
<b>SADT</b>	Not available.						
<b>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.						
<b>Flow time (ISO 2431)</b>	Not available.						
<b>Particle characteristics</b>							
<b>Median particle size</b>	Not applicable.						

Section 10. Stability and reactivity

<b>Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	No specific data.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.



Section 11. Toxicological information

**Information on toxicological effects**

**Acute toxicity**

**Product/ingredient name**

Sodium acetate trihydrate

Hydrochloric acid 10,2 N

**Conclusion/Summary  
[Product]**

Not available.

**Result**

**Rat - Oral - LD50**

3530 mg/kg

**Rat - Inhalation - LC50 Dusts and mists**

>30 mg/l [1 hours]

**Rat - Inhalation - LC50 Gas.**

3124 ppm [1 hours]

Toxic effects: Olfaction - Other changes Eye - Iritis

**Skin corrosion/irritation**

**Product/ingredient name**

Hydrochloric acid 10,2 N

**Conclusion/Summary  
[Product]**

Not available.

**Result**

**Human - Skin - Mild irritant**

Duration of treatment/exposure: 24 hours

Amount/concentration applied: 4 %

**Serious eye damage/eye irritation**

**Product/ingredient name**

Hydrochloric acid 10,2 N

**Conclusion/Summary  
[Product]**

Not available.

**Result**

**Rabbit - Eyes - Mild irritant**

Duration of treatment/exposure: 0.5 minutes

Amount/concentration applied: 5 mg

**Respiratory corrosion/irritation**

Not available.

**Conclusion/Summary  
[Product]**

Not available.

**Respiratory or skin sensitization**

Not available.

**Skin**

**Conclusion/Summary  
[Product]**

Not available.

**Respiratory**

**Conclusion/Summary  
[Product]**

Not available.

**Germ cell mutagenicity**

Not available.

**Conclusion/Summary  
[Product]**

Not available.

**Carcinogenicity**

Not available.



**Conclusion/Summary  
[Product]** Not available.

**Classification**

**Product/ingredient name**  
Hydrochloric acid 10,2 N

**IARC**  
3

**NTP**  
-

**ACGIH**  
A4

**Reproductive toxicity**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

**Information on the likely routes  
of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

**Potential acute health effects**

<b>Eye contact</b>	Causes serious eye damage.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	Causes skin irritation.
<b>Ingestion</b>	No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

<b>Eye contact</b>	Adverse symptoms may include the following: pain watering redness
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	Adverse symptoms may include the following: pain or irritation redness blistering may occur
<b>Ingestion</b>	Adverse symptoms may include the following: stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Long term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Potential chronic health effects**

Not available.

**Conclusion/Summary  
[Product]** Not available.



<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	No known significant effects or critical hazards.

#### Numerical measures of toxicity

##### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Formulation Buffer (10X); part of 'GenVoy-ILM™ T Cell Kit for mRNA on NanoAssemblr® Spark™'	25955.9	N/A	50387.1	N/A	N/A
Sodium acetate trihydrate	3530	N/A	N/A	N/A	N/A
Hydrochloric acid 10,2 N	N/A	N/A	1562	N/A	N/A

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result
Hydrochloric acid 10,2 N	<b>Acute - LC50 - Marine water</b> Crustaceans - Green crab - <i>Carcinus maenas</i> - Adult 240 mg/l [48 hours] <u>Effect:</u> Mortality <b>Acute - LC50 - Fresh water</b> Fish - Western mosquitofish - <i>Gambusia affinis</i> - Adult 282 ppm [96 hours] <u>Effect:</u> Mortality

<b>Conclusion/Summary [Product]</b>	Not available.
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### Persistence and degradability

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Sodium acetate trihydrate	-	99%; 28 day(s)	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Sodium acetate trihydrate	-4.22	<10	Low

### Mobility in soil

<b>Soil/Water partition coefficient</b>	Not available.
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<b>Other adverse effects</b>	No known significant effects or critical hazards.
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## Section 13. Disposal considerations

<b>Disposal methods</b>	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not available.	Not available.	Not available.	Not available.	Not available.
UN proper shipping name	Not available.	Not available.	Not available.	Not available.	Not available.
Transport hazard class(es)	Not available.	Not available.	Not available.	Not available.	Not available.
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-

**Special precautions for user**      **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments**      Not available.

Section 15. Regulatory information

Canadian lists

**Canadian NPRI**      The following components are listed: hydrochloric acid  
**CEPA Toxic substances**      None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

**Canada**      All components are listed or exempted.  
**United States**      All components are active or exempted.

Section 16. Other information

History

**Date of printing**      11/18/2025  
**Date of issue/Date of revision**      11/18/2025  
**Date of previous issue**      5/22/2024  
**Version**      5  
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Key to abbreviations	ATE = Acute Toxicity Estimate
	BCF = Bioconcentration Factor
	GHS = Globally Harmonized System of Classification and Labelling of Chemicals
	HPR = Hazardous Products Regulations
	IATA = International Air Transport Association
	IBC = Intermediate Bulk Container
	IMDG = International Maritime Dangerous Goods
	LogPow = logarithm of the octanol/water partition coefficient
	MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
	N/A = Not available
	UN = United Nations

Procedure used to derive the classification

Classification	Justification
SKIN IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method

References	Not available.
	<div>Indicates information that has changed from previously issued version.</div>

Notice to reader

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