

# SAFETY DATA SHEET

Singapore

## Section 1. Identification

GHS product identifier

**Lysis buffer type 9; part of 'PlasmidPrep Mini Spin Kit, 50 purifications'**

Catalogue Number

28904269



Component Number

9601D

Other means of identification Not available.

Product type Liquid.

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

#### Identified uses

Analytical chemistry.  
Laboratory chemicals  
Scientific research and development

#### Uses advised against

Consumer use

#### Reason

-

### Supplier

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

Cytiva Singapore  
25 Tuas South Street 1  
Singapore 638034

### Emergency telephone number (with hours of operation)

+65 6863 6704  
(hours of operation: 8.30 pm - 5.30 pm)

## Section 2. Hazards identification

Classification of the substance or mixture

ACUTE TOXICITY (oral) - Category 4  
SKIN CORROSION/IRRITATION - Category 2  
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

### GHS label elements, including precautionary statements

Hazard pictograms



Signal word

Warning

Hazard statements

Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye irritation.

### Precautionary statements

Prevention

Wear protective gloves. Wear eye or face protection. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response

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

Storage

Not applicable.



<b>Disposal</b>	Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Other hazards which do not result in classification</b>	Causes severe digestive tract burns.

### Section 3. Composition/information on ingredients

Substance/mixture	Mixture	
Other means of identification	Not available.	
Chemical formula	Not applicable.	
Ingredient name	%	Identifiers
guanidinium chloride; guanadine hydrochloride	42	50-01-1
acetic acid	18	64-19-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment 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>	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. Get medical attention.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention if adverse health effects persist or are severe. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Ingestion</b>	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. Get medical attention. If necessary, call a poison center or 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 irritation.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	Causes skin irritation.
<b>Ingestion</b>	Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

##### Over-exposure signs/symptoms

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

#### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
<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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.



## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** None known.

**Specific hazards arising from the chemical** In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products** Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
halogenated compounds  
metal oxide/oxides

**Special protective actions for fire-fighters** 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.

**Special protective equipment for fire-fighters** Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** 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".

**Environmental precautions** 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).

### Methods and materials for containment and cleaning up

**Small spill** Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** 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. 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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.

**Advice on general occupational hygiene** 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.

**Conditions for safe storage, including any incompatibilities** 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. 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

Ingredient name	Exposure limits
acetic acid	<b>Workplace Safety and Health Act (Singapore, 1/2025)</b> PEL (long term) 8 hours: 10 ppm. PEL (long term) 8 hours: 25 mg/m³. PEL (short term) 15 minutes: 37 mg/m³. PEL (short term) 15 minutes: 15 ppm.

Biological exposure indices

No exposure indices known.

**Appropriate engineering controls** Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

**Environmental exposure controls** 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.
<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

Appearance

Physical state	Liquid.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	4.2
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flash point	[Product does not sustain combustion.]

	Ingredient name	Closed cup			Open cup		
		°C	°F	Method	°C	°F	Method
	acetic acid	39	102.2				
Burning time	Not applicable.						
Burning rate	Not applicable.						
Evaporation rate	Not available.						
Flammability	Not available.						
Lower and upper explosive (flammable) limits	Not available.						
Vapor pressure	Not available.						
				Vapor Pressure at 20°C		Vapor pressure at 50°C	



	<b>Ingredient name</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>
	water	17.5	2.3				
	acetic acid	15.59383	2.1				
	potassium acetate	0	0				
<b>Relative vapor density</b>	Not available.						
<b>Relative density</b>	Not available.						
<b>Solubility(ies)</b>							
	<b>Media</b>	<b>Result</b>					
	cold water	Easily soluble					
	hot water	Easily soluble					
<b>Solubility in water</b>	Not available.						
<b>Partition coefficient: n-octanol/ water</b>	Not applicable.						
<b>Auto-ignition temperature</b>	Not available.						
	<b>Ingredient name</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>			
	potassium acetate	>410	>770	EU A.16			
	acetic acid	463	865.4				
<b>Decomposition temperature</b>	Not available.						
<b>SADT</b>	Not available.						
<b>Viscosity</b>	Not available.						
<b>Flow time (ISO 2431)</b>	Not available.						
<b><u>Particle characteristics</u></b>							
<b>Median particle size</b>	Not applicable.						

Section 10. Stability and reactivity

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result
guanidinium chloride; guanadine hydrochloride	<b>Rat - Oral - LD50</b> 475 mg/kg <u>Toxic effects:</u> Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Excitement Gastrointestinal - Hypermotility, diarrhea
acetic acid	<b>Rat - Oral - LD50</b> 3310 mg/kg <b>Rabbit - Dermal - LD50</b> 1060 mg/kg <b>Rat - Inhalation - LC50 Vapor</b> 11000 mg/m³ [4 hours]

Conclusion/Summary [Product] Not available.

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product] Not available.

**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.**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 irritation.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	Causes skin irritation.
<b>Ingestion</b>	Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

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

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

Potential immediate effects Not available.

Potential delayed effects Not available.

**Long term exposure**

Potential immediate effects Not available.

Potential delayed effects Not available.

**Potential chronic health effects**

Not available.

**Conclusion/Summary [Product]** Not available.**General** No known significant effects or critical hazards.**Carcinogenicity** No known significant effects or critical hazards.**Mutagenicity** No known significant effects or critical hazards.**Reproductive toxicity** 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)
Solution III - 9601D (Lysis buffer type 9) - GROUP	1131.0	3040.4	N/A	31.6	N/A
guanidinium chloride; guanadine hydrochloride	475	N/A	N/A	N/A	N/A
acetic acid	3310	1060	N/A	11	N/A

**Section 12. Ecological information****Toxicity****Product/ingredient name**

acetic acid

**Result****Acute - LC50 - Marine water**Crustaceans - Brine shrimp - *Artemia salina*

32 mg/l [48 hours]

Effect: Mortality**Acute - LC50 - Fresh water**Fish - Bluegill - *Lepomis macrochirus*

75 ppm [96 hours]

Effect: Mortality**Conclusion/Summary [Product]** Not available.**Persistence/degradability**

Not available.

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
guanidinium chloride; guanadine hydrochloride	-	-	Not readily
acetic acid	-	>60%; 28 day(s)	Readily

**Bioaccumulative potential**




Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
guanidinium chloride; guanadine hydrochloride	-1.7	-	Low
acetic acid	-0.17	3.16	Low



**Mobility in soil****Soil/Water partition coefficient** Not available.**Other adverse effects** No known significant effects or critical hazards.

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

	UN	IMDG	IATA
UN number	UN2790	UN2790	UN2790
UN proper shipping name	Acetic acid solution more than 10% but less than 50% acid, by weight (acetic acid)	Acetic acid solution more than 10% but less than 50% acid, by weight (acetic acid)	Acetic acid solution more than 10% but less than 50% acid, by weight (acetic acid)
Transport hazard class(es)	8 	8 	8 
Packing group	III	III	III
Environmental hazards	No.	No.	No.
Additional information	-	-	-

	ADR/RID	ADN
UN number	UN2790	UN2790
UN proper shipping name	Acetic acid solution more than 10% but less than 50% acid, by weight (acetic acid)	Acetic acid solution more than 10% but less than 50% acid, by weight (acetic acid)
Transport hazard class(es)	8 	8 
Packing group	III	III
Environmental hazards	No.	No.
Additional information		

<b>Special precautions for user</b>	<b>Transport within user's premises:</b> 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.
<b>Transport in bulk according to IMO instruments</b>	Not available.



## Section 15. Regulatory information

### Singapore - hazardous chemicals under government control

None.

### 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.

### International lists

#### National inventory

<b>United States</b>	All components are active or exempted.
<b>Canada inventory</b>	All components are listed or exempted.
<b>China</b>	All components are listed or exempted.
<b>Japan</b>	<b>Japan inventory (CSCL):</b> All components are listed or exempted. <b>Japan inventory (ISHL):</b> Not determined.

## Section 16. Other information

### History

<b>Date of printing</b>	18 February 2026
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### **Key to abbreviations**

ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 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
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method

**References** Not available.

Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

