SAFETY DATA SHEET

United States

Section 1. Identification

Product name

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

Catalogue Number 28904269

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

Consumer use -

Supplier

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

Cytiva USA
100 Results Way
Marlborough, MA 01752
1-800-526-3593

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

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture ACUTE TOXICITY (oral) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 42%

GHS label elements

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	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. 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.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Do not taste or swallow. Wash thoroughly after handling.
Hazards not otherwise classified	Causes severe digestive tract burns.
Hazards identified when used	No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

Substance/mixture	Mixture
Other means of identification	Not available.

Ingredient name	Synonyms	%	Identifiers
guanidinium chloride		≥25 - ≤50	50-01-1
acetic acid		≥10 - <25	64-19-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional 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

Eye contact	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.
Inhalation	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.
Skin contact	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.
Ingestion	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

Eye contact	Causes serious eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	Causes skin irritation.
Ingestion	Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

Over-exposure signs/symptoms

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

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

Notes to physician	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.

Specific treatments	No specific treatment.
Protection of first-aiders	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.

See toxicological information (Section 11)

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
guanidinium chloride	None.
acetic acid	**NIOSH REL (United States, 10/2020)** TWA 10 hours: 10 ppm. TWA 10 hours: 25 mg/m³. STEL 15 minutes: 15 ppm. STEL 15 minutes: 37 mg/m³. **CAL OSHA PEL (United States, 1/2025)** STEL 15 minutes: 37 mg/m³. STEL 15 minutes: 15 ppm. C: 40 ppm. TWA 8 hours: 25 mg/m³. TWA 8 hours: 10 ppm. **OSHA PEL (United States, 5/2018)** TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m³. **OSHA PEL 1989 (United States, 3/1989)** TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m³. **ACGIH TLV (United States, 1/2024)** TWA 8 hours: 10 ppm. TWA 8 hours: 25 mg/m³. STEL 15 minutes: 15 ppm. STEL 15 minutes: 37 mg/m³.

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

Hygiene measures

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.

Eye/face protection

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.

Skin protection

Hand protection

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.

Body protection

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.

Other skin protection

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.

Respiratory protection

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.]

	Closed cup			Open cup		
Ingredient name	**°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		
Ingredient name	**mm Hg**	**kPa**	**Method**	**mm Hg**	**kPa**	**Method**
water	17.5	2.3				
acetic acid	15.59383	2.1				
potassium acetate	0	0				

Relative vapor density Not available.

Relative density Not available.

Solubility(ies)

Media	**Result**
cold water	Easily soluble
hot water	Easily soluble

Solubility in water Not available.

Partition coefficient: n-octanol/ water Not applicable.

Auto-ignition temperature Not available.

Ingredient name	**°C**	**°F**	**Method**
potassium acetate	>410	>770	EU A.16
acetic acid	463	865.4	

Decomposition temperature Not available.

SADT Not available.

Viscosity Not available.

Flow time (ISO 2431) Not available.

Particle characteristics

Median particle size 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.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result
guanidinium chloride	**Rat - Oral - LD50** 475 mg/kg Toxic effects: Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Excitement Gastrointestinal - Hypermotility, diarrhea
acetic acid	**Rat - Oral - LD50** 3310 mg/kg **Rabbit - Dermal - LD50** 1060 mg/kg **Rat - Inhalation - LC50 Vapor** 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

Eye contact Causes serious eye irritation.

Inhalation No known significant effects or critical hazards.

Skin contact Causes skin irritation.

Ingestion Severely corrosive to the digestive tract. Causes severe burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
irritation
redness

Ingestion 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	1043.6	3040.4	N/A	31.6	N/A
guanidinium chloride	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	Result
acetic acid	**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 and degradability

Not available.

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

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
guanidinium chloride	-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

Disposal methods 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.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification
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	**Reportable quantity** 27777.8 lbs / 12611.1 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).	-

	ADR/RID	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	-	-	-

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.

Proper shipping name Not available.

Section 15. Regulatory information

U.S. Federal regulations **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Water Act (CWA) 311: acetic acid

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.

SARA 311/312

Classification ACUTE TOXICITY (oral) - Category 4
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
HNOC - Corrosive to digestive tract [severe]

Composition/information on ingredients

Name	%	Classification
guanidinium chloride	42	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A
acetic acid	18	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A HNOC - Corrosive to digestive tract [severe]

State regulations

Massachusetts	The following components are listed: ACETIC ACID
New York	The following components are listed: Acetic acid
New Jersey	The following components are listed: ACETIC ACID
Pennsylvania	The following components are listed: ACETIC ACID

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

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

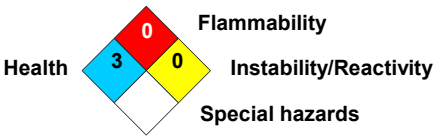
Not listed.

Inventory list

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

Section 16. Other information

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method

History

Date of printing	2/18/2026
Date of issue/Date of revision	2/18/2026
Date of previous issue	7/21/2025
Version	7.05
	sds_author@cytiva.com
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
References	Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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