

SAFETY DATA SHEET

StrataPrep Plasmid Miniprep Kit, Part Number 400761

Section 1. Identification

1.1 Product identifier

Product name	: StrataPrep Plasmid Miniprep Kit, Part Number 400761		
Part no. (chemical kit)	: 400761		
Part no.	: Solution 1		400761-13
	Solution 2		400761-14
	Solution 3		400761-15
	Wash Buffer (2X)		400761-16
	Nuclease Removal Buffer 1X		400761-17
Validation date	: 11/4/2021		

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

Material uses	: Analytical reagent.		
	Solution 1		6 ml
	Solution 2		6 ml
	Solution 3		9 ml
	Wash Buffer (2X)		25 ml
	Nuclease Removal Buffer 1X		40 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer	: Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770
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1.4 Emergency telephone number

In case of emergency	: CHEMTREC®: 1-800-424-9300
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Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status	: Solution 1	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	Solution 2	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Solution 3	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Wash Buffer (2X)	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	Nuclease Removal Buffer 1X	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Section 2. Hazards identification

Solution 2

H314 SKIN CORROSION - Category 1
 H318 SERIOUS EYE DAMAGE - Category 1

Solution 3

H302 ACUTE TOXICITY (oral) - Category 4
 H312 ACUTE TOXICITY (dermal) - Category 4
 H332 ACUTE TOXICITY (inhalation) - Category 4
 H314 SKIN CORROSION - Category 1C
 H318 SERIOUS EYE DAMAGE - Category 1
 H412 AQUATIC HAZARD (LONG-TERM) - Category 3

Nuclease Removal Buffer 1X

H225 FLAMMABLE LIQUIDS - Category 2
 H302 ACUTE TOXICITY (oral) - Category 4
 H314 SKIN CORROSION - Category 1C
 H318 SERIOUS EYE DAMAGE - Category 1
 H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Ingredients of unknown toxicity : Solution 3
 Percentage of the mixture consisting of ingredient (s) of unknown acute dermal toxicity: 1 - 10%
 Percentage of the mixture consisting of ingredient (s) of unknown acute inhalation toxicity: 1 - 10%

2.2 GHS label elements

Hazard pictograms

: Solution 2



Solution 3



Nuclease Removal Buffer 1X



Signal word

: Solution 1
 Solution 2
 Solution 3
 Wash Buffer (2X)
 Nuclease Removal Buffer 1X

No signal word.
 Danger
 Danger
 No signal word.
 Danger

Hazard statements

: Solution 1
 Solution 2
 Solution 3

 Wash Buffer (2X)
 Nuclease Removal Buffer 1X

No known significant effects or critical hazards.
 H314 - Causes severe skin burns and eye damage.
 H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled.
 H314 - Causes severe skin burns and eye damage.
 H412 - Harmful to aquatic life with long lasting effects.
 No known significant effects or critical hazards.
 H225 - Highly flammable liquid and vapor.
 H302 - Harmful if swallowed.
 H314 - Causes severe skin burns and eye damage.
 H336 - May cause drowsiness or dizziness.

Section 2. Hazards identification

H373 - May cause damage to organs through prolonged or repeated exposure. (liver)

Precautionary statements

Prevention

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

Not applicable.

P280 - Wear protective gloves, protective clothing and eye or face protection.

P280 - Wear protective gloves, protective clothing and eye or face protection.

P273 - Avoid release to the environment.

P261 - Avoid breathing vapor.

P270 - Do not eat, drink or smoke when using this product.

P264 - Wash thoroughly after handling.

Not applicable.

P280 - Wear protective gloves, protective clothing and eye or face protection.

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 - Use explosion-proof electrical, ventilating or lighting equipment.

P242 - Use non-sparking tools.

P243 - Take action to prevent static discharges.

P260 - Do not breathe vapor.

P270 - Do not eat, drink or smoke when using this product.

P264 - Wash thoroughly after handling.

Not applicable.

P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor.

P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.

Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water. Immediately call a POISON CENTER or doctor.

P363 - Wash contaminated clothing before reuse.

P305 + P351 + P338, P310 - 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.

P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor.

P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.

Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water. Immediately call a POISON CENTER or doctor.

P363 - Wash contaminated clothing before reuse.

P302 + P312 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell.

P305 + P351 + P338, P310 - 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

Response

: Solution 1
Solution 2

Solution 3

Section 2. Hazards identification

	Wash Buffer (2X) Nuclease Removal Buffer 1X	doctor. Not applicable. P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor. P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. P363 - Wash contaminated clothing before reuse. P305 + P351 + P338, P310 - 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.
Storage	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Not applicable. Not applicable. Not applicable. Not applicable. P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P403 + P235 - Keep cool.
Disposal	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	None known. Keep container tightly closed. Do not breathe vapor or spray. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapor or spray. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. None known. Keep container tightly closed. Do not breathe vapor or spray. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.
2.3 Other hazards		
Hazards not otherwise classified	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	None known. Causes respiratory tract burns. Causes digestive tract burns. Causes respiratory tract burns. Causes digestive tract burns. None known. Causes respiratory tract burns. Causes digestive tract burns.

Section 3. Composition/information on ingredients

Substance/mixture	: Solution 1	Mixture
	Solution 2	Mixture
	Solution 3	Mixture
	Wash Buffer (2X)	Mixture
	Nuclease Removal Buffer 1X	Mixture

Ingredient name	%	CAS number
Solution 2		
Sodium dodecyl sulphate	≤3	151-21-3
Sodium hydroxide	<1	1310-73-2
Solution 3		
Guanidinium thiocyanate	≥25 - ≤50	593-84-0
Acetic acid	≥10 - ≤21	64-19-7
Wash Buffer (2X)		
Sodium chloride	≤3	7647-14-5
Nuclease Removal Buffer 1X		
Propan-2-ol	≥50 - ≤75	67-63-0
Guanidinium thiocyanate	≥10 - <25	593-84-0
Acetic acid	≤10	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

4.1 Description of necessary first aid measures

Eye contact	: Solution 1	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Solution 2	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.
	Solution 3	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.
	Wash Buffer (2X)	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Nuclease Removal Buffer 1X	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.

Section 4. First aid measures

Inhalation

: Solution 1

Solution 2

Solution 3

Wash Buffer (2X)

Nuclease Removal Buffer 1X

Chemical burns must be treated promptly by a physician.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

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.

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. 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.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

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. 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.

Section 4. First aid measures

Skin contact	: Solution 1	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Solution 2	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of 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.
	Solution 3	Get medical attention immediately. Call a poison center or physician. Wash with plenty of 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.
	Wash Buffer (2X)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Nuclease Removal Buffer 1X	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of 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.
Ingestion	: Solution 1	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	Solution 2	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.
	Solution 3	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

Section 4. First aid measures

Wash Buffer (2X)

Nuclease Removal Buffer 1X

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. Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: Solution 1
Solution 2
Solution 3
Wash Buffer (2X)
Nuclease Removal Buffer 1X

No known significant effects or critical hazards.
Causes serious eye damage.
Causes serious eye damage.
No known significant effects or critical hazards.
Causes serious eye damage.

Inhalation

: Solution 1
Solution 2
Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No known significant effects or critical hazards.
Corrosive to the respiratory system.
Harmful if inhaled. Corrosive to the respiratory system.
No known significant effects or critical hazards.
Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Corrosive to the respiratory system.

Skin contact

: Solution 1
Solution 2
Solution 3
Wash Buffer (2X)
Nuclease Removal Buffer 1X

No known significant effects or critical hazards.
Causes severe burns.
Causes severe burns. Harmful in contact with skin.
No known significant effects or critical hazards.
Causes severe burns.

Ingestion

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No known significant effects or critical hazards.
May cause burns to mouth, throat and stomach.
Corrosive to the digestive tract. Causes burns.
May cause burns to mouth, throat and stomach.
Harmful if swallowed. Corrosive to the digestive tract. Causes burns.
No known significant effects or critical hazards.
May cause burns to mouth, throat and stomach.

Section 4. First aid measures

Harmful if swallowed. Corrosive to the digestive tract. Causes burns. Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No specific data.

Adverse symptoms may include the following:

pain
watering
redness

Adverse symptoms may include the following:

pain
watering
redness

No specific data.

Adverse symptoms may include the following:

pain
watering
redness

Inhalation

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No specific data.

Adverse symptoms may include the following:

respiratory tract irritation
coughing

Adverse symptoms may include the following:

respiratory tract irritation
coughing

No specific data.

Adverse symptoms may include the following:

respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No specific data.

Adverse symptoms may include the following:

pain or irritation
redness
blistering may occur

Adverse symptoms may include the following:

pain or irritation
redness

blistering may occur

No specific data.

Adverse symptoms may include the following:

pain or irritation
redness
blistering may occur

Ingestion

: Solution 1
Solution 2

Solution 3

Wash Buffer (2X)
Nuclease Removal Buffer 1X

No specific data.

Adverse symptoms may include the following:

stomach pains

Adverse symptoms may include the following:

stomach pains

No specific data.

Adverse symptoms may include the following:

stomach pains

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

Section 4. First aid measures

Notes to physician	: Solution 1	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Solution 2	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Solution 3	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.
	Wash Buffer (2X)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Nuclease Removal Buffer 1X	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	: Solution 1	No specific treatment.
	Solution 2	No specific treatment.
	Solution 3	No specific treatment.
	Wash Buffer (2X)	No specific treatment.
	Nuclease Removal Buffer 1X	No specific treatment.
Protection of first-aiders	:  Solution 1	No action shall be taken involving any personal risk or without suitable training.
	Solution 2	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.
	Solution 3	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.
	Wash Buffer (2X)	No action shall be taken involving any personal risk or without suitable training.
	Nuclease Removal Buffer 1X	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

5.1 Extinguishing media

Suitable extinguishing media	: Solution 1	Use an extinguishing agent suitable for the surrounding fire.
	Solution 2	Use an extinguishing agent suitable for the surrounding fire.
	Solution 3	Use an extinguishing agent suitable for the surrounding fire.
	Wash Buffer (2X)	Use an extinguishing agent suitable for the surrounding fire.
	Nuclease Removal Buffer 1X	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	: Solution 1	None known.
	Solution 2	None known.
	Solution 3	None known.
	Wash Buffer (2X)	None known.
	Nuclease Removal Buffer 1X	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Solution 1	In a fire or if heated, a pressure increase will occur and the container may burst.
	Solution 2	In a fire or if heated, a pressure increase will occur and the container may burst.
	Solution 3	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Wash Buffer (2X)	In a fire or if heated, a pressure increase will occur and the container may burst.
	Nuclease Removal Buffer 1X	Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous thermal decomposition products	: Solution 1	No specific data.
	Solution 2	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides metal oxide/oxides
	Solution 3	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
	Wash Buffer (2X)	Decomposition products may include the following materials: halogenated compounds metal oxide/oxides
	Nuclease Removal Buffer 1X	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides

Section 5. Fire-fighting measures

metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

: Solution 1

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.

Solution 2

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.

Solution 3

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.

Wash Buffer (2X)

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.

Nuclease Removal Buffer 1X

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters

: Solution 1

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

Solution 2

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

Solution 3

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

Wash Buffer (2X)

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

Nuclease Removal Buffer 1X

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

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: Solution 1

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. Put on appropriate personal protective equipment.

Solution 2

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

Section 6. Accidental release measures

	Solution 3	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.
	Wash Buffer (2X)	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.
	Nuclease Removal Buffer 1X	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: Solution 1	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".
	Solution 2	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".
	Solution 3	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".
	Wash Buffer (2X)	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".
	Nuclease Removal Buffer 1X	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".
6.2 Environmental precautions	: Solution 1	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).
	Solution 2	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has

Section 6. Accidental release measures

Solution 3	caused environmental pollution (sewers, waterways, soil or air). 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). Water polluting material. May be harmful to the environment if released in large quantities.
Wash Buffer (2X)	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).
Nuclease Removal Buffer 1X	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).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Solution 1

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.

Solution 2

Stop leak if without risk. Move containers from spill area. 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. Dispose of via a licensed waste disposal contractor.

Solution 3

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.

Wash Buffer (2X)

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.

Nuclease Removal Buffer 1X

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	:	Solution 1	Put on appropriate personal protective equipment (see Section 8).
		Solution 2	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. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.
		Solution 3	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. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.
		Wash Buffer (2X)	Put on appropriate personal protective equipment (see Section 8).
		Nuclease Removal Buffer 1X	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. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	:	Solution 1	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.
		Solution 2	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.
		Solution 3	Eating, drinking and smoking should be prohibited

Section 7. Handling and storage

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. 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. 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.

Wash Buffer (2X)

Nuclease Removal Buffer 1X

7.2 Conditions for safe storage, including any incompatibilities

: Solution 1

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.

Solution 2

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. Separate from acids. 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.

Solution 3

Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. 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.

Wash Buffer (2X)

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

Section 7. Handling and storage

Nuclease Removal Buffer 1X

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. Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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.

7.3 Specific end use(s)

Recommendations

Solution 1	Industrial applications, Professional applications.
Solution 2	Industrial applications, Professional applications.
Solution 3	Industrial applications, Professional applications.
Wash Buffer (2X)	Industrial applications, Professional applications.
Nuclease Removal Buffer 1X	Industrial applications, Professional applications.

Industrial sector specific solutions

Solution 1	Not available.
Solution 2	Not available.
Solution 3	Not available.
Wash Buffer (2X)	Not available.
Nuclease Removal Buffer 1X	Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Solution 2 Sodium dodecyl sulphate Sodium hydroxide	None. ACGIH TLV (United States, 1/2021). C: 2 mg/m ³ OSHA PEL 1989 (United States, 3/1989). CEIL: 2 mg/m ³ NIOSH REL (United States, 10/2020). CEIL: 2 mg/m ³ OSHA PEL (United States, 5/2018). TWA: 2 mg/m ³ 8 hours.
Solution 3 Guanidinium thiocyanate Acetic acid	None. ACGIH TLV (United States, 1/2021). TWA: 10 ppm 8 hours. TWA: 25 mg/m ³ 8 hours. STEL: 15 ppm 15 minutes. STEL: 37 mg/m ³ 15 minutes.

Section 8. Exposure controls/personal protection

- 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- 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 and safety characteristics

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

Appearance

Physical state	: Solution 1	Liquid.
	Solution 2	Liquid.
	Solution 3	Liquid.
	Wash Buffer (2X)	Liquid.
	Nuclease Removal Buffer 1X	Liquid.
Color	: Solution 1	Not available.
	Solution 2	Not available.
	Solution 3	Not available.
	Wash Buffer (2X)	Not available.
	Nuclease Removal Buffer 1X	Not available.
Odor	: Solution 1	Not available.
	Solution 2	Not available.
	Solution 3	Not available.
	Wash Buffer (2X)	Not available.
	Nuclease Removal Buffer 1X	Not available.

Section 9. Physical and chemical properties and safety characteristics

Odor threshold : Solution 1 Not available.
 Solution 2 Not available.
 Solution 3 Not available.
 Wash Buffer (2X) Not available.
 Nuclease Removal Buffer 1X Not available.

pH : Solution 1 7.5
 Solution 2 >12
 Solution 3 4.4
 Wash Buffer (2X) 7.5
 Nuclease Removal Buffer 1X 4.4

Melting point/freezing point : Solution 1 0°C (32°F)
 Solution 2 0°C (32°F)
 Solution 3 Not available.
 Wash Buffer (2X) 0°C (32°F)
 Nuclease Removal Buffer 1X Not available.

Boiling point, initial boiling point, and boiling range : Solution 1 100°C (212°F)
 Solution 2 100°C (212°F)
 Solution 3 Not available.
 Wash Buffer (2X) 100°C (212°F)
 Nuclease Removal Buffer 1X Not available.

Flash point : Solution 1 Not available.
 Solution 2 Not available.
 Solution 3 Not available.
 Wash Buffer (2X) Not available.
 Nuclease Removal Buffer 1X Closed cup: 12 to 23°C (53.6 to 73.4°F)

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
Solution 1						
Edetic acid	>100	>212	DIN 51758			
Solution 3						
Acetic acid	39	102.2				
Wash Buffer (2X)						
Edetic acid	>100	>212	DIN 51758			

Evaporation rate : Solution 1 Not available.
 Solution 2 Not available.
 Solution 3 Not available.
 Wash Buffer (2X) Not available.
 Nuclease Removal Buffer 1X Not available.

Flammability : Solution 1 Not applicable.
 Solution 2 Not applicable.
 Solution 3 Not applicable.
 Wash Buffer (2X) Not applicable.
 Nuclease Removal Buffer 1X Not applicable.

Lower and upper explosion limit/flammability limit : Solution 1 Not available.
 Solution 2 Not available.
 Solution 3 Not available.
 Wash Buffer (2X) Not available.
 Nuclease Removal Buffer 1X Not available.

Vapor pressure :

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Solution 1						
Water	23.8	3.2				
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	0	0		0.000007501	0.000001	
Solution 2						
Water	23.8	3.2				
Sodium dodecyl sulphate	≤0.0013501	≤0.00018				
Solution 3						
Water	23.8	3.2				
Acetic acid	15.59	2.1				
Wash Buffer (2X)						
Water	23.8	3.2				
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	0	0		0.000007501	0.000001	
Nuclease Removal Buffer 1X						
Propan-2-ol	33	4.4		177	23.6	
Water	23.8	3.2				

Relative vapor density	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Not available. Not available. Not available. Not available. Not available.
Relative density	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Not available. Not available. Not available. Not available. Not available.
Solubility	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Section 9. Physical and chemical properties and safety characteristics

Auto-ignition temperature	Ingredient name	°C	°F	Method
	Solution 1			
	Edetic acid	>400	>752	VDI 2263
	Solution 2			
	Sodium dodecyl sulphate	310.5	590.9	VDI 2263
	Solution 3			
	potassium acetate	>410	>770	EU A.16
	Acetic acid	463	865.4	
	Wash Buffer (2X)			
	Edetic acid	>400	>752	VDI 2263
	Nuclease Removal Buffer 1X			
potassium acetate	>410	>770	EU A.16	
Propan-2-ol	456	852.8		
Decomposition temperature	Solution 1	Not available.		
	Solution 2	Not available.		
	Solution 3	Not available.		
	Wash Buffer (2X)	Not available.		
	Nuclease Removal Buffer 1X	Not available.		
Viscosity	Solution 1	Not available.		
	Solution 2	Not available.		
	Solution 3	Not available.		
	Wash Buffer (2X)	Not available.		
	Nuclease Removal Buffer 1X	Not available.		
Particle characteristics				
Median particle size	Solution 1	Not applicable.		
	Solution 2	Not applicable.		
	Solution 3	Not applicable.		
	Wash Buffer (2X)	Not applicable.		
	Nuclease Removal Buffer 1X	Not applicable.		

Section 10. Stability and reactivity

10.1 Reactivity	Solution 1	No specific test data related to reactivity available for this product or its ingredients.
	Solution 2	No specific test data related to reactivity available for this product or its ingredients.
	Solution 3	No specific test data related to reactivity available for this product or its ingredients.
	Wash Buffer (2X)	No specific test data related to reactivity available for this product or its ingredients.
	Nuclease Removal Buffer 1X	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	Solution 1	The product is stable.
	Solution 2	The product is stable.
	Solution 3	The product is stable.
	Wash Buffer (2X)	The product is stable.
	Nuclease Removal Buffer 1X	The product is stable.

Section 10. Stability and reactivity

10.3 Possibility of hazardous reactions	: Solution 1	Under normal conditions of storage and use, hazardous reactions will not occur.
	Solution 2	Under normal conditions of storage and use, hazardous reactions will not occur.
	Solution 3	Under normal conditions of storage and use, hazardous reactions will not occur.
	Wash Buffer (2X)	Under normal conditions of storage and use, hazardous reactions will not occur.
	Nuclease Removal Buffer 1X	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Solution 1	No specific data.
	Solution 2	No specific data.
	Solution 3	No specific data.
	Wash Buffer (2X)	No specific data.
	Nuclease Removal Buffer 1X	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
10.5 Incompatible materials	: Solution 1	May react or be incompatible with oxidizing materials.
	Solution 2	Reactive or incompatible with the following materials: acids
	Solution 3	May react or be incompatible with oxidizing materials.
	Wash Buffer (2X)	May react or be incompatible with oxidizing materials.
	Nuclease Removal Buffer 1X	Reactive or incompatible with the following materials: oxidizing materials
10.6 Hazardous decomposition products	: Solution 1	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Solution 2	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Solution 3	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Wash Buffer (2X)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Nuclease Removal Buffer 1X	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Solution 2 Sodium dodecyl sulphate	LD50 Oral	Rat	1288 mg/kg	-
Solution 3 Acetic acid	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	11000 mg/m ³ 1060 mg/kg 3310 mg/kg	4 hours - -
Wash Buffer (2X) Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
Nuclease Removal Buffer 1X Propan-2-ol	LD50 Dermal LD50 Oral	Rabbit Rat	12800 mg/kg 5000 mg/kg	- -
Acetic acid	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	11000 mg/m ³ 1060 mg/kg 3310 mg/kg	4 hours - -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Solution 2 Sodium dodecyl sulphate	Eyes - Mild irritant Eyes - Moderate irritant	Rabbit Rabbit	- -	250 ug 24 hours 100 mg	- -
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Guinea pig	- -	10 mg 24 hours 25 mg	- -
	Skin - Moderate irritant	Mouse	-	24 hours 25 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 mg	-
Sodium hydroxide	Eyes - Severe irritant	Rabbit	-	24 hours 50 ug	-
	Eyes - Severe irritant Eyes - Severe irritant	Rabbit Rabbit	- -	1 % 0.5 minutes 1 mg	- -
	Skin - Severe irritant	Rabbit	-	24 hours 500 mg	-
Solution 3 Acetic acid	Skin - Severe irritant	Rabbit	-	525 mg	-
Wash Buffer (2X) Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 mg 24 hours 500 mg	- -
Nuclease Removal Buffer 1X Propan-2-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 mg 500 mg	- -

Section 11. Toxicological information

Acetic acid	Skin - Severe irritant	Rabbit	-	525 mg	-
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Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Nuclease Removal Buffer 1X Propan-2-ol	-	3	-

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Solution 2 Sodium dodecyl sulphate	Category 3	-	Respiratory tract irritation
Sodium hydroxide	Category 3	-	Respiratory tract irritation
Nuclease Removal Buffer 1X Propan-2-ol	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Nuclease Removal Buffer 1X Propan-2-ol	Category 2	-	liver

Aspiration hazard

Not available.

Information on the likely routes of exposure :

Solution 1	Not available.
Solution 2	Routes of entry anticipated: Oral, Dermal, Inhalation.
Solution 3	Routes of entry anticipated: Oral, Dermal, Inhalation.
Wash Buffer (2X)	Not available.
Nuclease Removal Buffer 1X	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact :

Solution 1	No known significant effects or critical hazards.
Solution 2	Causes serious eye damage.
Solution 3	Causes serious eye damage.
Wash Buffer (2X)	No known significant effects or critical hazards.
Nuclease Removal Buffer 1X	Causes serious eye damage.

Section 11. Toxicological information

Inhalation	: <input checked="" type="checkbox"/> Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. Corrosive to the respiratory system. Harmful if inhaled. Corrosive to the respiratory system. No known significant effects or critical hazards. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Corrosive to the respiratory system.
Skin contact	: <input checked="" type="checkbox"/> Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. Causes severe burns. Causes severe burns. Harmful in contact with skin. No known significant effects or critical hazards. Causes severe burns.
Ingestion	: <input checked="" type="checkbox"/> Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. May cause burns to mouth, throat and stomach. Corrosive to the digestive tract. Causes burns. May cause burns to mouth, throat and stomach. Harmful if swallowed. Corrosive to the digestive tract. Causes burns. No known significant effects or critical hazards. May cause burns to mouth, throat and stomach. Harmful if swallowed. Corrosive to the digestive tract. Causes burns. Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: <input checked="" type="checkbox"/> Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness No specific data. Adverse symptoms may include the following: pain watering redness
Inhalation	: <input checked="" type="checkbox"/> Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No specific data. Adverse symptoms may include the following: respiratory tract irritation coughing Adverse symptoms may include the following: respiratory tract irritation coughing No specific data. Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness

Section 11. Toxicological information

Skin contact	: Solution 1	No specific data.
	Solution 2	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Solution 3	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Wash Buffer (2X) Nuclease Removal Buffer 1X	No specific data. Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	: Solution 1	No specific data.
	Solution 2	Adverse symptoms may include the following: stomach pains
	Solution 3	Adverse symptoms may include the following: stomach pains
	Wash Buffer (2X) Nuclease Removal Buffer 1X	No specific data. 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

General	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: Solution 1 Solution 2 Solution 3 Wash Buffer (2X) Nuclease Removal Buffer 1X	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Section 11. Toxicological information

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 2 Solution 2 Sodium dodecyl sulphate	128800 1288	N/A N/A	N/A N/A	N/A N/A	150 1.5
Solution 3 Solution 3 Guanidinium thiocyanate Acetic acid	995.1 500 3310	1857 1100 1060	N/A N/A N/A	95.7 N/A 11	3.2 1.5 N/A
Wash Buffer (2X) Wash Buffer (2X) Sodium chloride	258620.7 3000	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Nuclease Removal Buffer 1X Nuclease Removal Buffer 1X Propan-2-ol Guanidinium thiocyanate Acetic acid	1662.9 5000 500 3310	3720.4 12800 1100 1060	N/A N/A N/A N/A	191.3 72.2 N/A 11	6.4 N/A 1.5 N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Solution 2 Sodium dodecyl sulphate	Acute EC50 1200 µg/l Marine water Acute LC50 900 µg/l Marine water	Algae - Skeletonema costatum Crustaceans - Artemia salina - Adult	96 hours 48 hours
	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Chronic NOEC 1 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	21 days
	Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days
Sodium hydroxide	Acute LC50 125 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
Solution 3 Acetic acid	Acute EC50 73400 µg/l Fresh water Acute EC50 65000 µg/l Fresh water	Algae - Navicula seminulum Daphnia - Daphnia magna - Neonate	96 hours 48 hours
	Acute LC50 32 mg/l Marine water Acute LC50 75000 µg/l Fresh water	Crustaceans - Artemia salina Fish - Lepomis macrochirus	48 hours 96 hours
Wash Buffer (2X) Sodium chloride	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water	Crustaceans - Cypris subglobosa Aquatic plants - Lemna minor	48 hours 96 hours

Section 12. Ecological information

Nuclease Removal Buffer 1X	Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 3 weeks
	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks
Propan-2-ol	Acute EC50 7550 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Acetic acid	Acute LC50 1400000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
	Acute EC50 73400 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 65000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 32 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 75000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Solution 2 Sodium dodecyl sulphate	OECD 301B Ready Biodegradability - CO ₂ Evolution Test	95 % - Readily - 28 days	20 mg/l	Activated sludge

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Solution 2 Sodium dodecyl sulphate Sodium hydroxide	- -	- -	Readily Readily
Solution 3 Guanidinium thiocyanate Acetic acid	- -	- -	Inherent Readily
Nuclease Removal Buffer 1X Propan-2-ol Guanidinium thiocyanate Acetic acid	- - -	- - -	Readily Inherent Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Solution 2 Sodium dodecyl sulphate	-2.03	-	low
Solution 3 Acetic acid	-0.17	3.16	low
Nuclease Removal Buffer 1X Propan-2-ol Acetic acid	0.05 -0.17	- 3.16	low low

Section 12. Ecological information

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods






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.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN3316	UN3316	UN3316	UN3316	UN3316
UN proper shipping name	Chemical kits	CHEMICAL KIT	EQUIPO QUIMICO	CHEMICAL KIT	Chemical kit
Transport hazard class(es)	9 	9 	9 	9 	9 
Packing group	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.

Additional information

DOT Classification : **Limited quantity** Yes.
Packaging instruction Exceptions: 161. Non-bulk: 161. Bulk: None.
Quantity limitation Passenger aircraft/rail: 10 kg. Cargo aircraft: 10 kg.
Special provisions 15

Section 14. Transport information

- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9).
Passenger Carrying Road or Rail Index 10
Special provisions 65, 141
- Mexico Classification** : **Special provisions** 251, 340
- IMDG** : **Emergency schedules** F-A, _S-P_
Special provisions 251, 340
- IATA** : **Quantity limitation** Passenger and Cargo Aircraft: 10 kg. Packaging instructions: 960. Cargo Aircraft Only: 10 kg. Packaging instructions: 960. Limited Quantities - Passenger Aircraft: 1 kg. Packaging instructions: Y960.
Special provisions A44, A163
- 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

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- U.S. Federal regulations** : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
 Clean Water Act (CWA) 311: Acetic acid; Sodium hydroxide; Edetic acid; Hydrochloric acid
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : 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

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Solution 3 Hydrochloric acid	≤0.1	Yes.	500	-	5000	-
Nuclease Removal Buffer 1X Hydrochloric acid	≤0.1	Yes.	500	-	5000	-

SARA 304 RQ : 1388888888888890 lbs / 630555555555556 kg

SARA 311/312

Section 15. Regulatory information

Classification	Solution 1	Not applicable.
	Solution 2	SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract HNOC - Corrosive to respiratory tract
	Solution 3	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract HNOC - Corrosive to respiratory tract
	Wash Buffer (2X)	Not applicable.
	Nuclease Removal Buffer 1X	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 HNOC - Corrosive to digestive tract HNOC - Corrosive to respiratory tract

Composition/information on ingredients

Name	%	Classification
Solution 2		
Sodium dodecyl sulphate	≤3	FLAMMABLE SOLIDS - Category 2 COMBUSTIBLE DUSTS ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Sodium hydroxide	<1	CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Corrosive to digestive tract [severe]
Solution 3		
Guanidinium thiocyanate	≥25 - ≤50	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract HNOC - Corrosive to respiratory tract
Acetic acid	≥10 - ≤21	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract [severe]
potassium acetate	≤10	COMBUSTIBLE DUSTS
Wash Buffer (2X)		
Sodium chloride	≤3	EYE IRRITATION - Category 2A
Nuclease Removal Buffer 1X		
Propan-2-ol	≥50 - ≤75	FLAMMABLE LIQUIDS - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Guanidinium thiocyanate	≥10 - <25	HNOC - Defatting irritant ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract

Section 15. Regulatory information

Acetic acid	≤10	HNOC - Corrosive to respiratory tract FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1
potassium acetate	≤5	HNOC - Corrosive to digestive tract [severe] COMBUSTIBLE DUSTS

State regulations

- Massachusetts** : The following components are listed: ISOPROPYL ALCOHOL; 2-PROPANOL; ACETIC ACID; ACETIC ACID GLACIAL
- New York** : The following components are listed: Acetic acid
- New Jersey** : The following components are listed: ISOPROPYL ALCOHOL; 2-PROPANOL; ISOPROPANOL; ACETIC ACID; ETHANOIC ACID
- Pennsylvania** : The following components are listed: 2-PROPANOL; ACETIC ACID; ACETIC ACID, WATER SOLUTIONS

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

- Australia** : Not determined.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): All components are listed or exempted.
- New Zealand** : All components are listed or exempted.
- Philippines** : Not determined.
- Republic of Korea** : Not determined.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : Not determined.
- United States** : All components are active or exempted.
- Viet Nam** : Not determined.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Solution 2 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1	On basis of test data On basis of test data
Solution 3 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method
Nuclease Removal Buffer 1X FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

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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

✔ Indicates information that has changed from previously issued version.

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