

SAFETY DATA SHEET

GenetiSure Dx DNA Labeling Kit, Part Number K1201-64100

Section 1. Identification

1.1 Product identifier

Product name	: GenetiSure Dx DNA Labeling Kit, Part Number K1201-64100
Part No. (Chemical Kit)	: K1201-64100
Part No.	: <input checked="" type="checkbox"/> GenetiSure Dx DNA labeling kit K1201-64105
	Nuclease Free Water 5190-7311
	Random Primers 5190-7307
	5X gDNA Reaction Buffer 5190-7310
	Alu I Restriction Enzyme 5190-7312
	Rsa I Restriction Enzyme 5190-7313
	10X Restriction Enzyme Buffer 5190-7314
	BSA 5190-7315
	10X dNTP Mix 5190-7316
	Exo (-) Klenow 5190-7306
	Cyanine-3-dUTP 5190-7308
	Cyanine-5-dUTP 5190-7309
	Human Reference DNA, Male 5190-7318
	Human Reference DNA, Female 5190-7317

Validation date : 11/8/2017

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

Material uses	: <input checked="" type="checkbox"/> For In Vitro Diagnostic Use
	<input checked="" type="checkbox"/> Nuclease Free Water 1.5 ml
	Random Primers 0.265 ml
	5X gDNA Reaction Buffer 0.55 ml
	Alu I Restriction Enzyme 0.028 ml (28 µl 10 U/ µl)
	Rsa I Restriction Enzyme 0.028 ml (28 µl 10 U/ µl)
	10X Restriction Enzyme Buffer 0.142 ml
	BSA 0.015 ml
	10X dNTP Mix 0.265 ml
	Exo (-) Klenow 0.055 ml
	Cyanine-3-dUTP 0.078 ml
	Cyanine-5-dUTP 0.078 ml
	Human Reference DNA, Male 0.125 ml (125 µl 0.2 µg/ µl)
	Human Reference DNA, Female 0.125 ml (125 µl 0.2 µg/ µl)

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

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status	: Nuclease Free Water	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.
	Random Primers	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.
	5X gDNA Reaction Buffer	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Alu I Restriction Enzyme	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Rsa I Restriction Enzyme	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	10X Restriction Enzyme Buffer	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.
	BSA	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.
	10X dNTP Mix	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.
	Exo (-) Klenow	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Cyanine-3-dUTP	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.
	Cyanine-5-dUTP	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.
	Human Reference DNA, Male	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.
	Human Reference DNA,	While this material is not considered hazardous by the

Section 2. Hazards identification

Female

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.

Classification of the substance or mixture

5X gDNA Reaction Buffer

H317

SKIN SENSITIZATION - Category 1

Alu I Restriction Enzyme

H320

EYE IRRITATION - Category 2B

Rsa I Restriction Enzyme

H319

EYE IRRITATION - Category 2A

Exo (-) Klenow

H320

EYE IRRITATION - Category 2B

Ingredients of unknown toxicity

5X gDNA Reaction Buffer	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
Alu I Restriction Enzyme	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60% Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
Rsa I Restriction Enzyme	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60%
10X Restriction Enzyme Buffer	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
BSA	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10% Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
Exo (-) Klenow	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60%

2.2 GHS label elements

Hazard pictograms

: 5X gDNA Reaction Buffer



Rsa I Restriction Enzyme



Section 2. Hazards identification

Signal word	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	No signal word. No signal word. Warning Warning Warning No signal word. No signal word. No signal word. Warning No signal word. No signal word. No signal word. No signal word. No signal word.
Hazard statements	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	No known significant effects or critical hazards. No known significant effects or critical hazards. H317 - May cause an allergic skin reaction. H320 - Causes eye irritation. H319 - Causes serious eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. H320 - Causes eye irritation. 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.
Precautionary statements		
Prevention	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	Not applicable. Not applicable. P280 - Wear protective gloves. P261 - Avoid breathing vapor. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace. P264 - Wash hands thoroughly after handling. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling. Not applicable. Not applicable. Not applicable. P264 - Wash hands thoroughly after handling. Not applicable. Not applicable. Not applicable. Not applicable.
Response	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme	Not applicable. Not applicable. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.

Section 2. Hazards identification

	Rsa I Restriction Enzyme	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	10X Restriction Enzyme Buffer	Not applicable.
	BSA	Not applicable.
	10X dNTP Mix	Not applicable.
	Exo (-) Klenow	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Storage	Cyanine-3-dUTP	Not applicable.
	Cyanine-5-dUTP	Not applicable.
	Human Reference DNA, Male	Not applicable.
	Human Reference DNA, Female	Not applicable.
	Nuclease Free Water	Not applicable.
	Random Primers	Not applicable.
	5X gDNA Reaction Buffer	Not applicable.
	Alu I Restriction Enzyme	Not applicable.
	Rsa I Restriction Enzyme	Not applicable.
	10X Restriction Enzyme Buffer	Not applicable.
Disposal	BSA	Not applicable.
	10X dNTP Mix	Not applicable.
	Exo (-) Klenow	Not applicable.
	Cyanine-3-dUTP	Not applicable.
	Cyanine-5-dUTP	Not applicable.
	Human Reference DNA, Male	Not applicable.
	Human Reference DNA, Female	Not applicable.
	Nuclease Free Water	Not applicable.
	Random Primers	Not applicable.
	5X gDNA Reaction Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Alu I Restriction Enzyme	Not applicable.
	Rsa I Restriction Enzyme	Not applicable.
	10X Restriction Enzyme Buffer	Not applicable.
	BSA	Not applicable.
	10X dNTP Mix	Not applicable.
	Exo (-) Klenow	Not applicable.
	Cyanine-3-dUTP	Not applicable.
	Cyanine-5-dUTP	Not applicable.
	Human Reference DNA, Male	Not applicable.
	Human Reference DNA, Female	Not applicable.
	Nuclease Free Water	None known.
	Random Primers	None known.
	5X gDNA Reaction Buffer	None known.
	Alu I Restriction Enzyme	None known.
	Rsa I Restriction Enzyme	None known.
10X Restriction Enzyme Buffer	None known.	
BSA	None known.	
10X dNTP Mix	None known.	
Exo (-) Klenow	None known.	
Cyanine-3-dUTP	None known.	
Cyanine-5-dUTP	None known.	
Human Reference DNA, Male	None known.	

Section 2. Hazards identification

Human Reference DNA, Female None known.

2.3 Other hazards

Hazards not otherwise classified

: Nuclease Free Water	None known.
Random Primers	None known.
5X gDNA Reaction Buffer	None known.
Alu I Restriction Enzyme	None known.
Rsa I Restriction Enzyme	None known.
10X Restriction Enzyme Buffer	None known.
BSA	None known.
10X dNTP Mix	None known.
Exo (-) Klenow	None known.
Cyanine-3-dUTP	None known.
Cyanine-5-dUTP	None known.
Human Reference DNA, Male	None known.
Human Reference DNA, Female	None known.

Section 3. Composition/information on ingredients

Substance/mixture	:	Nuclease Free Water	Substance
		Random Primers	Mixture
		5X gDNA Reaction Buffer	Mixture
		Alu I Restriction Enzyme	Mixture
		Rsa I Restriction Enzyme	Mixture
		10X Restriction Enzyme Buffer	Mixture
		BSA	Mixture
		10X dNTP Mix	Mixture
		Exo (-) Klenow	Mixture
		Cyanine-3-dUTP	Mixture
		Cyanine-5-dUTP	Mixture
		Human Reference DNA, Male	Mixture
		Human Reference DNA, Female	Mixture

Ingredient name	%	CAS number
Nuclease Free Water Water	100	7732-18-5
5X gDNA Reaction Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride 2-Mercaptoethanol	≤5 <1	1185-53-1 60-24-2
Alu I Restriction Enzyme Glycerol Trisodium citrate	≥50 - ≤75 ≤3	56-81-5 68-04-2
Rsa I Restriction Enzyme Glycerol Sodium chloride	≥50 - ≤75 ≤3	56-81-5 7647-14-5
10X Restriction Enzyme Buffer Sodium chloride 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤3 ≤3	7647-14-5 1185-53-1
Exo (-) Klenow Glycerol	≥50 - ≤75	56-81-5

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

Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: Nuclease Free Water	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.
	Random Primers	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.
	5X gDNA Reaction Buffer	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 if irritation occurs.
	Alu I Restriction Enzyme	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. If irritation persists, get medical attention.
	Rsa I Restriction Enzyme	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.
	10X Restriction Enzyme Buffer	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.
	BSA	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.
	10X dNTP Mix	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.
	Exo (-) Klenow	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. If irritation persists, get medical attention.
	Cyanine-3-dUTP	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.
	Cyanine-5-dUTP	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.
	Human Reference DNA, Male	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get

Section 4. First aid measures

	Human Reference DNA, Female	medical attention if irritation occurs. 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.
Inhalation	: Nuclease Free Water	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Random Primers	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	5X gDNA Reaction Buffer	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.
	Alu I Restriction Enzyme	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.
	Rsa I Restriction Enzyme	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.
	10X Restriction Enzyme Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.
	BSA	Remove victim to fresh air and keep at rest in a

Section 4. First aid measures

position comfortable for breathing. Get medical attention if symptoms occur.

10X dNTP Mix

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

Exo (-) Klenow

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.

Cyanine-3-dUTP

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

Cyanine-5-dUTP

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

Human Reference DNA, Male

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

Human Reference DNA, Female

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

Skin contact

: Nuclease Free Water

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Random Primers

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

5X gDNA Reaction Buffer

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. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Alu I Restriction Enzyme

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Rsa I Restriction Enzyme

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

10X Restriction Enzyme Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

BSA

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Section 4. First aid measures

10X dNTP Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Exo (-) Klenow	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Cyanine-3-dUTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Cyanine-5-dUTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Human Reference DNA, Male	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Human Reference DNA, Female	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	
: Nuclease Free Water	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Random Primers	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
5X gDNA Reaction Buffer	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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.
Alu I Restriction Enzyme	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

Section 4. First aid measures

Rsa I Restriction Enzyme	<p>does not enter the lungs. Get medical attention if adverse health effects persist or are severe. 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.</p> <p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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.</p>
10X Restriction Enzyme Buffer	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.</p>
BSA	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.</p>
10X dNTP Mix	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.</p>
Exo (-) Klenow	<p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 adverse health effects persist or are severe. 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,</p>

Section 4. First aid measures

Cyanine-3-dUTP	belt or waistband. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Cyanine-5-dUTP	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Human Reference DNA, Male	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Human Reference DNA, Female	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: <input checked="" type="checkbox"/> Nuclease Free Water	No known significant effects or critical hazards.
Random Primers	No known significant effects or critical hazards.
5X gDNA Reaction Buffer	No known significant effects or critical hazards.
Alu I Restriction Enzyme	Causes eye irritation.
Rsa I Restriction Enzyme	Causes serious eye irritation.
10X Restriction Enzyme Buffer	No known significant effects or critical hazards.
BSA	No known significant effects or critical hazards.
10X dNTP Mix	No known significant effects or critical hazards.
Exo (-) Klenow	Causes eye irritation.
Cyanine-3-dUTP	No known significant effects or critical hazards.
Cyanine-5-dUTP	No known significant effects or critical hazards.
Human Reference DNA, Male	No known significant effects or critical hazards.
Human Reference DNA, Female	No known significant effects or critical hazards.

Inhalation

: <input checked="" type="checkbox"/> Nuclease Free Water	No known significant effects or critical hazards.
Random Primers	No known significant effects or critical hazards.
5X gDNA Reaction Buffer	No known significant effects or critical hazards.
Alu I Restriction Enzyme	No known significant effects or critical hazards.
Rsa I Restriction Enzyme	No known significant effects or critical hazards.
10X Restriction Enzyme Buffer	No known significant effects or critical hazards.
BSA	No known significant effects or critical hazards.
10X dNTP Mix	No known significant effects or critical hazards.
Exo (-) Klenow	No known significant effects or critical hazards.
Cyanine-3-dUTP	No known significant effects or critical hazards.
Cyanine-5-dUTP	No known significant effects or critical hazards.
Human Reference DNA, Male	No known significant effects or critical hazards.
Human Reference DNA, Female	No known significant effects or critical hazards.

Section 4. First aid measures

Skin contact	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	No known significant effects or critical hazards. No known significant effects or critical hazards. May cause an allergic skin reaction. 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	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. 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. 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.

Over-exposure signs/symptoms

Eye contact	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. No specific data.
Inhalation	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

Section 4. First aid measures

	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.
Skin contact	: Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X gDNA Reaction Buffer	Adverse symptoms may include the following: irritation redness
	Alu I Restriction Enzyme	No specific data.
	Rsa I Restriction Enzyme	No specific data.
	10X Restriction Enzyme Buffer	No specific data.
	BSA	No specific data.
	10X dNTP Mix	No specific data.
	Exo (-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.
Ingestion	: Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X gDNA Reaction Buffer	No specific data.
	Alu I Restriction Enzyme	No specific data.
	Rsa I Restriction Enzyme	No specific data.
	10X Restriction Enzyme Buffer	No specific data.
	BSA	No specific data.
	10X dNTP Mix	No specific data.
	Exo (-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.

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

Notes to physician	: Nuclease Free Water	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Random Primers	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X gDNA Reaction Buffer	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.
	Alu I Restriction Enzyme	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Rsa I Restriction Enzyme	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10X Restriction Enzyme Buffer	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.
	BSA	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10X dNTP Mix	Treat symptomatically. Contact poison treatment

Section 4. First aid measures

specialist immediately if large quantities have been ingested or inhaled.

Exo (-) Klenow

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Cyanine-3-dUTP

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Cyanine-5-dUTP

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Human Reference DNA, Male

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Human Reference DNA, Female

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments

- Nuclease Free Water
- Random Primers
- 5X gDNA Reaction Buffer
- Alu I Restriction Enzyme
- Rsa I Restriction Enzyme
- 10X Restriction Enzyme Buffer
- BSA
- 10X dNTP Mix
- Exo (-) Klenow
- Cyanine-3-dUTP
- Cyanine-5-dUTP
- Human Reference DNA, Male
- Human Reference DNA, Female

No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.
No specific treatment.

Protection of first-aiders

- Nuclease Free Water
- Random Primers
- 5X gDNA Reaction Buffer
- Alu I Restriction Enzyme
- Rsa I Restriction Enzyme
- 10X Restriction Enzyme Buffer
- BSA
- 10X dNTP Mix
- Exo (-) Klenow
- Cyanine-3-dUTP

No action shall be taken involving any personal risk or without suitable training.
No action shall be taken involving any personal risk or without suitable training.
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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
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.
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.
No action shall be taken involving any personal risk or without suitable training.
No action shall be taken involving any personal risk or without suitable training.
No action shall be taken involving any personal risk or without suitable training.
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.
No action shall be taken involving any personal risk

Section 4. First aid measures

Cyanine-5-dUTP	or without suitable training. No action shall be taken involving any personal risk or without suitable training.
Human Reference DNA, Male	No action shall be taken involving any personal risk or without suitable training.
Human Reference DNA, Female	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

: <input checked="" type="checkbox"/> Nuclease Free Water	Use an extinguishing agent suitable for the surrounding fire.
Random Primers	Use an extinguishing agent suitable for the surrounding fire.
5X gDNA Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
Alu I Restriction Enzyme	Use an extinguishing agent suitable for the surrounding fire.
Rsa I Restriction Enzyme	Use an extinguishing agent suitable for the surrounding fire.
10X Restriction Enzyme Buffer	Use an extinguishing agent suitable for the surrounding fire.
BSA	Use an extinguishing agent suitable for the surrounding fire.
10X dNTP Mix	Use an extinguishing agent suitable for the surrounding fire.
Exo (-) Klenow	Use an extinguishing agent suitable for the surrounding fire.
Cyanine-3-dUTP	Use an extinguishing agent suitable for the surrounding fire.
Cyanine-5-dUTP	Use an extinguishing agent suitable for the surrounding fire.
Human Reference DNA, Male	Use an extinguishing agent suitable for the surrounding fire.
Human Reference DNA, Female	Use an extinguishing agent suitable for the surrounding fire.


Unsuitable extinguishing media

: <input checked="" type="checkbox"/> Nuclease Free Water	None known.
Random Primers	None known.
5X gDNA Reaction Buffer	None known.
Alu I Restriction Enzyme	None known.
Rsa I Restriction Enzyme	None known.
10X Restriction Enzyme Buffer	None known.
BSA	None known.
10X dNTP Mix	None known.
Exo (-) Klenow	None known.
Cyanine-3-dUTP	None known.
Cyanine-5-dUTP	None known.
Human Reference DNA, Male	None known.
Human Reference DNA, Female	None known.


5.2 Special hazards arising from the substance or mixture

Section 5. Fire-fighting measures

Specific hazards arising from the chemical

:  Nuclease Free Water	In a fire or if heated, a pressure increase will occur and the container may burst.
Random Primers	In a fire or if heated, a pressure increase will occur and the container may burst.
5X gDNA Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
Alu I Restriction Enzyme	In a fire or if heated, a pressure increase will occur and the container may burst.
Rsa I Restriction Enzyme	In a fire or if heated, a pressure increase will occur and the container may burst.
10X Restriction Enzyme Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
BSA	In a fire or if heated, a pressure increase will occur and the container may burst.
10X dNTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
Exo (-) Klenow	In a fire or if heated, a pressure increase will occur and the container may burst.
Cyanine-3-dUTP	In a fire or if heated, a pressure increase will occur and the container may burst.
Cyanine-5-dUTP	In a fire or if heated, a pressure increase will occur and the container may burst.
Human Reference DNA, Male	In a fire or if heated, a pressure increase will occur and the container may burst.
Human Reference DNA, Female	In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

:  Nuclease Free Water	No specific data.
Random Primers	No specific data.
5X gDNA Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds
Alu I Restriction Enzyme	Decomposition products may include the following materials: carbon dioxide carbon monoxide metal oxide/oxides
Rsa I Restriction Enzyme	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
10X Restriction Enzyme Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
BSA	Decomposition products may include the following materials: carbon dioxide carbon monoxide
10X dNTP Mix	No specific data.
Exo (-) Klenow	Decomposition products may include the following

Section 5. Fire-fighting measures

materials:
 carbon dioxide
 carbon monoxide
 No specific data.
 No specific data.
 No specific data.
 No specific data.

Cyanine-3-dUTP
 Cyanine-5-dUTP
 Human Reference DNA, Male
 Human Reference DNA, Female

5.3 Advice for firefighters

Special protective actions for fire-fighters

: Nuclease Free Water

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.

Random Primers

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.

5X gDNA Reaction Buffer

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.

Alu I Restriction Enzyme

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.

Rsa I Restriction Enzyme

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.

10X Restriction Enzyme Buffer

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.

BSA

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.

10X dNTP Mix

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.

Exo (-) Klenow

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.

Cyanine-3-dUTP

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.

Cyanine-5-dUTP

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.

Human Reference DNA, Male

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.

Human Reference DNA, Female

Promptly isolate the scene by removing all persons

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters

: Nuclease Free Water

from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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

Random Primers

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

5X gDNA Reaction Buffer

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

Alu I Restriction Enzyme

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

Rsa I Restriction Enzyme

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

10X Restriction Enzyme Buffer

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

BSA

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

10X dNTP Mix

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

Exo (-) Klenow

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

Cyanine-3-dUTP

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

Cyanine-5-dUTP

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

Human Reference DNA, Male

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

Human Reference DNA, Female

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

: Nuclease Free Water

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.

Random Primers

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.

5X gDNA Reaction Buffer

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.

Alu I Restriction Enzyme

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.

Rsa I Restriction Enzyme

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.

10X Restriction Enzyme Buffer

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.

BSA

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.

10X dNTP Mix

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.

Section 6. Accidental release measures

Exo (-) Klenow	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.
Cyanine-3-dUTP	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.
Cyanine-5-dUTP	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.
Human Reference DNA, Male	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.
Human Reference DNA, Female	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.
For emergency responders : Nuclease Free Water	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".
Random Primers	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".
5X gDNA Reaction Buffer	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".
Alu I Restriction Enzyme	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".
Rsa I Restriction Enzyme	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".
10X Restriction Enzyme Buffer	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".
BSA	If specialized clothing is required to deal with the spillage, take note of any information in Section 8

Section 6. Accidental release measures

10X dNTP Mix	on suitable and unsuitable materials. See also the information in "For non-emergency personnel". 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".
Exo (-) Klenow	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".
Cyanine-3-dUTP	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".
Cyanine-5-dUTP	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".
Human Reference DNA, Male	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".
Human Reference DNA, Female	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	
: Nuclease Free Water	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).
Random Primers	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).
5X gDNA Reaction Buffer	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).
Alu I Restriction Enzyme	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).
Rsa I Restriction Enzyme	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).
10X Restriction Enzyme Buffer	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).
BSA	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 6. Accidental release measures

10X dNTP Mix	<p>Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).</p> <p>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).</p>
Exo (-) Klenow	<p>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).</p> <p>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).</p>
Cyanine-3-dUTP	<p>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).</p> <p>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).</p>
Cyanine-5-dUTP	<p>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).</p> <p>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).</p>
Human Reference DNA, Male	<p>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).</p> <p>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).</p>
Human Reference DNA, Female	<p>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).</p> <p>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).</p>

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Nuclease Free Water

Random Primers	<p>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.</p> <p>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.</p>
5X gDNA Reaction Buffer	<p>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.</p> <p>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.</p>
Alu I Restriction Enzyme	<p>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.</p> <p>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.</p>

Section 6. Accidental release measures

Rsa I Restriction Enzyme	disposal contractor. 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.
10X Restriction Enzyme Buffer	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.
BSA	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.
10X dNTP Mix	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.
Exo (-) Klenow	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.
Cyanine-3-dUTP	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.
Cyanine-5-dUTP	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.
Human Reference DNA, Male	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.
Human Reference DNA, Female	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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	:  Nuclease Free Water	Put on appropriate personal protective equipment (see Section 8).
	Random Primers	Put on appropriate personal protective equipment (see Section 8).
	5X gDNA Reaction Buffer	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. 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.
	Alu I Restriction Enzyme	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.
	Rsa I Restriction Enzyme	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.
	10X Restriction Enzyme Buffer	Put on appropriate personal protective equipment (see Section 8).
	BSA	Put on appropriate personal protective equipment (see Section 8).
	10X dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
	Exo (-) Klenow	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.
	Cyanine-3-dUTP	Put on appropriate personal protective equipment (see Section 8).
	Cyanine-5-dUTP	Put on appropriate personal protective equipment (see Section 8).
	Human Reference DNA, Male	Put on appropriate personal protective equipment (see Section 8).
	Human Reference DNA, Female	Put on appropriate personal protective equipment (see Section 8).

Section 7. Handling and storage

Advice on general occupational hygiene

: Nuclease Free Water

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.

Random Primers

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.

5X gDNA Reaction Buffer

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.

Alu I Restriction Enzyme

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.

Rsa I Restriction Enzyme

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.

10X Restriction Enzyme Buffer

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.

BSA

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.

10X dNTP Mix

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.

Exo (-) Klenow

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

Section 7. Handling and storage

Cyanine-3-dUTP	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.
Cyanine-5-dUTP	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.
Human Reference DNA, Male	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.
Human Reference DNA, Female	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.

7.2 Conditions for safe storage, including any incompatibilities

:  Nuclease Free Water

Random Primers

5X gDNA Reaction Buffer

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.

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.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from

Section 7. Handling and storage

Alu I Restriction Enzyme

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.

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.

Rsa I Restriction Enzyme

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.

10X Restriction Enzyme Buffer

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.

BSA

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.

10X dNTP Mix

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

Section 7. Handling and storage

Exo (-) Klenow

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 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.

Cyanine-3-dUTP

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.

Cyanine-5-dUTP

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.

Human Reference DNA, Male

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.

Human Reference DNA, Female

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 7. Handling and storage

7.3 Specific end use(s)

Recommendations	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Nuclease Free Water Water	None.
5X gDNA Reaction Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride 2-Mercaptoethanol	None. AIHA WEEL (United States, 10/2011). Absorbed through skin. TWA: 0.2 ppm 8 hours.
Alu I Restriction Enzyme Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust
Trisodium citrate	None.
Rsa I Restriction Enzyme Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction

Section 8. Exposure controls/personal protection

Sodium chloride	TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None.
10X Restriction Enzyme Buffer	
Sodium chloride	None.
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	None.
Exo (-) Klenow	
Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust

8.2 Exposure controls

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.

Section 9. Physical and chemical properties

		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
pH	:	Nuclease Free Water	Not available.
		Random Primers	8
		5X gDNA Reaction Buffer	7.5
		Alu I Restriction Enzyme	7.4
		Rsa I Restriction Enzyme	7.4
		10X Restriction Enzyme Buffer	8.2
		BSA	Not available.
		10X dNTP Mix	8
		Exo (-) Klenow	7.5
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	8
		Human Reference DNA, Female	8
Melting point	:	Nuclease Free Water	0°C (32°F)
		Random Primers	0°C (32°F)
		5X gDNA Reaction Buffer	0°C (32°F)
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	0°C (32°F)
		10X dNTP Mix	0°C (32°F)
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	0°C (32°F)
		Cyanine-5-dUTP	0°C (32°F)
		Human Reference DNA, Male	0°C (32°F)
		Human Reference DNA, Female	0°C (32°F)
Boiling point	:	Nuclease Free Water	100°C (212°F)
		Random Primers	100°C (212°F)
		5X gDNA Reaction Buffer	100°C (212°F)
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	100°C (212°F)
		10X dNTP Mix	100°C (212°F)
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	100°C (212°F)
		Cyanine-5-dUTP	100°C (212°F)
		Human Reference DNA, Male	100°C (212°F)
		Human Reference DNA, Female	100°C (212°F)
Flash point	:	Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.

Section 9. Physical and chemical properties

Evaporation rate	:	☑ Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
	Flammability (solid, gas)	:	☑ Nuclease Free Water
		Random Primers	Not applicable.
		5X gDNA Reaction Buffer	Not applicable.
		Alu I Restriction Enzyme	Not applicable.
		Rsa I Restriction Enzyme	Not applicable.
		10X Restriction Enzyme Buffer	Not applicable.
		BSA	Not applicable.
		10X dNTP Mix	Not applicable.
		Exo (-) Klenow	Not applicable.
		Cyanine-3-dUTP	Not applicable.
		Cyanine-5-dUTP	Not applicable.
		Human Reference DNA, Male	Not applicable.
		Human Reference DNA, Female	Not applicable.
Lower and upper explosive (flammable) limits		:	☑ Nuclease Free Water
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
	Vapor pressure	:	☑ Nuclease Free Water
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
Vapor density		:	

Section 9. Physical and chemical properties

	<ul style="list-style-type: none"> ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Relative density	<ul style="list-style-type: none"> : ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Solubility	<ul style="list-style-type: none"> : ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> Easily 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. 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. 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. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.

Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
Auto-ignition temperature	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
Decomposition temperature	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.
Viscosity	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		Random Primers	Not available.
		5X gDNA Reaction Buffer	Not available.
		Alu I Restriction Enzyme	Not available.
		Rsa I Restriction Enzyme	Not available.
		10X Restriction Enzyme Buffer	Not available.
		BSA	Not available.
		10X dNTP Mix	Not available.
		Exo (-) Klenow	Not available.
		Cyanine-3-dUTP	Not available.
		Cyanine-5-dUTP	Not available.
		Human Reference DNA, Male	Not available.
		Human Reference DNA, Female	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix 	<ul style="list-style-type: none"> Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Exo (-) Klenow	Under normal conditions of storage and use, hazardous reactions will not occur.
Cyanine-3-dUTP	Hazardous reactions or instability may occur under certain conditions of storage or use.
Cyanine-5-dUTP	Under normal conditions of storage and use, hazardous reactions will not occur.
Human Reference DNA, Male	Under normal conditions of storage and use, hazardous reactions will not occur.
Human Reference DNA, Female	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid	:	<input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
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10.5 Incompatible materials	:	<input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
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Section 10. Stability and reactivity

10.6 Hazardous decomposition products	: Nuclease Free Water	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Random Primers	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	5X gDNA Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Alu I Restriction Enzyme	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Rsa I Restriction Enzyme	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X Restriction Enzyme Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	BSA	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X dNTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Exo (-) Klenow	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Cyanine-3-dUTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Cyanine-5-dUTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Human Reference DNA, Male	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Human Reference DNA, Female	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

Product/ingredient name	Result	Species	Dose	Exposure
5X gDNA Reaction Buffer				
2-Mercaptoethanol	LD50 Dermal	Rabbit	200 mg/kg	-
	LD50 Oral	Rat	244 mg/kg	-
Alu I Restriction Enzyme				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Rsa I Restriction Enzyme				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
10X Restriction Enzyme Buffer				

Section 11. Toxicological information

Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
Exo (-) Klenow				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
5X gDNA Reaction Buffer 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-
Alu I Restriction Enzyme Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Rsa I Restriction Enzyme Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
10X Restriction Enzyme Buffer Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Exo (-) Klenow Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
5X gDNA Reaction Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation
2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation
10X Restriction Enzyme Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> Not available. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Not available. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation. Not available. Not available. Not available. Not available.
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Potential acute health effects

Eye contact

<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. Causes serious eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. 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.
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Section 11. Toxicological information

Inhalation	<ul style="list-style-type: none"> : Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	<ul style="list-style-type: none"> : Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> No known significant effects or critical hazards. No known significant effects or critical hazards. May cause an allergic skin reaction. 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. 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.
Ingestion	<ul style="list-style-type: none"> : Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	<ul style="list-style-type: none"> : Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow 	<ul style="list-style-type: none"> No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation
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Section 11. Toxicological information

		watering
		redness
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.
Inhalation	: Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X gDNA Reaction Buffer	No specific data.
	Alu I Restriction Enzyme	No specific data.
	Rsa I Restriction Enzyme	No specific data.
	10X Restriction Enzyme Buffer	No specific data.
	BSA	No specific data.
	10X dNTP Mix	No specific data.
	Exo (-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.
Skin contact	: Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X gDNA Reaction Buffer	Adverse symptoms may include the following: irritation redness
	Alu I Restriction Enzyme	No specific data.
	Rsa I Restriction Enzyme	No specific data.
	10X Restriction Enzyme Buffer	No specific data.
	BSA	No specific data.
	10X dNTP Mix	No specific data.
	Exo (-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.
Ingestion	: Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X gDNA Reaction Buffer	No specific data.
	Alu I Restriction Enzyme	No specific data.
	Rsa I Restriction Enzyme	No specific data.
	10X Restriction Enzyme Buffer	No specific data.
	BSA	No specific data.
	10X dNTP Mix	No specific data.
	Exo (-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.
	Human Reference DNA, Male	No specific data.
	Human Reference DNA, Female	No specific data.

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.

Section 11. Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

General

<ul style="list-style-type: none"> ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> No known significant effects or critical hazards. No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. 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. 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. No known significant effects or critical hazards.
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Carcinogenicity

<ul style="list-style-type: none"> ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Mutagenicity

<ul style="list-style-type: none"> ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Teratogenicity

<ul style="list-style-type: none"> ☑ Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Section 11. Toxicological information

Developmental effects	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. 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.
Fertility effects	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X gDNA Reaction Buffer Alu I Restriction Enzyme Rsa I Restriction Enzyme 10X Restriction Enzyme Buffer BSA 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP Human Reference DNA, Male Human Reference DNA, Female 	<ul style="list-style-type: none"> 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. 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. 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

Acute toxicity estimates

Route	ATE value
<input checked="" type="checkbox"/> Rsa I Restriction Enzyme Oral	171429.3 mg/kg
10X Restriction Enzyme Buffer Oral	103448.3 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> Alu I Restriction Enzyme Glycerol Trisodium citrate	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 735.54 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
Rsa I Restriction Enzyme Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute EC50 402600 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours	

Section 12. Ecological information

10X Restriction Enzyme Buffer Sodium chloride	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	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
	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
Exo (-) Klenow Glycerol	Acute EC50 519.6 mg/l Fresh water Acute EC50 402600 µg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	48 hours 48 hours 96 hours 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
	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Alu I Restriction Enzyme Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Rsa I Restriction Enzyme Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Exo (-) Klenow Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Nuclease Free Water Water	-	-	Readily

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Nuclease Free Water Water	-1.38	-	low
5X gDNA Reaction Buffer 2-Mercaptoethanol	-0.056	-	low
Alu I Restriction Enzyme Glycerol	-1.76	-	low
Rsa I Restriction Enzyme Glycerol	-1.76	-	low
Exo (-) Klenow Glycerol	-1.76	-	low

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 / TDG / Mexico / IMDG / IATA : Not regulated.

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 Annex II of MARPOL and the IBC Code : 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: Edetic acid

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

<input checked="" type="checkbox"/> Nuclease Free Water	Not applicable.
Random Primers	Not applicable.
5X gDNA Reaction Buffer	SKIN SENSITIZATION - Category 1
Alu I Restriction Enzyme	EYE IRRITATION - Category 2B
Rsa I Restriction Enzyme	EYE IRRITATION - Category 2A
10X Restriction Enzyme Buffer	Not applicable.
BSA	Not applicable.
10X dNTP Mix	Not applicable.
Exo (-) Klenow	EYE IRRITATION - Category 2B
Cyanine-3-dUTP	Not applicable.
Cyanine-5-dUTP	Not applicable.
Human Reference DNA, Male	Not applicable.
Human Reference DNA, Female	Not applicable.

Composition/information on ingredients

Section 15. Regulatory information

Name	%	Classification
5X gDNA Reaction Buffer		
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
2-Mercaptoethanol	<1	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Alu I Restriction Enzyme		
Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2A
Trisodium citrate	≤3	COMBUSTIBLE DUSTS EYE IRRITATION - Category 2A
Rsa I Restriction Enzyme		
Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2A
Sodium chloride	≤3	EYE IRRITATION - Category 2A
10X Restriction Enzyme Buffer		
Sodium chloride	≤3	EYE IRRITATION - Category 2A
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	≤3	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Exo (-) Klenow		
Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2A

State regulations

- Massachusetts** : The following components are listed: GLYCERINE MIST
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

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** : Not determined.

Section 15. Regulatory information

China	: Not determined.
Europe	: Not determined.
Japan	: <input checked="" type="checkbox"/> Japan inventory (ENCS) : Not determined. Japan inventory (ISHL) : Not determined.
Malaysia	: Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: <input checked="" type="checkbox"/> Not determined.
United States	: Not determined.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue	: 11/08/2017
Date of previous issue	: 08/21/2015.
Version	: 2

Indicates information that has changed from previously issued version.

Notice to reader

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