

SAFETY DATA SHEET

SureMASTR TP53

Section 1. Identification

1.1 Product identifier

Product name : SureMASTR TP53

Part no. (chemical kit) : MR-0160.024

Part no. :

PCR Mix Plex 1	I-1060
PCR Mix Plex 2	I-1061
Taq DNA Polymerase	I-0650
AR 2	I-0793

Validation date : 10/3/2018

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

Material uses :

- Analytical reagent.
- For Research Use Only. Not for use in diagnostic procedures.

PCR Mix Plex 1	0.24 ml
PCR Mix Plex 2	0.24 ml
Taq DNA Polymerase	0.008 ml
AR 2	1 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies Belgium
 De Kleetlaan 5 bus 9
 1831 Diegem
 Belgium

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 : PCR Mix Plex 1	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
PCR Mix Plex 2	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.
Taq DNA Polymerase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
AR 2	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.

Classification of the substance or mixture

Section 2. Hazards identification

Taq DNA Polymerase

H320	EYE IRRITATION - Category 2B	
H402	AQUATIC HAZARD (ACUTE) - Category 3	
H412	AQUATIC HAZARD (LONG-TERM) - Category 3	
Ingredients of unknown toxicity	<ul style="list-style-type: none"> : PCR Mix Plex 1 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% PCR Mix Plex 2 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% Taq DNA Polymerase Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30% AR 2 Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60% PCR Mix Plex 1 Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 1.1% PCR Mix Plex 2 Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 1.1% 	

2.2 GHS label elements

Signal word	<ul style="list-style-type: none"> : PCR Mix Plex 1 No signal word. PCR Mix Plex 2 No signal word. Taq DNA Polymerase Warning AR 2 No signal word. 	
Hazard statements	<ul style="list-style-type: none"> : PCR Mix Plex 1 No known significant effects or critical hazards. PCR Mix Plex 2 No known significant effects or critical hazards. Taq DNA Polymerase H320 - Causes eye irritation. H412 - Harmful to aquatic life with long lasting effects. AR 2 No known significant effects or critical hazards. 	
<u>Precautionary statements</u>		
Prevention	<ul style="list-style-type: none"> : PCR Mix Plex 1 Not applicable. PCR Mix Plex 2 Not applicable. Taq DNA Polymerase P273 - Avoid release to the environment. P264 - Wash hands thoroughly after handling. AR 2 Not applicable. 	
Response	<ul style="list-style-type: none"> : PCR Mix Plex 1 Not applicable. PCR Mix Plex 2 Not applicable. Taq DNA Polymerase 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. AR 2 Not applicable. 	

Section 2. Hazards identification

Storage	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable.
Supplemental label elements	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	None known. None known. None known. None known.
2.3 Other hazards		
Hazards not otherwise classified	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	None known. None known. None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Mixture Mixture Mixture Mixture
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Ingredient name	%	CAS number
Taq DNA Polymerase		
Glycerol	≥25 - ≤50	56-81-5
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	<1	9036-19-5

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

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified 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	: PCR Mix Plex 1	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	PCR Mix Plex 2	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.
	Taq DNA Polymerase	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.
	AR 2	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

Section 4. First aid measures

Inhalation	: PCR Mix Plex 1	Check for and remove any contact lenses. Get medical attention if irritation occurs.
	PCR Mix Plex 2	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.
	Taq DNA Polymerase	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.
	AR 2	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.
Skin contact	: PCR Mix Plex 1	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.
	PCR Mix Plex 2	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Taq DNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	AR 2	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.
Ingestion	: PCR Mix Plex 1	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	PCR Mix Plex 2	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.
		Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable

Section 4. First aid measures

Taq DNA Polymerase

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.

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.

AR 2

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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards.
Inhalation	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data.
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Section 4. First aid measures

Inhalation	: PCR Mix Plex 1	No specific data.
	PCR Mix Plex 2	No specific data.
	Taq DNA Polymerase	No specific data.
	AR 2	No specific data.
Skin contact	: PCR Mix Plex 1	No specific data.
	PCR Mix Plex 2	No specific data.
	Taq DNA Polymerase	No specific data.
	AR 2	No specific data.
Ingestion	: PCR Mix Plex 1	No specific data.
	PCR Mix Plex 2	No specific data.
	Taq DNA Polymerase	No specific data.
	AR 2	No specific data.

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

Notes to physician	: PCR Mix Plex 1	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.
	PCR Mix Plex 2	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.
	Taq DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	AR 2	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	: PCR Mix Plex 1	No specific treatment.
	PCR Mix Plex 2	No specific treatment.
	Taq DNA Polymerase	No specific treatment.
	AR 2	No specific treatment.
Protection of first-aiders	: PCR Mix Plex 1	No action shall be taken involving any personal risk or without suitable training.
	PCR Mix Plex 2	No action shall be taken involving any personal risk or without suitable training.
	Taq DNA Polymerase	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.
	AR 2	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	: PCR Mix Plex 1	Use an extinguishing agent suitable for the surrounding fire.
	PCR Mix Plex 2	Use an extinguishing agent suitable for the surrounding fire.
	Taq DNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
	AR 2	Use an extinguishing agent suitable for the surrounding fire.

Section 5. Fire-fighting measures

Unsuitable extinguishing media : PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase
 AR 2

surrounding fire.
 None known.
 None known.
 None known.
 None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical : PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase

In a fire or if heated, a pressure increase will occur and the container may burst.
 In a fire or if heated, a pressure increase will occur and the container may burst.
 In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
 In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase
 AR 2

Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
 phosphorus oxides
 Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
 phosphorus oxides
 Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
 Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase
 AR 2

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
 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.
 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.
 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.

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters

: PCR Mix Plex 1

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.

PCR Mix Plex 2

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

Taq DNA Polymerase

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

AR 2

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

: PCR Mix Plex 1

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

PCR Mix Plex 2

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

Taq DNA Polymerase

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.

AR 2

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : PCR Mix Plex 1

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

PCR Mix Plex 2

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Taq DNA Polymerase

If specialized clothing is required to deal with the spillage, take note of any information in Section 8

Section 6. Accidental release measures

AR 2

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".

6.2 Environmental precautions

: PCR Mix Plex 1

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

PCR Mix Plex 2

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).

Taq DNA Polymerase

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

AR 2

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : PCR Mix Plex 1

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

PCR Mix Plex 2

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.

Taq DNA Polymerase

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.

AR 2

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	: PCR Mix Plex 1	Put on appropriate personal protective equipment (see Section 8).
	PCR Mix Plex 2	Put on appropriate personal protective equipment (see Section 8).
	Taq DNA Polymerase	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. 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.
	AR 2	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: PCR Mix Plex 1	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	PCR Mix Plex 2	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	Taq DNA Polymerase	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.
	AR 2	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
7.2 Conditions for safe storage, including any incompatibilities	: PCR Mix Plex 1	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	PCR Mix Plex 2	Store in accordance with local regulations. Store in

Section 7. Handling and storage

Taq DNA Polymerase

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.

AR 2

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations

: PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase
 AR 2

Industrial applications, Professional applications.
 Industrial applications, Professional applications.
 Industrial applications, Professional applications.
 Industrial applications, Professional applications.

Industrial sector specific solutions

: PCR Mix Plex 1
 PCR Mix Plex 2
 Taq DNA Polymerase
 AR 2

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
Taq DNA Polymerase Glycerol	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p>

Section 8. Exposure controls/personal protection

Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]- omega.-hydroxy-	None.
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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: safety glasses with side-shields.
- 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.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Liquid. Liquid. Liquid. [Clear. / solution] Liquid.
Color	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Colorless. Not available.
Odor	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.

Section 9. Physical and chemical properties

Odor threshold	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
pH	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Melting point	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Boiling point	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Flash point	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Evaporation rate	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Flammability (solid, gas)	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not applicable. Not applicable. Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Vapor pressure	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Vapor density	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Relative density	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.
Solubility	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Partially soluble in the following materials: cold water and hot water. Partially soluble in the following materials: cold water and hot water. Not available. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Not available. Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature	: PCR Mix Plex 1	Not available.
	PCR Mix Plex 2	Not available.
	Taq DNA Polymerase	Not available.
	AR 2	Not available.
Decomposition temperature	: PCR Mix Plex 1	Not available.
	PCR Mix Plex 2	Not available.
	Taq DNA Polymerase	Not available.
	AR 2	Not available.
Viscosity	: PCR Mix Plex 1	Not available.
	PCR Mix Plex 2	Not available.
	Taq DNA Polymerase	Not available.
	AR 2	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: PCR Mix Plex 1	No specific test data related to reactivity available for this product or its ingredients.
	PCR Mix Plex 2	No specific test data related to reactivity available for this product or its ingredients.
	Taq DNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
	AR 2	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: PCR Mix Plex 1	The product is stable.
	PCR Mix Plex 2	The product is stable.
	Taq DNA Polymerase	The product is stable.
	AR 2	The product is stable.
10.3 Possibility of hazardous reactions	: PCR Mix Plex 1	Under normal conditions of storage and use, hazardous reactions will not occur.
	PCR Mix Plex 2	Under normal conditions of storage and use, hazardous reactions will not occur.
	Taq DNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
	AR 2	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: PCR Mix Plex 1	No specific data.
	PCR Mix Plex 2	No specific data.
	Taq DNA Polymerase	No specific data.
	AR 2	No specific data.
10.5 Incompatible materials	: PCR Mix Plex 1	May react or be incompatible with oxidizing materials.
	PCR Mix Plex 2	May react or be incompatible with oxidizing materials.
	Taq DNA Polymerase	May react or be incompatible with oxidizing materials.
	AR 2	May react or be incompatible with oxidizing materials.

Section 10. Stability and reactivity

10.6 Hazardous decomposition products	: PCR Mix Plex 1	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	PCR Mix Plex 2	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Taq DNA Polymerase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	AR 2	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
Taq DNA Polymerase				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Taq DNA Polymerase					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 Percent	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Section 11. Toxicological information

Not available.

Information on the likely routes of exposure	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	Not available. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation. Not available.
<u>Potential acute health effects</u>		
Eye contact	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards.
Inhalation	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data.
Inhalation	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No specific data. No specific data. No specific data. No specific data.
Skin contact	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No specific data. No specific data. No specific data. No specific data.
Ingestion	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No specific data. No specific data. No specific data. 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

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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.
Carcinogenicity	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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.
Teratogenicity	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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.
Developmental effects	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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	: PCR Mix Plex 1 PCR Mix Plex 2 Taq DNA Polymerase AR 2	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

Not available.

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Taq DNA Polymerase Glycerol Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3, 3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 210 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
Taq DNA Polymerase Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Taq DNA Polymerase Glycerol	-1.76	-	low
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3, 3-tetramethylbutyl)phenyl]- omega.-hydroxy-	3.77	78.67	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. 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) PAIR:** Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-
TSCA 8(a) CDR Exempt/Partial exemption: Not determined

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 : PCR Mix Plex 1 Not applicable.
PCR Mix Plex 2 Not applicable.
Taq DNA Polymerase EYE IRRITATION - Category 2B
AR 2 Not applicable.

Composition/information on ingredients

Name	%	Classification
PCR Mix Plex 1 Betaine	≥25 - ≤50	COMBUSTIBLE DUSTS
PCR Mix Plex 2 Betaine	≥25 - ≤50	COMBUSTIBLE DUSTS
Taq DNA Polymerase Glycerol	≥25 - ≤50	EYE IRRITATION - Category 2A
AR 2		

Section 15. Regulatory information

Betaine	≥50 - ≤75	COMBUSTIBLE DUSTS
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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.
- China** : Not determined.
- Europe** : Not determined.
- Japan** : **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** : Not determined.
- Turkey** : Not determined.
- United States** : Not determined.
- Viet Nam** : Not determined.

Section 16. Other information

History

- Date of issue** : 10/03/2018
- Date of previous issue** : 01/18/2018
- Version** : 2.1

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
Taq DNA Polymerase EYE IRRITATION - Category 2B AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

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