



# SAFETY DATA SHEET

Issue date 4 January 2023

Version 2

## 1. IDENTIFICATION

<b>Product name</b>	Hot Start Klentaq1
<b>Product No</b>	HS100
<b>Recommended use</b>	Nucleic acid amplification
<b>Supplier Address</b>	DNA Polymerase Technology Inc. 1508 South Grand Blvd. Saint Louis MO 63014 USA
<b>Phone Number</b>	314 771 5566
<b>Fax</b>	314 771 5581
<b>E-mail address</b>	enzyme@klentaq.com
<b>Emergency Phone</b>	512-289-6324

## 2. HAZARDS IDENTIFICATION

**Classification** Not a hazardous substance or mixture

**GHS Label elements** Not a hazardous substance or mixture

### Hazard Statement

The product contains no substances which at their given concentration, are known to be hazardous to health.

**Hazards not otherwise classified (HNOC)** None

### 3.COMPOSITION/INFORMATION ON INGREDIENTS

#### Enzyme

Ingredient	% by weight	CAS #
Glycerol HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH	63	56-81-5
Ammonium sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1.9	7783-20-2
Tris HCl NH <sub>2</sub> C(CH <sub>2</sub> OH) <sub>3</sub> · HCl Tris(hydroxymethyl)aminomethane hydrochloride	<1	1185-53-1
2-Mercaptoethanol HSCH <sub>2</sub> CH <sub>2</sub> OH β-mercaptoethanol, BME	<1	60-24-2
Brij® 58 HO(CH <sub>2</sub> CH <sub>2</sub> O) <sub>20</sub> C <sub>16</sub> H <sub>33</sub> Polyethylene glycol hexadecyl ether	<1	9004-95-9
EDTA (HO <sub>2</sub> CCH <sub>2</sub> ) <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> N(CH <sub>2</sub> CO <sub>2</sub> H) <sub>2</sub> Ethylenediaminetetraacetic acid	<1	60-00-4
Klentaq1 DNA Polymerase	<1	N/A
ssDNA	<1	N/A

#### Buffer

Ingredient	% by weight	CAS #
Tris HCl NH <sub>2</sub> C(CH <sub>2</sub> OH) <sub>3</sub> · HCl Tris(hydroxymethyl)aminomethane hydrochloride	6.1	1185-53-1
Ammonium sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1.4	7783-20-2
Brij® 58 HO(CH <sub>2</sub> CH <sub>2</sub> O) <sub>20</sub> C <sub>16</sub> H <sub>33</sub> Polyethylene glycol hexadecyl ether	<1	9004-95-9
Magnesium Chloride MgCl <sub>2</sub>	<1	7786-30-3

### 4.FIRST AID MEASURES

#### First Aid Instructions

**Inhalation** Remove to fresh air.

**Skin contact** Wash skin with soap and water.

**Eye contact** Flush eyes with water.

**Ingestion** Rinse mouth with water.

**Most important symptoms and effects, both acute and delayed** No information available.

**Recommendations for medical care** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

### **Suitable extinguishing equipment**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide, as indicated by local circumstances and the surrounding environment.

### **Specific hazards arising from the chemical**

No information available.

### **Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

### **Personal precautions and emergency procedures**

Enzyme: Avoid breathing vapors.

Enzyme and Master Mix: Use of standard laboratory Personal Protective Equipment (PPE) such as a lab coat, gloves, and safety glasses is recommended. No evacuation, expert consultation, or additional PPE is required for dealing with accidental release.

### **Environmental precautions**

Do not flush this product down the drain.

### **Containment and cleanup**

Absorb with inert absorbent material and dispose with dry waste.

## 7. HANDLING AND STORAGE

**Precautions for safe handling** Handle in accordance with good industrial hygiene and safety practice.

### **Conditions for safe storage**

**Storage temperature** -20° F

**Storage Conditions** Store in original containers with lids closed.

**Incompatible materials** unknown

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

#### Exposure Guidelines

All ingredients with occupational exposure limits are listed below.

Ingredient	Basis	Control Parameters (TWA PEL)	Concentration in this product (Enzyme)
Glycerol HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH CAS 56-81-5	OSHA	5 mg/m <sup>3</sup> mist, total particulate 5 mg/m <sup>3</sup> mist, respirable fraction	5 mg/m <sup>3</sup>
2-Mercaptoethanol HSCH <sub>2</sub> CH <sub>2</sub> OH β-mercaptoethanol, BME CAS 60-24-2	WEEL	0.2 ppm Skin	780 ppm

### Engineering controls

Standard lab safety components such as showers, eyewash stations, and standard ventilation systems are recommended.

### Personal protection measures

Use of standard laboratory Personal Protective Equipment (PPE) such as a lab coat, gloves, and safety glasses is recommended. Keep laboratory well ventilated. Handle product in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Appearance	colorless/cloudy
Odor	none/mild
Vapor pressure	No information available
pH	<b>Enzyme 8.5, Buffer 9.2</b>
Relative density	No information available
Melting point / freezing point	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Boiling point / boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Partition coefficient	No information available
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	No information available

## 10. STABILITY AND REACTIVITY

Reactivity No data available.

Chemical stability Stable under recommended storage conditions.

Other Possibility of hazardous reactions

No hazardous reactions are known or expected. The product is not known to react or polymerize resulting in excess pressure, heat, or any other hazardous conditions.

**Conditions to avoid**

None

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**

None are known or expected.

**11. TOXICOLOGICAL INFORMATION**

**Likely routes of exposure**

- Inhalation** Avoid breathing vapors or mists. May cause irritation of respiratory tract.
- Ingestion** Avoid ingestion.
- Skin contact** Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.
- Eye contact** Avoid eye contact. May cause redness and irritation.

**Delayed, immediate, or chronic effects from short and long-term exposure** None are known or expected.

**Numerical measures of toxicity**

**Enzyme**

Ingredient	% by weight	CAS #	LD50
Glycerol HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH	63	56-81-5	Oral (rat) 27,200 mg/kg Dermal (rabbit) > 10,000 mg/kg
Ammonium sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1.9	7783-20-2	Oral (rat) 4,250 mg/kg Dermal (rat) 2,000 mg/kg
Tris HCl NH <sub>2</sub> C(CH <sub>2</sub> OH) <sub>3</sub> · HCl Tris(hydroxymethyl)aminomethane hydrochloride	<1	1185-53-1	Oral (rat) >5,000 mg/kg Dermal (rat) >5,000 mg/kg
2-Mercaptoethanol HSCH <sub>2</sub> CH <sub>2</sub> OH β-mercaptoethanol, BME	<1	60-24-2	Oral (mouse) 190 mg/kg Inhalation (rat) 2.05 mg/L at 4 hours Dermal (rabbit) 112-224 mg/kg
Brij® 58 HO(CH <sub>2</sub> CH <sub>2</sub> O) <sub>20</sub> C <sub>16</sub> H <sub>33</sub> Polyethylene glycol hexadecyl ether	<1	9004-95-9	Oral (rat) 2,500 mg/kg
EDTA (HO <sub>2</sub> CCH <sub>2</sub> ) <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> N(CH <sub>2</sub> CO <sub>2</sub> H) <sub>2</sub> Ethylenediaminetetraacetic acid	<1	60-00-4	Oral (rat) 4,500 mg/kg
Klentaq1 DNA Polymerase	<1	N/A	No information
ssDNA	<1	N/A	No information

## Buffer

Ingredient	% by weight	CAS #	LD50
Tris HCl NH <sub>2</sub> C(CH <sub>2</sub> OH) <sub>3</sub> · HCl Tris(hydroxymethyl)aminomethane hydrochloride	6.1	1185-53-1	Oral (rat) >5,000 mg/kg Dermal (rat) >5,000 mg/kg
Ammonium sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1.4	7783-20-2	Oral (rat) 4,250 mg/kg Dermal (rat) 2,000 mg/kg
Brij® 58 HO(CH <sub>2</sub> CH <sub>2</sub> O) <sub>20</sub> C <sub>16</sub> H <sub>33</sub> Polyethylene glycol hexadecyl ether	<1	9004-95-9	Oral (rat) 2,500 mg/kg
Magnesium Chloride MgCl <sub>2</sub>	<1	7786-30-3	Oral (rat) >5,000 mg/kg Dermal (rat) >2,000 mg/kg

## Symptoms of exposure

No information available.

## Potential carcinogen status

### NTP Report on Carcinogens

Not a known or anticipated carcinogen

### IARC Monographs

Not a probable, possible, or confirmed carcinogen

### OSHA

Not listed

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Marine pollutant:** Components of this product known to be toxic to fish, aquatic invertebrates, algae, and/or bacteria are listed below.

Component	Fish	Aquatic Invertebrates	Fresh water Algae	Bacteria
Ammonium sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> CAS 7783-20-2	LC50 (rainbow trout) 53 mg/L at 96 hours	EC50 (water flea) 121.7 mg/L at 48 hours	ErC50 2,700 mg/L at 18 days	EC50 (activated sludge) 1,618 mg/L at 30 minutes
Glycerol HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH CAS 56-81-5	LC50 (rainbow trout) 54,000 mg/L at 96 hours	--	--	--
2-Mercaptoethanol HSCH <sub>2</sub> CH <sub>2</sub> OH β-mercaptoethanol, BME, CAS 60-24-2	LC50 (golden orfe) 37 mg/L at 96 hours	EC50 (water flea) 0.4 mg/L at 48 hours	ErC50 19 mg/L at 72 hours	EC50 (Pseudomonas putida) 113 mg/L at 17 hours
EDTA (HO <sub>2</sub> CCH <sub>2</sub> ) <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> N(CH <sub>2</sub> CO <sub>2</sub> H) <sub>2</sub> Ethylenediaminetetraacetic acid CAS 60-00-4	LC50 (bluegill sunfish) 41 mg/L at 96 hours	EC50 (Water flea) 625 mg/L at 24 hours	--	--

**Persistence and degradability**

Glycerol (CAS 56-81-5) is 90% readily biodegradable.  
 2-Mercaptoethanol (CAS 60-24-2) is 69% biodegradable in 60 days  
 EDTA (CAS 60-00-4) is 0-20% biodegradable in 20 days  
 No information available about other components.

**Bioaccumulation**

EDTA (CAS 60-00-4) 80 ug/L Bluegill sunfish in 28 days  
 No information available about other components

**Mobility from soil to groundwater**

No information available

**Other adverse effects**

No information available

**13.DISPOSAL CONSIDERATIONS**

**Disposal guidelines** Dispose with dry waste, do not flush down drains. Refer to Section 8 for PPE recommendations.

**14.TRANSPORT INFORMATION**

DOT Not regulated

**15.REGULATORY INFORMATION****US Federal Regulations****SARA 311/312 Hazards**

Chemical Name	CAS #	SARA 311/312 Hazards
2-Mercaptoethanol HSCH <sub>2</sub> CH <sub>2</sub> OH β-mercaptoethanol, BME	60-24-2	Fire Hazard, Acute Health Hazard

**SARA 313**

The following product components are subject to reporting requirements:

Chemical Name	CAS #	SARA 313 Threshold Value	Concentration in this product (Enzyme)
Ammonium sulfate	7783-20-2	1.00%	1.90%

**US State Regulations**

**California Proposition 65** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**Massachusetts Right To Know Components**

Ammonium sulphate CAS-No. 7783-20-2

**Pennsylvania Right To Know Components**

Polyethylene glycol hexadecyl ether CAS-No. 9004-95-9

Ammonium sulphate CAS-No. 7783-20-2

Magnesium chloride CAS-No. 7786-30-3

**New Jersey Right To Know Components**

Polyethylene glycol hexadecyl ether CAS-No. 9004-95-9

Ammonium sulphate CAS-No. 7783-20-2

Magnesium chloride CAS-No. 7786-30-3

**16.OTHER INFORMATION**

This document was prepared on 4January2023

**Disclaimer**

**IMPORTANT:** The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of DNA Polymerase Technology, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. DNA Polymerase Technology will not be liable for any damages resulting from handling or contact with the product.