

08/30/2013

**Kit components**

Product code	Description
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<b>J65056</b>	<b>DNA Polymerase I Large (Klenow Fragment) kit</b>
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Components:

J65101	DNA Polymerase I Large (Klenow fragment)
J64983	DNA Polymerase 10X Buffer

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

**DNA Polymerase I Large (Klenow fragment)**

Stock number:

J65T01

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

Identified use:

SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

 Xi; Irritant

R36: Irritating to eyes.

**Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Hazard statements

Precautionary statements

The product is classified and labelled according to the CLP regulation.

GHS07

Warning

H319 Causes serious eye irritation.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P264

Wash thoroughly after handling.

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 advice/attention.

**2.3 Other hazards**

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Dangerous components:**

CAS: 56-81-5

Glycerol

 Xi R36

50,0%

EINECS: 200-289-5

 Eye Irrit. 2, H319
**Additional information**

None known.

**Non-Hazardous Ingredients**

CAS: 1185-53-1

Tris(hydroxymethyl)aminomethane hydrochloride

0,79%

EINECS: 214-684-5

CAS: 9012-90-2

DNA Polymerase

0,1%

CAS: 3483-12-3

1,4-Dithio-DL-threitol

0,015%

EINECS: 222-468-7

 Xn R22;  Xi R36/37/38

 Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335

CAS: 60-00-4

Ethylenediaminetetraacetic acid

0,003%

EINECS: 200-449-4

 Xi R36

 Eye Irrit. 2, H319

CAS: 7732-18-5

Water

49,092%

EINECS: 231-791-2

**SECTION 4: First aid measures****4.1 Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

**After skin contact**

Seek immediate medical advice.

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing**

Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing agents

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.**5.2 Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Sulphur oxides (SO<sub>x</sub>)Nitrogen oxides (NO<sub>x</sub>)

Hydrogen chloride (HCl)

**Trade name DNA Polymerase I Large (Klenow fragment)**

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**5.3 Advice for firefighters**  
**Protective equipment:** Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

**6.2 Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.

**6.3 Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.

**Prevention of secondary hazards:** No special measures required.

**6.4 Reference to other sections** See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling** Keep containers tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:** No information known.

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage**

**Requirements to be met by storerooms and containers:** Store in freezer (-20°C).

**Information about storage in one common storage facility:** Protect from heat.  
Store away from oxidizing agents.  
Water reacts with many metals to give hydrogen, often violently. Water also reacts violently with many reactive organic and inorganic chemicals.

**Further information about storage conditions:** Store in freezer (-20°C).  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
No further relevant information available.

**7.3 Specific end use(s)**

**SECTION 8: Exposure controls/personal protection**

**Additional information about design of technical systems:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**
**Components with critical values that require monitoring at the workplace:**
**56-81-5 Glycerol (50,0%)**

MAK (Germany)	50E mg/m <sup>3</sup> vgl.Abschn.Xc
PEL (USA)	15* 5** mg/m <sup>3</sup> *total dust **respirable fraction
TLV (USA)	10* ppm *Mist

**60-00-4 Ethylenediaminetetraacetic acid (0,003%)**

MAK (Germany)	vgl.Abschn.IIb
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**Additional information:** No data

**8.2 Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures** The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Do not inhale dust / smoke / mist.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  
Use breathing protection with high concentrations.

**Breathing equipment:** Check protective gloves prior to each use for their proper condition.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Protection of hands:** Impervious gloves  
Not determined

**Material of gloves** Safety glasses

**Penetration time of glove material** Face protection

**Eye protection:** Protective work clothing.

**Body protection:**

**SECTION 9: Physical and chemical properties**
**9.1 Information on basic physical and chemical properties**
**General Information**

**Appearance:**

<b>Form:</b>	Liquid
<b>Colour:</b>	Colourless
<b>Smell:</b>	Not determined
<b>Odour threshold:</b>	Not determined.
<b>pH-value:</b>	Not determined.

**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Inflammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	400 °C

(Contd. on page 3)  
DE/E

Trade name **DNA Polymerase I Large (Klenow fragment)**

(Contd. of page 2)

<b>Decomposition temperature:</b>	Not determined
<b>Self-inflammability:</b>	Product is not selfigniting.
<b>Critical values for explosion:</b>	
<b>Lower:</b>	0,9 Vol %
<b>Upper:</b>	Not determined
<b>Steam pressure at 20 °C:</b>	23 hPa
<b>Density</b>	Not determined
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Fully miscible
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>dynamic:</b>	Not determined.
<b>kinematic:</b>	Not determined.

<b>Solvent content:</b>	
<b>Organic solvents:</b>	0,0 %
<b>Solids content:</b>	100,0 %
<b>9.2 Other information</b>	No further relevant information available.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	No information known.
<b>10.2 Chemical stability</b>	Stable under recommended storage conditions.
<b>Thermal decomposition / conditions to be avoided:</b>	No decomposition if used and stored according to specifications.
<b>10.3 Possibility of hazardous reactions</b>	Water reacts violently with alkali metals. Reacts with strong oxidizing agents Oxidizing agents
<b>10.5 Incompatible materials:</b>	Heat Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.
<b>10.6 Hazardous decomposition products:</b>	Carbon monoxide and carbon dioxide Sulphur oxides (SO <sub>x</sub> ) Nitrogen oxides (NO <sub>x</sub> ) Hydrogen chloride (HCl)

**SECTION 11: Toxicological information**

<b>11.1 Information on toxicological effects</b>	
<b>Acute toxicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**

<b>56-81-5 Glycerol</b>	
Oral LD50	12600 mg/kg (rat)

**60-00-4 Ethylenediaminetetraacetic acid**

Oral LD50	4500 mg/kg (rat)
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<b>Skin irritation or corrosion:</b>	May cause irritation
<b>Eye irritation or corrosion:</b>	Causes serious eye irritation.
<b>Sensitization:</b>	No sensitizing effect known.
<b>Germ cell mutagenicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
<b>Carcinogenicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.
<b>Reproductive toxicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
<b>Specific target organ system toxicity - repeated exposure:</b>	No effects known.
<b>Specific target organ system toxicity - single exposure:</b>	No effects known.
<b>Aspiration hazard:</b>	No effects known.
<b>Experience with humans:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.
<b>Additional toxicological information:</b>	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version: Irritant

**SECTION 12: Ecological information**

<b>12.1 Toxicity</b>	
<b>Aquatic toxicity:</b>	No further relevant information available.
<b>12.2 Persistence and degradability</b>	No further relevant information available.
<b>12.3 Bioaccumulative potential</b>	No further relevant information available.
<b>12.4 Mobility in soil</b>	No further relevant information available.
<b>Additional ecological information:</b>	
<b>General notes:</b>	Do not allow material to be released to the environment without proper governmental permits. Generally not hazardous for water. Avoid transfer into the environment.
<b>12.5 Results of PBT and vPvB assessment</b>	
<b>PBT:</b>	Not applicable.
<b>vPvB:</b>	Not applicable.
<b>12.6 Other adverse effects</b>	No further relevant information available.

**SECTION 13: Disposal considerations**

<b>13.1 Waste treatment methods</b>	
<b>Recommendation</b>	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
<b>Uncleaned packagings:</b>	
<b>Recommendation:</b>	Disposal must be made according to official regulations.

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DE/E

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Revision: 21.08.2012

Printing date 30.08.2013

Trade name **DNA Polymerase I Large (Klenow fragment)**

Recommended cleaning agent: Water, if necessary with cleaning agent.

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**SECTION 14: Transport information**UN-Number  
ADR, ADN, IMDG, IATA Not applicable14.2 UN proper shipping name  
ADR, ADN, IMDG, IATA Not applicable14.3 Transport hazard class(es)  
ADR, ADN, IMDG, IATA  
Class Not applicablePacking group  
ADR, IMDG, IATA Not applicable14.5 Environmental hazards:  
Marine pollutant: No

14.6 Special precautions for user Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC  
Code Not applicable.

UN "Model Regulation": -

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

56-81-5	Glycerol
1185-53-1	Tris(hydroxymethyl)aminomethane hydrochloride
3483-12-3	1,4-Dithio-DL-threitol
60-00-4	Ethylenediaminetetraacetic acid
7732-18-5	Water

**Standard for the Uniform Scheduling of Drugs and Poisons**

60-00-4 Ethylenediaminetetraacetic acid

S4

**National regulations****Information about limitation of use:**Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.**Classification according to VbF:**

Not applicable

**Technical instructions (air):**

Class	Share in %
Wasser	49,092
NK	50,0

**Water hazard class:**

Generally not hazardous for water.

**Other regulations, limitations and prohibitive regulations****ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

**Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients are listed.

**REACH - Pre-registered substances**

All ingredients are listed.

**15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Relevant phrases**

H319 Causes serious eye irritation.

**Department issuing SDS:**R36 Irritating to eyes.  
Health, Safety and Environmental Department.**Abbreviations and acronyms:**ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

DE/E

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

**DNA Polymerase 10X Buffer**

Stock number:

J64983

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

Identified use:

SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC)

No 1272/2008

The product is not classified as hazardous to health or the environment according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Not applicable

Information concerning particular hazards for human and environment:

The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Other hazards that do not result in classification

No information known.

**2.2 Label elements**

Labelling according to Regulation (EC) No

1272/2008

Not applicable

Hazard pictograms

Not applicable

Signal word

Not applicable

Hazard statements

Not applicable

**2.3 Other hazards**

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

**SECTION 3: Composition/information on ingredients****3.2 Mixtures**

Dangerous components:

Not applicable

Additional information

None known.

**Non-Hazardous Ingredients**

CAS: 1185-53-1 EINECS: 214-684-5	Tris(hydroxymethyl)aminomethane hydrochloride	7,88%
CAS: 7487-88-9 EINECS: 231-298-2	Magnesium sulfate	1,2%
CAS: 3483-12-3 EINECS: 222-468-7	1,4-Dithio-DL-threitol ☒ Xn R22; ☒ Xi R36/37/38 ◊ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	0,015%
CAS: 7732-18-5 EINECS: 231-791-2	Water	90,905%

**SECTION 4: First aid measures****4.1 Description of first aid measures**

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing agents

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.**5.2 Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Sulphur oxides (SO<sub>x</sub>)Nitrogen oxides (NO<sub>x</sub>)

Hydrogen chloride (HCl)

Metal oxide

**5.3 Advice for firefighters**

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**6.2 Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

Do not allow product to reach sewage system or water bodies.

Do not allow to enter the ground/soil.

**6.3 Methods and material for containment and cleaning up:****Prevention of secondary hazards:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

No special measures required.

Trade name **DNA Polymerase 10X Buffer****6.4 Reference to other sections**

See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

(Contd. of page 1)

**SECTION 7: Handling and storage****7.1 Precautions for safe handling  
Information about protection against  
explosions and fires:**

Keep containers tightly sealed.  
No information known.

**7.2 Conditions for safe storage, including any incompatibilities****Storage  
Requirements to be met by storerooms and  
containers:  
Information about storage in one common  
storage facility:**

Store in freezer (-20°C).  
Protect from heat.  
Store away from oxidizing agents.  
Water reacts with many metals to give hydrogen, often violently. Water also reacts violently with many reactive organic and inorganic chemicals.

**Further information about storage  
conditions:**

Store in freezer (-20°C).  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.

**7.3 Specific end use(s)**

No further relevant information available.

**SECTION 8: Exposure controls/personal protection****Additional information about design of  
technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters  
Components with critical values that require  
monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:**

No data

**8.2 Exposure controls  
Personal protective equipment  
General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Maintain an ergonomically appropriate working environment.

**Breathing equipment:**

Use breathing protection with high concentrations.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves  
Penetration time of glove material  
Eye protection:  
Body protection:**

Impervious gloves  
Not determined  
Safety glasses  
Protective work clothing.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

Form: Liquid  
Colour: Colourless  
Smell: Not determined  
Odour threshold: Not determined.

pH-value: Not determined.

**Change in condition**

Melting point/Melting range: Not determined  
Boiling point/Boiling range: Not determined  
Sublimation temperature / start: Not determined  
Inflammability (solid, gaseous): Not determined.  
Ignition temperature: Not determined  
Decomposition temperature: Not determined  
Self-inflammability: Product is not selfigniting.

**Critical values for explosion:**

Lower: Not determined  
Upper: Not determined

Steam pressure at 20 °C: 23 hPa

Density: Not determined

Relative density: Not determined.

Vapour density: Not determined.

Evaporation rate: Not determined.

**Solubility in / Miscibility with**

Water: Fully miscible

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

dynamic: Not determined.

kinematic: Not determined.

**Solvent content:**

Organic solvents: 0,0 %

9.2 Other information: No further relevant information available.

**SECTION 10: Stability and reactivity****10.1 Reactivity**

No information known.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**Thermal decomposition / conditions to be  
avoided:**

No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions**

Water reacts violently with alkali metals.

**10.5 Incompatible materials:**

Reacts with strong oxidizing agents  
Oxidizing agents

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DE/E

Trade name **DNA Polymerase 10X Buffer**

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<b>10.6 Hazardous decomposition products:</b>	Heat Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals. Carbon monoxide and carbon dioxide Sulphur oxides (SO <sub>x</sub> ) Nitrogen oxides (NO <sub>x</sub> ) Hydrogen chloride (HCl) Metal oxide
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**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

<b>Acute toxicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
<b>LD/LC50 values that are relevant for classification:</b>	No data
<b>Skin irritation or corrosion:</b>	May cause irritation
<b>Eye irritation or corrosion:</b>	May cause irritation
<b>Sensitization:</b>	No sensitizing effect known.
<b>Germ cell mutagenicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
<b>Carcinogenicity:</b>	No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
<b>Reproductive toxicity:</b>	The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
<b>Specific target organ system toxicity - repeated exposure:</b>	No effects known.
<b>Specific target organ system toxicity - single exposure:</b>	No effects known.
<b>Aspiration hazard:</b>	No effects known.
<b>Additional toxicological information:</b>	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. The product is not subject to classification according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

**SECTION 12: Ecological information**

<b>12.1 Toxicity</b>	No further relevant information available.
<b>Aquatic toxicity:</b>	No further relevant information available.
<b>12.2 Persistence and degradability</b>	No further relevant information available.
<b>12.3 Bioaccumulative potential</b>	No further relevant information available.
<b>12.4 Mobility in soil</b>	No further relevant information available.
<b>Additional ecological information:</b>	
<b>General notes:</b>	Do not allow material to be released to the environment without proper governmental permits. Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system. Avoid transfer into the environment.
<b>12.5 Results of PBT and vPvB assessment</b>	
<b>PBT:</b>	Not applicable.
<b>vPvB:</b>	Not applicable.
<b>12.6 Other adverse effects</b>	No further relevant information available.

**SECTION 13: Disposal considerations**

<b>13.1 Waste treatment methods</b>	
<b>Recommendation</b>	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
<b>Uncleaned packagings:</b>	
<b>Recommendation:</b>	Disposal must be made according to official regulations.
<b>Recommended cleaning agent:</b>	Water, if necessary with cleaning agent.

**SECTION 14: Transport information**

<b>UN-Number</b>	
<b>ADR, ADN, IMDG, IATA</b>	Not applicable
<b>14.2 UN proper shipping name</b>	
<b>ADR, ADN, IMDG, IATA</b>	Not applicable
<b>14.3 Transport hazard class(es)</b>	
<b>ADR, ADN, IMDG, IATA</b>	
<b>Class</b>	Not applicable
<b>Packing group</b>	
<b>ADR, IMDG, IATA</b>	Not applicable
<b>14.5 Environmental hazards:</b>	
<b>Marine pollutant:</b>	No
<b>14.6 Special precautions for user</b>	Not applicable.
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>UN "Model Regulation":</b>	-

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

1185-53-1 | Tris(hydroxymethyl)aminomethane hydrochloride

3483-12-3 | 1,4-Dithio-DL-threitol

7732-18-5 | Water

**Standard for the Uniform Scheduling of Drugs and Poisons**

7487-88-9 | Magnesium sulfate

S3

**National regulations****Information about limitation of use:** For use only by technically qualified individuals.**Classification according to VbF:** Not applicable**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.(Contd. on page 4)  
DE/E

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 30.08.2013

Revision: 20.08.2012

Trade name **DNA Polymerase 10X Buffer****Other regulations, limitations and prohibitive regulations**

(Contd. of page 3)

**ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

**Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients are listed.

**REACH - Pre-registered substances**

1185-53-1 Tris(hydroxymethyl)aminomethane hydrochloride

3483-12-3 1,4-Dithio-DL-threitol

7732-18-5 Water

**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:****Abbreviations and acronyms:**

Health, Safety and Environmental Department.

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

DE/E