



Safety Data Sheet

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date 2022-12-24

Revision Number 5

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Code S2281
Product Name 50X Titanium Taq RT Enzyme Mix
Pure substance/mixture Mixture
Contains Glycerol, Nuclease Free, Glycerol

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

Identified uses No information available
Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Supplier

USA:

Takara Bio USA, Inc.
2560 Orchard Parkway
San Jose, CA 95131, USA
Phone: 800.662.2566/888.251.6618
Web: www.takarabio.com

Europe:

Takara Bio Europe S.A.S.
34, Rue de la Croix de Fer
78100 Saint-Germain-en-Laye, France
Phone: +33.1.39.04.68.80
Web: www.takarabio.com

Europe:

Takara Bio Europe AB
Arvid Wallgrens Backe 20,
SE-413 46 Göteborg, Sweden
Phone: +46.31.758.09.00
Web: www.takarabio.com

India:

DSS Takara Bio India Pvt. Ltd.
A-5 Mohan Co-operative Industrial Estate, Mathura Road,
New Delhi 110044, India
Phone: +91.1800.212.4922 (Toll free)
Web: www.takarabio.com

For further information, please contact:

1.4. Emergency telephone number

Emergency telephone In case of emergency, call PERS (Professional Emergency Resource Services)
1-800-633-8253 (US) or 801-629-0667 (international).

| | |
|-------|---|
| Italy | Marco Marano CAV "Osp. Pediatrico Bambino Gesù" Dip. Emergenza e Accettazione DEA Roma, Piazza Sant'Onofrio,4 00165 0668593726 |
|-------|---|

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

| | |
|--|---------------------|
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 - (H332) |
|--|---------------------|

2.2. Label elements

Contains Glycerol, Nuclease Free, Glycerol



Signal word

Warning

Hazard statements

H332 - Harmful if inhaled

Precautionary Statements - EU (§28, 1272/2008)

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P271 - Use only outdoors or in a well-ventilated area

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P312 - Call a POISON CENTER or doctor if you feel unwell

Additional information

This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

Endocrine Disruptor Information

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|------------------------------|---|--|
| IGEPAL CA-630, Nuclease free | Endocrine disrupting properties | - |

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

| Chemical name | Weight-% | REACH registration number | EC No (EU Index No) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) |
|---------------------------------|----------|---------------------------|---------------------|---|------------------------------------|----------|----------------------|
| Glycerol, Nuclease Free 56-81-5 | 20 - 30 | No data available | 200-289-5 | No data available | - | - | - |
| Glycerol | 1 - 5 | No data available | 200-289-5 | No data available | - | - | - |

| | | | | | | | |
|--|---------|-------------------|---|-------------------|---|---|---|
| 56-81-5 | | | | | | | |
| IGEPAL CA-630, Nuclease free 9036-19-5 | 0.1 - 1 | No data available | - | No data available | - | - | - |

Full text of H- and EUH-phrases: see section 16Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapor - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|--|-----------------|-------------------|---|---|--------------------------------------|
| Glycerol, Nuclease Free 56-81-5 | 12600 | 10000 | 2.75 | No data available | No data available |
| Glycerol 56-81-5 | 12600 | 10000 | 2.75 | No data available | No data available |
| IGEPAL CA-630, Nuclease free 9036-19-5 | 1700 | No data available | No data available | No data available | No data available |

This product contains one or more candidate substance(s) of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 59)

| Chemical name | CAS No | SVHC candidates |
|------------------------------|-----------|-----------------|
| IGEPAL CA-630, Nuclease free | 9036-19-5 | X |

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------|--|
| Inhalation | Remove to fresh air. |
| Eye contact | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician. |
| Skin contact | Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician. |
| Ingestion | Rinse mouth. |

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

Symptoms No information available.

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

Note to physicians Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical No information available.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Ensure adequate ventilation.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---------------------------------|---------------------------|--|---|---|---------------------------|
| Glycerol, Nuclease Free 56-81-5 | - | - | TWA: 10 mg/m ³ | - | TWA: 10 mg/m ³ |
| Glycerol 56-81-5 | - | - | TWA: 10 mg/m ³ | - | TWA: 10 mg/m ³ |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Glycerol, Nuclease Free 56-81-5 | - | TWA: 10 mg/m ³ Ceiling: 15 mg/m ³ | - | TWA: 10 mg/m ³ | TWA: 20 mg/m ³ |
| Glycerol 56-81-5 | - | TWA: 10 mg/m ³ Ceiling: 15 mg/m ³ | - | TWA: 10 mg/m ³ | TWA: 20 mg/m ³ |
| Chemical name | France | Germany | Germany MAK | Greece | Hungary |
| Glycerol, Nuclease Free 56-81-5 | TWA: 10 mg/m ³ | TWA: 200 mg/m ³ | TWA: 200 mg/m ³ Peak: 400 mg/m ³ | TWA: 10 mg/m ³ | - |
| Glycerol 56-81-5 | TWA: 10 mg/m ³ | TWA: 200 mg/m ³ | TWA: 200 mg/m ³ Peak: 400 mg/m ³ | TWA: 10 mg/m ³ | - |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Glycerol, Nuclease Free 56-81-5 | - | - | - | - | TWA: 10 mg/m ³ |
| Glycerol 56-81-5 | - | - | - | - | TWA: 10 mg/m ³ |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Glycerol, Nuclease Free 56-81-5 | TWA: 10 mg/m ³ | - | TWA: 11 mg/m ³ | TWA: 200 mg/m ³ STEL: 400 mg/m ³ | TWA: 10 mg/m ³ |
| Glycerol 56-81-5 | TWA: 10 mg/m ³ | - | TWA: 11 mg/m ³ | TWA: 200 mg/m ³ STEL: 400 mg/m ³ | TWA: 10 mg/m ³ |
| Chemical name | Sweden | | Switzerland | United Kingdom | |
| Glycerol, Nuclease Free 56-81-5 | - | | TWA: 50 mg/m ³ STEL: 100 mg/m ³ | TWA: 10 mg/m ³ STEL: 30 mg/m ³ | |
| Glycerol 56-81-5 | - | | TWA: 50 mg/m ³ STEL: 100 mg/m ³ | TWA: 10 mg/m ³ STEL: 30 mg/m ³ | |

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls**Personal Protective Equipment**

Eye/face protection No special protective equipment required.

Skin and body protection No special protective equipment required.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No information available.

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

| | |
|-----------------------|--------------------------|
| Physical state | Liquid |
| Appearance | Clear, colorless |
| Color | No information available |
| Odor | None. |
| Odor Threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---|--------------------------|--------------------------|
| Melting point / freezing point | No data available | None known |
| Boiling point/boiling range (°C) | No data available | None known |
| Flammability (solid, gas) | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability limit: | No data available | |
| Lower flammability limit: | No data available | |
| Flash point | No data available | Open cup |
| Autoignition temperature | 392.8 °C | None known |
| Decomposition temperature | | None known |
| pH | No data available | None known |
| pH (as aqueous solution) | No data available | No information available |
| Kinematic viscosity | No data available | None known |
| Dynamic Viscosity | No data available | None known |
| Water solubility | No data available | None known |
| Solubility in other solvents | No data available | None known |
| Partition coefficient | No data available | None known |
| Vapor pressure | No data available | None known |
| Relative density | No data available | None known |
| Bulk Density | No data available | |
| Liquid Density | No data available | |
| Vapor density | No data available | None known |
| Particle characteristics | | |
| Particle Size | No information available | |
| Particle Size Distribution | No information available | |

9.2. Other information

9.2.1. Information with regard to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

| | |
|---------------------|---|
| Inhalation | Specific test data for the substance or mixture is not available. |
| Eye contact | Specific test data for the substance or mixture is not available. |
| Skin contact | Specific test data for the substance or mixture is not available. |
| Ingestion | Specific test data for the substance or mixture is not available. |

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document

| | |
|--------------------------------------|-----------------|
| ATEmix (dermal) | 10,774.80 mg/kg |
| ATEmix (inhalation-dust/mist) | 2.96 mg/l |

Unknown acute toxicity

73.06293 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------------------------|-----------------------|----------------------|-------------------------|
| Glycerol, Nuclease Free | = 12600 mg/kg (Rat) | > 10 g/kg (Rabbit) | > 2.75 mg/L (Rat) 4 h |
| Glycerol | = 12600 mg/kg (Rat) | > 10 g/kg (Rabbit) | > 2.75 mg/L (Rat) 4 h |
| IGEPAL CA-630, Nuclease free | = 1700 mg/kg (Rat) | - | - |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation No information available.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

| | |
|---------------------------------|---------------------------|
| Carcinogenicity | No information available. |
| Reproductive toxicity | No information available. |
| STOT - single exposure | No information available. |
| STOT - repeated exposure | No information available. |
| Aspiration hazard | No information available. |

11.2. Information on other hazards**11.2.1. Endocrine disrupting properties****Endocrine disrupting properties****11.2.2. Other information**

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity**Ecotoxicity**

Unknown aquatic toxicity Contains 23.06293 % of components with unknown hazards to the aquatic environment.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|-------------------------|----------------------|--|----------------------------|-----------|
| Glycerol, Nuclease Free | - | LC50: 51 - 57mL/L (96h, Oncorhynchus mykiss) | - | - |
| Glycerol | - | LC50: 51 - 57mL/L (96h, Oncorhynchus mykiss) | - | - |

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

| Chemical name | Partition coefficient |
|-------------------------|-----------------------|
| Glycerol, Nuclease Free | -1.75 |
| Glycerol | -1.75 |

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment**PBT and vPvB assessment**

| Chemical name | PBT and vPvB assessment |
|---------------|-------------------------|
| | |

| | |
|-------------------------|---------------------------------|
| Glycerol, Nuclease Free | The substance is not PBT / vPvB |
| Glycerol | The substance is not PBT / vPvB |

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
 14.2 UN proper shipping name No information available
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental hazards Not applicable
 14.6 Special precautions for user
 Special Provisions None

IMDG

14.1 UN number or ID number Not regulated
 14.2 UN proper shipping name No information available
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental hazards Not applicable
 14.6 Special precautions for user
 Special Provisions None
 14.7 Maritime transport in bulk according to IMO instruments No information available

RID

14.1 UN number or ID number Not regulated
 14.2 UN proper shipping name No information available
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental hazards Not applicable
 14.6 Special precautions for user
 Special Provisions None

ADR

14.1 UN number or ID number Not regulated
 14.2 UN proper shipping name No information available
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental hazards Not applicable
 14.6 Special precautions for user
 Special Provisions None

SECTION 15: Regulatory information

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorization per REACH Annex XIV |
|--|---|--|
| IGEPAL CA-630, Nuclease free - 9036-19-5 | - | X |

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

International Inventories

| | |
|---------------|---|
| TSCA | - |
| DSL/NDSL | - |
| EINECS/ELINCS | - |
| ENCS | - |
| IECSC | - |
| KECL | - |
| PICCS | - |
| AICS | - |

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Assessment No information available

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend

SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | |
|---------|-----------------------|------|---------------------------|
| TWA | Time weighted average | STEL | Short term exposure limit |
| Ceiling | Maximum limit value | * | Skin designation |
| ** | Hazard Designation | + | Sensitizers |

| Classification procedure | |
|---|--------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapor | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitization | Calculation method |
| Skin sensitization | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Revision Date 2022-12-24

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet