

## Safety Data Sheet

1. Identification of the substance or mixture and of the supplier

Product name : Zymolyase(R)-20T  
 Name of supplier : Kirin Brewery Company, Limited

Recommended use of the chemical(s) : Reagent, intermediate raw material of a/the chemistry article  
 Product No. (SDS No.) : 120493-1

2. Hazards identification

GHS hazard class and category

PHYSICAL HAZARDS	EXPLOSIVES	-
	FLAMMABLE GASES	-
	AEROSOLS	-
	OXIDIZING GASES	-
	GASES UNDER PRESSURE	-
	FLAMMABLE LIQUIDS	-
	FLAMMABLE SOLIDS	-
	SELF-REACTIVE SUBSTANCES AND MIXTURES	-
	PYROPHORIC LIQUIDS	-
	PYROPHORIC SOLIDS	-
	SELF-HEATING SUBSTANCES AND MIXTURES	-
	SUBSTANCES AND MIXTURES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE	-
	OXIDIZING LIQUIDS	-
	OXIDIZING SOLIDS	-
	ORGANIC PEROXIDES	-
	CORROSIVE TO METALS	-
HEALTH HAZARDS	ACUTE TOXICITY - ORAL	-
	ACUTE TOXICITY - DERMAL	-
	ACUTE TOXICITY - INHALATION (GASES)	-
	ACUTE TOXICITY - INHALATION (VAPOURS)	-
	ACUTE TOXICITY - INHALATION (DUSTS AND MISTS)	-
	SKIN CORROSION/IRRITATION	-
	SERIOUS EYE DAMAGE/EYE IRRITATION	-
	RESPIRATORY SENSITIZATION	-
	SKIN SENSITIZATION	-
	GERM CELL MUTAGENICITY	-
	CARCINOGENICITY	-
	REPRODUCTIVE TOXICITY	-
	SPECIFIC TARGET ORGAN TOXICITY	-
	- SINGLE EXPOSURE	-
	SPECIFIC TARGET ORGAN TOXICITY	-
	- REPEATED EXPOSURE	-
	ASPIRATION HAZARD	-
ENVIRONMENTAL HAZARDS	HAZARDOUS TO THE AQUATIC ENVIRONMENT	-
	- ACUTE HAZARD	-
	HAZARDOUS TO THE AQUATIC ENVIRONMENT	-
	- CHRONIC HAZARD	-
	HAZARDOUS TO THE OZONE LAYER	-

- : Off the subject/not possible to classify

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SYMBOL	-
SIGNAL WORD	-
HAZARD STATEMENTS	-
PREVENTION	-
RESPONSE	-
STORAGE	-
DISPOSAL	-
Other hazard statements	Wear suitable protective clothing, gloves and eye/face protection. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

### 3. Composition/information on ingredients

Substance/mixture : Mixture

Chemical identity (or ingredient name) : Enzyme

Chemical formula : (Not specified)

CAS No. : 37340-57-1

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance : None

### 4. First-aid measures

General description of necessary first aid measures :

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Inhalation :

In case of accident by inhalation: remove casualty to fresh air and keep at rest.

If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and administer artificial respiration.

Skin contact :

Take off immediately all contaminated clothing.

After contact with skin, wash immediately with plenty of water.

Eye contact :

Gently rinse the affected eyes with clean water for at least 15 minutes. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Ingestion :

If swallowed, seek medical advice immediately and show this container or label.

If swallowed, rinse mouth with water (only if the person is conscious).

Do not make an unconscious person vomit.

Precaution for first-aid persons :

Protect yourself by wearing rubber gloves and air-tight safety goggles.

### 5. Fire-fighting measures

Extinguishing media :

In case of fire, use water mist, foam/water resistant foam, powder, CO<sub>2</sub>, dry sand.

Use extinguishing media appropriate to surrounding fire conditions.

Incompatible extinguishing media :

Nothing particular

Specific hazards arising from the chemical (and with regard to fire-fighting measures) :

Toxic gases will form upon combustion of : Not available

Specific fire-fighting measures :

Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area. Dry chemical powder or dry sand should be used for small fires.

Special protective equipment and precautions for fire-fighters :

Fire-fighters should wear proper protective equipment.

#### 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures :

Evacuate non-essential personnel.

Wear appropriate protective clothing.

Environmental precautions :

Attention should be given not to cause damage to the environment by flowing of spillage to rivers.

Methods and materials for containment and clean up :

Sweep up, place in a bag and hold for waste disposal.

Avoid raising dust.

Appropriate containment techniques/clean up procedures :

Shut off the leakage source and stop leak if you can do it without risk.

#### 7. Handling and storage

Precautions for safe handling :

Countermeasure technique(s) :

(Exposure control for handling personnel)

Wear proper equipment and take measures according to [8. Exposure control/personal protection].

Local exhaust ventilation system/general ventilation :

Ventilate according to [8. Exposure control/personal protection].

Preventive measures :

Handle not to generate aerosol or dust.

Incompatible contact(s) :

See [10. Stability and reactivity].

Safety measures/incompatibility :

Do not shock, overturn, drop, or drag containers.

Conditions for safe storage, including any incompatibilities :

Countermeasure technique(s) :

Tightly closed in a well-ventilated place.

Incompatibilities :

See [10. Stability and reactivity].

Storage :

(Recommendation for storage)

Keep tightly closed in cold place.

(Incompatible storage condition)

See [10. Stability and Reactivity].

Recommended container and packaging materials :

Glass, polyethylene, polypropylene, etc.

#### 8. Exposure control/personal protection

Appropriate engineering controls :

Keep source tightly closed or install local exhaust ventilation. Provide shower and vanity unit nearby and make clear the location of these.

Control value :

Japan control value

Not established.

Adopted value :

[JSOH]

Not established.

[ACGIH]

Not established.

Individual protection measures, such as personal protective equipment (PPE) :

Eye/face protection :

Wear protective eyeglasses or chemical safety goggles.

Wear face protection.

Hand protection :

Wear impervious glove made from chloroprene, as appropriate.

Skin and body protection :

To prevent any contact, wear impervious clothing such as apron, boots, or whole-body suits made from chloroprene, as appropriate.

Respiratory protection :

Wear positive pressure self-contained breathing apparatus (SCBA).

Dust mask

9. Physical and chemical properties

Appearance (physical state, color, etc.) : Pale yellowish brown lyophilized powder

Odor : Not available

pH : Not available

Melting point/freezing point : Not available

Initial boiling point and boiling range : Not available

Flash point : Not available

Density/relative density : Not available

Solubility(ies) :

Solubility in water ; Not available

10. Stability and reactivity

Chemical stability :

This product is considered a stable material under normal and anticipated storage and handling conditions.

Possibility of hazardous reactions :

Not available

Conditions to avoid :

Sunlight, heat, moisture

Incompatible materials :

Not available

Hazardous decomposition products (except for carbon monoxide, carbon dioxide and water) :

Not available

11. Toxicological information

(Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.)

Acute toxicity :

Not available

Irritant properties :

May irritate the eyes and skin.

Allergenic and sensitizing effects :

May cause sensitization by inhalation.

May cause sensitization by skin contact.

Specific target organ systemic toxicity (single exposure, repeated exposure) :

Not available

Carcinogenic effects :

Not available

Mutagenic effects :

Not available

Toxicity for reproduction :

Not available

12. Ecological information

(Insufficient data are available on the effect of this substance on the environment, therefore utmost care must be taken.)

Ecotoxicity :

Not available

Biotransportability :

Not available

Persistence and degradability :

Not available

Bioaccumulative potential :

Not available

13. Disposal considerations

Contact a licensed professional waste disposal service to dispose of this material. Comply with all country, national and local regulations. Do not dump this product into sewers, on the ground or into any body of water.

14. Transport information

Basic classification information for the transporting/shipment :

Sea ; Not controlled under IMDG's regulations.

Air ; Not controlled under IATA's regulations.

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises :

Protect from direct sun light in transportation, and confirm the container does not leak. Carefully load it onto a transporter without dropping, overturning or damaging so that it will stably stays on the transporter.

15. Regulatory information

Comply with all countries, national and local regulations.

16. Other information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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