

MATERIAL SAFETY DATA SHEET

Catalase DJ-806

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

:Catalase
DJ-806

Product

Chemical name : catalase

Synonyms : Not applicable

Molecular formula : Not applicable

Substance/preparation : high concentration liquid enzyme
through fermentation by unpathogenic microorganism
This enzyme can convert

Use of the substance/ hydrogen peroxide into water and oxygen effectively

Preparation

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2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical name</u>	<u>CAS no.</u>	<u>EINECS no.</u>	<u>IUB no.</u>	<u>Classification</u>	<u>R-Phrases</u>	<u>%</u>
Catalase	9001-05-2	232-734-4	N/A	N/A	N/A	>35

For the complete text of the R-phrases see Section 16.
Occupational Exposure Limit(s), if available, are listed in Section 8.

3. HAZARD IDENTIFICATION

Labelling



HARMFUL

Risk phrases : R42: May cause sensitization by inhalation.

Physical/chemical hazards : The data available do not support any physical or chemical hazard.

Environmental hazards : The data available do not support any environmental hazard.

Human health hazards : Liquid enzyme preparations are dustfree preparations. However, inappropriate handling may cause formation of aerosols or dust. Inhalation of enzyme aerosols or dust may induce sensitization and may cause allergic type reactions in sensitized individuals. Prolonged skin contact may cause minor irritation.

Symptoms of (over)exposure : See Section 4.

4. FIRST AID MEASURES

Inhalation

Effects : May cause respiratory allergies. Symptoms may occur after a latency period has elapsed.

Symptoms : Shortness of breath, wheezing, and laboured coughing.

First Aid : Remove victim from area of exposure. If symptoms of irritation or respiratory allergy occur, consult a doctor.

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Skin

Effects : May be irritating.
Symptoms : Redness.
First Aid : Remove victim from area of exposure. If symptoms of irritation occur, consult a doctor.

Eyes

Effects : May be irritating.
Symptoms : Redness
First Aid : Wash out with plenty of water with the eyelid held wide open for at least 15 minutes. Consult a doctor in event of any complaints.

Ingestion

Effects : May be irritating.
Symptoms : Effects or symptoms are not known.
First Aid : Rinse mouth and throat thoroughly with water. Consult a doctor in event of any complaints.

5. FIRE-FIGHTING MEASURES

Extinguishing measures

Suitable : Water, foam, halones.
Not suitable : None.
Thermal (de)composition products : -
Protective equipment : Self-contained breathing apparatus.
Specific hazards : Inhalation of aerosol may result in sensitization. Avoid any contact with the substance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Handle in closed systems and use local exhaust ventilation when there is a potential for aerosol release. Use appropriate personal protection (see Section 8). Avoid any contact with the liquid. Provide for sufficient ventilation.

Environmental precautions : Do not allow to enter natural waters or soil.

Methods for cleaning up : Use appropriate personal protection (see Section 8). Avoid any contact with the liquid. Contain spilled liquid. Take up spilled substance by mechanical means or with a vacuum cleaner equipped with a high efficiency filter. After spillage avoid raising aerosols or dust from dried preparation. Avoid splashing and high pressure washing (formation of aerosols). Provide for sufficient ventilation.

See Sections 8 and 13

7. HANDLING AND STORAGE

Handling : Use appropriate personal protection (see Section 8). Avoid any contact with the liquid. Avoid the formation of aerosols and dust from dry product. Ventilate areas.
Storage : Keep in a cool, dry place.
Specific use(s) : See Section 1: use of the substance/preparation.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

MAC value : No occupational exposure limits are known.

Other exposure limits : None.

Occupational Exposure Controls : Use closed systems and processes for handling enzymes.
Supplement with local exhaust ventilation.

Respiratory protection : Wear suitable respiratory protection in case of aerosol
formation. P3 filters are recommended.

Hand protection : Practical experience has shown that gloves of nitrile rubber,
butyl rubber, latex, and polyvinyl chloride (PVC) offer sufficient
protection.

Breakthrough time : Replace damaged gloves.

Eye protection : Safety glasses, goggles, or face shield.

Skin protection : Protective clothing.

Environmental exposure controls : Avoid dispersion to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Colour : brown

Odour : Slight fermentation odour.

pH : 6.8-8.0,

Solubility in water : Soluble.

10. STABILITY AND REACTIVITY

General : Stable under storage conditions (see Section 7).

Conditions to avoid : None.

Materials to avoid : None.

Hazardous decomposition products : None.

11. TOXICOLOGICAL INFORMATION

Irritation

Eyes : May be irritating.

Skin : May be irritating.

Respiratory system : May be irritating.

Acute toxicity

Oral : LD₅₀ rat: >5000 mg/kg.

Dermal : Information not available.

Inhalation : Information not available.

Chronic toxicity

Oral : Information not available.

Dermal : Information not available.

Inhalation : Information not available.

Other Information : Inhalation: Repeated Inhalation of enzyme aerosol, resulting from
improper handling, may induce sensitization and may cause
allergic type reactions in sensitized individuals.

Skin: Prolonged or repeated skin contact may be irritating.

Oral: Not toxic.

Carcinogenicity : Information not available.

Mutagenicity : Not mutagenic.

Reproduction toxicity : Information not available.

12. ECOLOGICAL INFORMATION

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Ecotoxicity : The preparation is believed not to be dangerous to the environment with respect to mobility, persistence and degradability, bio-accumulative potential, aquatic toxicity and other data relating to eco-toxicity.

Persistence- degradability : The substance is readily biodegradable.

Bioaccumulative potential : Bioaccumulative in aquatic organisms is not expected.

Other adverse effects : Not applicable.

LC50>100mg/l,

Biodegradability value : 100%

13. DISPOSAL CONSIDERATIONS

Methods of disposal : No special disposal methods required, except to be in accordance with current authority regulations.

14. TRANSPORT INFORMATION**DOT:**

DOT Status: Not hazardous.

DOT Shipping Name: None

DOT Reportable Quantity (lbs): Not applicable.

DOT Packing Group: Not applicable.

Harmonized Tariff Code: 3507.90.9000 (for enzymes)

ICAO/IATA: Not applicable.

IMDG: Not applicable.

Special precautions : None known

Proper shipping name : Not a dangerous goods according to transport regulations.

National transport regulations : No additional national transport regulations are known to the supplier.

15. REGULATORY INFORMATION**Labelling according to Directive 67/548/EC and 1999/45/EC.**

Contains : Catalase (liquid enzyme).

This product is labelled by the supplier in accordance to the EC regulations.

This product is hazardous within the meaning of directive 88/379/ECC.



HARMFUL

Symbol : X_n

Risk phrases : R42 : May cause sensitization by inhalation.

Safety phrases : S22 : Do not breathe dust.

S23 : Do not breathe spray.

S24 : Avoid contact with skin.

S36/37 : Wear suitable protective clothing and gloves.

16. OTHER INFORMATION

Hazardous Materials Identification System ("HMIS") Hazard Ratings:

Health: 2

Flammability: 1

Reactivity: 0

Personal Protection: B

The information contained in this Safety Data Sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendations or suggestions are made without warranty or guarantee. Since the conditions of use are beyond the

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control of our company, it is the responsibility of the user to determine the conditions of safe use of this product. The information in this sheet does not represent analytical specifications, for which please refer to our technical data sheet.

References: MSDS prepare norms (2001/58/EC)