

Material Safety Data Sheet



Revision Date 2017. 03. 20

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

Product name	TNF α
Product code	C001S, C001M, C001L
Recommended use of the chemical and restrictions on use	
Recommended use	For research use only
Restrictions on use	For research use only
Details of the supplier	
Company name	Enzynomics Inc.
Address	Munji-ro 281-9, Yuseong-gu, Daejeon, 34050, Korea
Immergence contact number	+82-42-719-1023

2. HAZARDS IDENTIFICATION

Classification of Hazards and dangerousness	No relevant classification
Warning article including prevention methods	
Category	No information available
Hazards and dangerousness	No information available
Prevention methods	
Prevention	No information available
Action	No information available
Store	No information available
Discard	No information available
Other hazards and dangerousness (NFPA) not included in classification	
Health	No information applicable
Fire	No information applicable
Reactivity	No information applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material name	Usual name	CAS No.	Amount (%)
No information applicable	-	-	-

This product contains no substances that are considered to be hazardous to health at the product concentration

4. FIRST AID MEASURES

Eye contact	Consult a physician Immediately rinse skin and eyes thoroughly with plenty of running water for at least 20 minutes.
Skin contact	Consult a physician Remove contaminated clothes and shoes and isolate contaminated area Immediately rinse skin and eyes thoroughly with plenty of running water for at least 20 minutes. Fire risk when drying contaminated clothes
Inhalation	Remove to fresh air CPR when there is no breathing Provide Oxygen when breathing is difficult Provide warm and stability
Ingestion	Emergency medical measurers
Note to physicians	Take protective action according to the material

5. FIRE FIGHTING MEASURES

Proper (improper) fire extinguishing agents	Small fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO ₂ (suitable extinguishing agent) Large fires: water spray / mist, regular foam (suitable extinguishing agent) High pressure water (improper extinguishing agent)
Specific hazards from chemical compounds	No information available
Protective equipment and precautions for fire fighting	No information available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Micro particles can ignite fire or explosion therefore remove all the sources of fire. Separate combustibles from leaked material Stop leak if it is not dangerous Do not contact with leaked materials without wearing proper protective equipment
Environmental precautions	Give attention to materials and conditions that should be avoid No information available
Containment and cleaning up	Build a dike and pool water for fire extinguish Do not use flammable materials such as sawdust Make a ditch to contain large leak Pool released material by clean shovel into clean and dry container, tie it and then remove from released area After probation clean contaminated area with water

7. HANDLING AND STORAGE

Precautions for safe handling	Note the substances and conditions to avoid Wash thoroughly after handling Note the high temperature In case of material leakage, reduce the oxygen concentration in the air and cause suffocation in an enclosed space, so be careful not to spill Check the oxygen concentration before entering the place because there is a risk of loss of consciousness or death due to oxygen deficiency at high concentration in the air Keep this temperature below 20°C because this material evaporates slowly and reaches hazardous concentrations. Do not spray because it will evaporate faster if sprayed
Conditions for safe storage	Keep it tightly closed Store in a cool, dry place

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure standard of chemical compound, biological exposure standard

Domestic regulations	No information available
ACGIH regulation	No information available
Biological release regulation	No information available
Individual protection equipment	
Respiratory protection	No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

State	Liquid
Color	Colorlessness
Odor	Odorless
Odor threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Early boiling point and range	No information available
Flashing point	No information available
Evaporation rate	No information available
Evaporation rate (solid/liquid)	No information available
Maximum / minimum evaporation or explosion range	- / -
Steam pressure	No information available
Solubility	No information available
Vapor density	No information available
Specific gravity	No information available
n-octanol/ distribution coefficient	No information available
Self-ignition temperature	No information available
Disassemble temperature	No information available
Viscosity	No information available
Molecular weight	No information available

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	No information available
Situation to avoid	No information available
Materials to avoid	No information available
Harmful material produce by degradation	No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	No information available
Health maleficence information	
Acute poison	
Oral	No information available
Ingestion	No information available
Inhalation	No information available
Skin corrosion or irritant agent	No information available
Serious eye damage or irritation	No information available
Respiratory organ hypersensitiveness	No information available
Skin hypersensitiveness	No information available

Carcinogenic

Occupational safety and health acts	No information available
Employment announcement	No information available
IARC	No information available
OSHA	No information available
ACGIH	No information available
NTP	No information available
EU CLP	No information available
Germ cell mutagenicity	No information available
Reproduction toxicity test	No information available
Special target poison (1 time exposurer)	No information available
Special target poison (long exposurer)	No information available
Absorption injurious	No information available

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Fish	No information available
Crustacean	No information available
Algae	No information available

Residual fungicide and resolvability

Residual fungicide	No information available
Resolvability	No information available

Life enrichment

Enrichment	No information available
Biodegradability	No information available

Soil

Other harmful influences	No information available
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13. DISPOSAL CONSIDERATIONS**Waste treatment method**

Dispose container and content according to the waster control act

Disposal considerations

Dispose container and content according to the waster control act

14. TRANSPORT INFORMATION**IATA**

Propriety shipping name	No dangerous good in sense of these transport regulations
Hazard class	No information available
Subsidiary class	No information available
Packing group	No information available
UN-No	No information available
Environmental hazards	No information available

15. REGULATORY INFORMATION

Regulations of occupational safety and health act	No information available
Regulations of toxic chemicals regulation act	No information available
Regulations of safety control of dangerous substances act	No information available
Regulations of waste control act	No information available

Regulations of other domestic and international act

Domestic act

Persistent organic pollutants control act No information available

Foreign act

American supervision information No information applicable

CERCLA No information applicable

EPCRA 302 No information applicable

EPCRA 304 No information applicable

EPCRA 313 No information applicable

**American supervision information
(Rotterdam agreement material)** No information applicable

**American supervision information
(Stockholm agreement material)** No information applicable

**American supervision information
(Montreal protocol material)** No information applicable

**EU Classification information
(Confirmed classification results)** No information applicable

**EU Classification information
(Danger expression)** No information applicable

**EU Classification information
(Safety expression)** No information applicable

16. OTHER INFORMATION

Source of material

IUCLID (oral)

SIDS (oral)

SIDS (skin corrosive or irritant)

SIDS (severe eye damage or irritation)

NLM (Germ Cell Mutagenesis)

IUCLID (specific target organ toxicity (repeated exposure))

OECD SIDS (fish)

EU IUCLID (Crustaceans)

OECD SIDS (Crustaceans)

US EPA ECOTOX (Crustaceans)

ECOSAR (agar)

OECD SIDS (Enrichment)

IUCLDE (biodegradable)

OECD SIDS (biodegradable)

OECD TG 301C (biodegradable)

OECD TG 301D (biodegradable)

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since Enzynomics, Inc. cannot control the actual methods, volumes, or conditions of use, the company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.

Questions about the information found on this MSDS should be directed to info@enzynomics.com.

End of Material Safety Data Sheet