

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
Product	NKT LKD P3				

1. Chemical Product and Company Identification

1) Product

NKT LKD P3 (3% Protein Foam)

2) Recommended use of the chemical and restrictions on use

- Recommended use : Fire Extinguishing Foam
- Restrictions on use : Do not use for purposes other than

3) Manufacture/Supplier information

- Supply company : NKTECH Co., Ltd.
- Address : 541-3, Won-Dong, Osan, Kyungki-Do, Korea
- Information service or emergency call : 82-31-377-3311

2. Health Hazards

1) Classification of the substance or mixture

- Acute toxicity
 - Oral : No data
 - Dermal : No data
 - Inhalation vapours : No data
- Skin corrosion/irritation : Category 2
- Serious eye damage/eye irritation : Category 1
- Carcinogenicity : Category 1
- Reproductive toxicity : Category 1B
- Specific target organ systemic toxicity (single exposure) : Category 1
- Specific target organ systemic toxicity (repeated exposure) : Category 1

2) GHS labels, including precautionary statements

- Symbol



- Signal word : Danger
- Hazard statement
 - H315 Causes skin irritation
 - H319 Causes serious eye irritation
 - H360 May damage fertility or the unborn child
 - H370 Causes damage to organs
 - H372 Causes damage to organs through prolonged or repeated exposure

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
-------	------------	---------	--	----------	---

Product	NKT LKD P3
----------------	-------------------

Precautionary statement

- Prevention

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash ... thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

- Response

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P307+P311 IF exposed: Call a POISON CENTER or doctor/physician.
 P310 Immediately call a POISON CENTER or doctor/physician.
 P314 Get medical advice/attention if you feel unwell.
 P332+P313 If skin irritation occurs: Get medical advice/attention.

- Storage

- P403+P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

- Disposal

- P501 Dispose of contents/ container in accordance with regulation.

3) Other hazards which do not result in classification

NFPA

- Health 1
 - Fire 0
 - Reactivity 0

3. Composition and Information on Ingredients

Component	Synonyms	CAS No.	Content(vol.%)
Peptones	Proteins	73049-73-7	30 < Vol. < 50
Ferrous sulfate, Heptahydrate	Iron(II) Sulfate	7782-63-0	Vol. < 1%
Water	Dihydrogen monoxide	7732-18-5	10% < Vol. < 30%

4. First Aid Measures

1) Eye contact

Flush eye with water for 15 minutes. Get medical attention.

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
-------	------------	---------	--	----------	---

Product	NKT LKD P3
----------------	-------------------

2) Skin contact

Wash with soap and water. Get medical attention if irritation develops or persists. Injection may not appear serious at first but within a few hours, without proper treatment, the area will swollen, discolored and extremely painful. Wash clothing before reuse. Destroy contaminated shoes and other leather products.

3) Inhalation

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give and continue to monitor. Get immediate medical attention

4) Ingestion

Do not induce vomiting! Do not give liquids! Get medical attention immediately.

5) Most important symptoms/effects, acute and delayed

No data

6) First-aid treatment and information on medical doctors

No data

5. Fire Fighting Measures

1) Extinguishing media

No data

2) Specific hazard from chemical material

No data

6. Accidental Release Measures

1) Necessary actions to protect human health

Avoid breathing dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing
Stop leak if safety to do so.

2) Necessary actions to protect the environment

- Air : No data
- Soil : No data
- Water : No data



Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
-------	------------	---------	--	----------	---

Product	NKT LKD P3
----------------	-------------------

3) Purification and removal methods

- Small leak : Take up with sand or other oil absorbing materials.
- Large leak : Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

7. Handling and Storage

1) Safety handling

Avoid breathing (dust, vapor, mist, gas). Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Wash thoroughly after handling.

2) Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Store in corrosive resistant container with a resistant inner liner.

8. Exposure Control and Protective Equipment

1) Exposure limits and biological exposure limits of chemical

No data

2) Engineering management

Use with adequate ventilation. Good general ventilation should be sufficient to control airborne levels.

3) Personal protection equipment

- Respiratory protection :
In case of inadequate ventilation, wear respiratory protection. Wear protective gloves/protective clothing/face protection.
- Eyes protection :
Use chemical liquid splash-protection goggles and face shield.
- Hands protection :
The protective glove may provide protection against permeation as below. Gloves, which are made from other chemically resistant materials, may not provide adequate protection. Protective gloves are recommended to protect from contact with product. Polyethylene, Neoprene, Nitrile, Polyvinyl alcohol, Viton.
- Human body protection :
The following materials are required and acceptable for use as a protective clothing:
If where Polyvinyl alcohol splashing is possible, full chemically resistant protective clothing (e.g., acid suit) and boots (PVA), Polyethylene; Neoprene, Nitrile, Viton, Polyurethane, Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Remove contaminated clothing and wash before reuse.

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
Product		NKT LKD P3			

9. Physical and Chemical Properties

1) Appearance	: dark brown
2) Odor	: malodor
3) Odor threshold	: No data
4) PH at 20 °C	: 6.5~9
5) Freezing point	: -15 °C
6) Initial boiling point or boiling range	: No data
7) Flash point	: No data
8) Evaporation rate	: No data
9) Flammability(solid, gas)	: No data
10) Upper/lower flammability or explosive limits	: No data
11) Vapor pressure	: No data
12) Solubility	: No data
13) Vapor density	: No data
14) Relative density	: 1.154 g/ml
15) Partition coefficient: n-octano/water	: No data
16) Auto-ignition temperature	: No data
17) Decomposition temperature	: No data
18) Viscosity	: 16 cp
19) Molecular weight	: No data

10. Stability and Reactivity

1) Chemical stability

Stable when stored under proper conditions.

2) Toxicant generation possibility during reaction

No data

3) Prohibited conditions

Corrosion-free storage containers, Have the courage to use the specified coating.

4) Prohibited materials

Oil, Other Surfactants, Impurities

5) Toxicant during decomposition

Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.

11. Toxicological Information

1) Information on the likely routes of exposure

- Inhalation : Harmful if inhaled.
- Ingestion : Harmful if swallowed
- Skin contact : Harmful if absorbed through skin.
- Eye contact : Harmful if absorbed into eye.

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
-------	------------	---------	--	----------	---

Product	NKT LKD P3
----------------	-------------------

2) Delayed and immediate effects and chronic effects from short or long term exposure

- Acute toxicity
 - Oral : No data
 - Dermal : No data
 - Inhalation : No data
- Skin corrosion/irritation : Irritants
- Serious eye damage/eye irritation : Irritants
- Respiratory sensitization : No data
- Skin sensitization : No data
- Carcinogenicity : No data
- Germ cell mutagenicity : No data
- Reproductive toxicity : No data
- Specific target organ systemic toxicity(single exposure) : No data
- Specific target organ systemic toxicity(repeated exposure) : No data
- Aspiration hazard : No data

12. Ecological Information

1) Hazardous to the aquatic environment

No data

2) Persistence and degradability

No data

3) Bioaccumulative potential

No data

4) Mobility in soil

No data

5) Other adverse effects

No data

13. Disposal Considerations

1) Disposal methods

Follow local regulations.

2) Disposal cautions

Do not flush material to drain or storm sewer. Contract to authorized disposal service.

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
Product		NKT LKD P3			

14. Transport Information

1) UN number

No data

2) UN Proper Shipping Name

Not determined

3) Transport hazard classes

Not determined

4) Packing group, if applicable

Not determined

5) Environmental hazards

Emergency management type of fire and leak : Not determined

15. Regulatory Information

1) Industrial safety and health act (Korea)

Occupation environment measurement material

2) Toxic chemical substance subject to management act (Korea)

Observational chemicals

3) Wastes control act (Korea)

Not determined

4) Hazardous material safety act (Korea)

Not determined

5) Other internal and foreign acts

- Persistent organic pollutant control act (Korea)
 - Not determined
- EC classification
 - Not determined
- U.S. acts
 - OSHA (29CFR1910.119) : Not determined
 - CERCLA 103 (40CFR302.4) : Not determined
 - EPCRA 302 (40CFR355.30) : Not determined
 - EPCRA 304 (40CFR355.40) : Not determined
 - EPCRA 313 (40CFR372.65) : Not determined
- Rotterdam Convention on Harmful Chemicals & Pesticides : Not determined
- Stockholm document : Not determined
- Montreal protocol : Not determined

NKFS Material Safety Data Sheet

Issue	2012-04-25	Revised		Rev. No.	0
Product	NKT LKD P3				

16. Other Information

1) References

IUCLID Data sheet
KOSHA Material Safety Data Sheet
OSHA :U.S. Occupational Safety & Health Administration

2) Date of preparation of the first version

2012-4-25

3) Revision

Revision No : 0
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