

NEWFUTURE CHEMICALS CO.,LTD

Material Safety Data sheet

Methyl Ethyl Ketoxime

1.CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Methyl Ethyl Ketoxime

OTHER/GENERIC NAMES: 2-Butanon oxime
Methyl Ethyl Ketone Oxime
Methyl Ethyl Ketoxime
MEK-Oxime
MEKO
AOB

PRODUCT USE: Industrial chemical

MANUFACTURER: Shangrao Newfuture Environment Protection Technology Co.,Ltd. (<http://www.xwlhb.com>)
Jinshan industrial zone, Yushan, Shangrao, Jiangxi
Zip code:334700

FOR MORE INFORMATION CALL:
(Monday-Friday, 9:00am-4:30pm)
86-793-2365518

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)
86-793-2365516

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Methyl Ethyl Ketoxime	96-29-7	> 99.5

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Material is a clear colorless liquid with a mild ethereal odor. It is a severe eye irritant and can cause skin and respiratory tract irritation. Determined to be of moderate oral toxicity.

POTENTIAL HEALTH HAZARDS

SKIN: Causes mild skin irritation. Material can be absorbed through the skin leading to effects similar to those described for inhalation and ingestion. Although positive sensitization data resulted from a guinea pig maximization test, human experience has failed to indicate any allergic skin reaction.

EYES: Causes severe eye irritation and may possibly cause corrosive burns.

INHALATION: Animal (rat) data show narcotic action at high vapor concentration. Extremely high concentrations may lead to coma and respiratory failure. May produce blood effects similar to those described for ingestion. Mist may irritate respiratory tract. Vapor may irritate the nasal passage.

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INGESTION: Determined to be of moderate oral toxicity. Ingestion may produce blood effects, reducing the blood's ability to transport oxygen (methemoglobinemia and anemia). Nausea, vomiting and symptoms similar to those listed for inhalation may also occur.

DELAYED EFFECTS: Male rats and mice exposed to this material throughout their lifetimes developed liver tumors. Since many commonly used chemicals cause liver tumors in rats and mice, additional testing on MEKO is planned or underway to determine any relevance to humans.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<u>Ingredient Name</u>	<u>NTP Status</u>	<u>IARC Status</u>	<u>OSHA</u>
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List
No ingredients listed in this section.

4. FIRST AID MEASURES

SKIN: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing and launder before reuse. Get medical attention for irritation or any other symptom.

EYES: Immediately flush with running water for at least 15 minutes, lifting eyelids periodically to remove contamination. Get immediate medical attention.

INHALATION: Remove to fresh air. If breathing has stopped, apply artificial respiration. If breathing is difficult, give oxygen provided a qualified operator is available. Get medical attention.

INGESTION: If conscious, give two to four glasses of water or milk and induce vomiting by touching finger to back of throat. Get immediate medical attention.

ADVICE TO PHYSICIAN: No additional instructions. Treat according to symptoms present.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: 156°F (69°C).

FLASH POINT METHOD: TAG Closed Cup.

AUTOIGNITION TEMPERATURE: Not Determined.

UPPER FLAME LIMIT (volume % in air): Not Determined.

LOWER FLAME LIMIT (volume % in air): Not Determined.

FLAME PROPAGATION RATE (solids): Not Applicable

OSHA FLAMMABILITY CLASS: Combustible

EXTINGUISHING MEDIA:

Use carbon dioxide, dry chemical, or alcohol foam (polar solvent foam). Standard foam may be ineffective.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Thermal decomposition produces methyl ethyl ketone, substituted amides and possibly other

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materials. Combustion is expected to produce at least carbon monoxide, carbon dioxide and oxides of nitrogen.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS: Use protective clothing to

Wear NIOSH approved self-contained breathing apparatus with full facepiece and protect against contact with skin and eyes. Use water spray to cool fire exposed containers.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE:

(Always wear recommended personal protective equipment.) Eliminate sources of ignition. Provide proper ventilation to area. Absorb with inert absorbent and place in an approved chemical waste container.

For large spills, dike up with inert material and pump into same container. Do not allow pump to overheat.

Do not allow to enter into sewers or waterways.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING:

(Always wear recommended personal protective equipment.) Keep away from heat and open flame.

Avoid contact with skin, eyes and clothing. Launder contaminated clothing before reuse.

Do not breathe vapors. Do not expose to acids and oxidizers.

Vent container before opening. Transfer using a closed system or mechanical point exhaust.

STORAGE RECOMMENDATIONS:

Store in a cool, dry, well ventilated area suitable for flammable liquids.

Keep away from strong acids and oxidizers. Protect containers from physical damage. Keep upright and tightly closed.

Do not reuse drums.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Mechanical ventilation is preferred. Use of local exhaust and/or a fume hood is recommended.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: Avoid skin contact by wearing long-sleeved shirt, gloves and trousers for routine product handling.

Use impervious clothing if liquid contact is possible.

Do not take work clothing home.

Showering after work is recommended.

Recommended materials of construction for gloves include butyl rubber, neoprene or nitrile.

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EYE PROTECTION:

Under normal conditions, wear chemical safety glasses or goggles. If liquid contact is possible, add a full face shield.

RESPIRATORY PROTECTION:

Not required for properly ventilated areas. If there is potential for the inhalation of vapor or mist, use an appropriate NIOSH approved respirator.

The respirator must be selected based on contamination levels and use conditions found in the workplace, must not exceed the working limits of the respirator and be approved by the National Institute for Occupational Safety and Health (NIOSH) and used in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1910.134.

The current AIHA WEEL (workplace environmental exposure) value of 10 ppm (TWA), as indicated below, may no longer be valid based upon findings from lifetime animal studies. It is recommended that concentrations of MEKO be kept below 3 ppm (TWA), the NEWFUTURE ENVIRONMENT PROTECTION TECHNOLOGY CO.,LTD.recommended permissible exposure level. Average (8 hour) exposures to MEKO have been measured at 3 ppm or less for typical applications. Any questions concerning your use of MEKO should be directed to Shangrao Newfuture Environment Protection Technology Co.,Ltd(86-793-2365518).

ADDITIONAL RECOMMENDATIONS:

Provide eyewash station and safety showers convenient to work areas.

EXPOSURE GUIDELINES (Guidelines exist for the following ingredients)

<u>Ingredient Name</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>Other Limit</u>
Methyl Ethyl Ketoxime	None	None	3 ppm (TWA)* 10ppm (STEL)* 10 ppm (TWA)**

* = Limit established by AlliedSignal.

** = Workplace Environmental Exposure Level (AIHA).

*** = Biological Exposure Index (ACGIH).

Other exposure limits for the decomposition products normally associated with product use are as follows:

None.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, colorless to light yellow

PHYSICAL STATE: Liquid

MOLECULAR WEIGHT: 87

CHEMICAL FORMULA: C₄H₉NO

ODOR : Mild ethereal odor.

SPECIFIC GRAVITY (Water = 1.0): 0.92 g/ml.

SOLUBILITY IN WATER (Weight %): 114g/L (25 °C)

pH: 7.0 to 8.5

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BOILING POINT: 306°F (152°C).

Viscosity : 4.4cps (25 °C)

MELTING POINT: -21.1°F (-29.5°C)

VAPOR PRESSURE: 2.0 mm Hg / 68°F (20°C)

VAPOR DENSITY (air = 1.0): (Air = 1.0) 3.0 (Est.)

EVAPORATION RATE: > 1.0

COMPARED TO: Ether = 1.0

% VOLATILES: Essentially 100.

FLASH POINT: 156°F (69°C)..

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable under normal conditions. Do not expose to high temperatures.

INCOMPATIBILITIES:

Strong acids, oxidants and alkalies.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition produces methyl ethyl ketone, substituted amides and possibly other materials.

Combustion is expected to produce carbon monoxide, carbon dioxide and oxides of nitrogen.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Acute Oral (rat) LD50 = 2.5~ 4.0 ml/kg. (2.3 ~3.7 gm/kg).

Dermal LD50 (rabbit) = 1.0~ 2.0 ml/kg. (0.92~1.84 gm/kg).

Inhalation LC50 (rat) ≥ 4.8 mg/liter.

Intraperitoneal LD50 (mouse) = 1000 mg/kg.

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

In a subchronic oral toxicity animal study, methyl ethyl ketoxime (MEKO) produced an adverse effect upon red blood cells (anemia). This was found for all dose levels tested.

In an acute dermal animal study, 200 mg/kg caused mild hematologic (blood) effects. No effects were seen at 20 mg/kg.

Liver carcinomas were observed in a lifetime inhalation study in which mice and rats were exposed to MEKO 6 hr/day, 5 days/week for 18 months and 26 months, respectively. These carcinomas were Statistically increased in males at a MEKO concentration of 375 ppm.

In addition, degenerative effects on the olfactory epithelium of the nasal passages occurred in a concentration related manner in males and females of both species at MEKO concentrations of 15, 75, and 375 ppm. The effects at 15 ppm were minimal. The effect at all concentrations was limited to the olfactory tissue situated in the anterior dorsal region of the

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nasal cavity. Large areas of olfactory epithelium laterally and posteriorly were not affected.

A subsequent subchronic inhalation study in mice found the effect after one week of exposure at 30 ppm (6 hrs/day; 5 days/week) but no increase in incidence or severity occurred with increasing exposure duration up to 13 weeks. Evidence of recovery was found after cessation of exposure. The no-effect level

was 3 ppm.

MEKO is not considered mutagenic based on several in vitro and in vivo studies.

OTHER DATA:

None.

12. ECOLOGICAL INFORMATION

MEKO has been determined to be biodegradable and has a static 96 hour LC50 of 48 mg/L (bluegill) and

a 48 hour EC50 of 750 mg/L (daphnia).

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No.

If yes, the RCRA ID number is: Not applicable.

OTHER DISPOSAL CONSIDERATIONS: Disposer must comply with Federal, State and Local disposal or discharge laws. Dispose of as other flammable liquids. Incineration recommended.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Class 3 - Flammable Liquid, PG III.

Proper DOT Shipping Description:

Flammable Liquid, N.O.S. (Methyl Ethyl Ketoxime), 3, UN 1993, III.

US DOT ID NUMBER: UN 1993

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on the TSCA inventory.

OTHER TSCA ISSUES: None.

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SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>Ingredient</u> <u>(lb)</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPQ</u>
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No ingredients listed in this section.

SECTION 311 HAZARD Immediate. Delayed. Fire.

CLASS:

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
No ingredients listed in this section.	

STATE RIGHT-TO KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>Ingredient</u>	<u>Wt. %</u>
<u>Comment</u>	
No ingredients listed in this section.	

ADDITIONAL REGULATORY INFORMATION:

None

WHMIS CLASSIFICATION (CANADA):

Class B, Division 3 and
Class D, Division 2, Subdivision A.

FOREIGN INVENTORY STATUS:

One the EINECS inventory. EINECS No. 202-496-6.
On the Canadian DSL.
On the Korean TCCL. ECL Serial No. 2-1002.

16. OTHER INFORMATION

CURRENT ISSUE DATE: August 6, 2005.

PREVIOUS ISSUE DATE: October 28, 2004.

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Amended:

Respiratory Protection, Section 8.

OTHER INFORMATION: HMIS/NFPA Rating

Health - 2
Flammability - 2
Reactivity - 0