



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE N0186
PRODUCT NAME NAT. 2,3 PENTANEDIONE (ACETYL PROPIONYL)
SUPPLIER Shanghai M & U International Trade Co., Ltd.
Rm 1717, No 598 North NuJiang Road
200333 Shanghai, China
+86-21-32515501 32515502
sales@mu-intel.com

FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Emergency Overview

OSHA Hazards

Flammable liquid, Irritant

GHS Classification

Flammable liquids (Category 2)

Acute toxicity, Oral (Category 5)

Skin irritation (Category 2)

Eye irritation (Category 2A)

Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapor.

H303 May be harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statement(s) ****Respirator is highly recommended when using this ingredient****

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P305 P351 P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard 2

Flammability 3

Physical hazards 1

NFPA Rating

| | |
|-------------------|---|
| Health hazard | 2 |
| Fire | 3 |
| Reactivity Hazard | 0 |

Potential Health Effects

| | |
|------------|--|
| Inhalation | May be harmful if inhaled. Causes respiratory tract irritation. |
| Skin | May be harmful if absorbed through skin. Causes skin irritation. |
| Eyes | Causes eye irritation. |
| Ingestion | May be harmful if swallowed. |

****Danger: Can cause damage to respiratory tract and lungs if inhaled. Highly Flammable.**

****Warning: Can cause eye, skin, nose and throat irritation.**

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Synonym Acetylpropionyl
Pentane-2,3-dione

Formula C5 H8 O2

Molecular Weight 100.12 g/mol

| CAS-No | EC-No | Index-No. | Concentration |
|----------|-----------|-----------|---------------|
| 600-14-6 | 209-984-8 | | |

4. FIRST-AID GUIDE:**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

****Danger: Can cause damage to respiratory tract and lungs if inhaled. Highly Flammable.**

****Warning: Can cause eye, skin, nose and throat irritation.**

5. FIRE-FIGHTING GUIDE:**Suitable extinguishing media**

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information

Use water spray to cool unopened containers

6. ACCIDENTAL RELEASE GUIDE:**Personal precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 12).

7. HANDLING AND STORAGE:**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition-No smoking. Take measures to prevent the buildup of electrostatic charge .

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE AND PERSONAL PROTECTION:

Contains no substances with occupational exposure limit values.

Personal protective equipment:**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

****Danger: Can cause damage to respiratory tract and lungs if inhaled. Highly Flammable.**

****Warning: Can cause eye, skin, nose and throat irritation.**

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance

Form LIQUID
Color COLORLESS TO PALE YELLOW

Safety data

pH no data available
Melting point (°C) -56
Boiling point (°C) 109
Flash point (°F) Closed cup 65
Vapor pressure (mmHg@20°C) no data available
Density @25 °C 0.956
Water solubility INSOLUBLE
Relative vapor density no data available
Odor BUTTERY ON DILUTION

10. STABILITY AND REACTIVITY:

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapors may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid

Oxidizing agents, Reducing agents, Strong bases

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION:

Acute toxicity

Oral LD50

LD50 Oral - rat - 3,000 mg/kg

Dermal LD50

LD50 Dermal - rabbit - > 2,500 mg/kg

Skin corrosion/irritation

Skin - rabbit - Skin irritation - 24 h

Remarks: Moderate skin irritation

Carcinogenicity

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP:

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Inhalation - May cause respiratory irritation.

Potential health effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. Causes skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. For additional studies related to this product, review OSHA literature on Diacetyl and flavorings (www.OSHA.gov), the OSHA NEP for Microwave Popcorn Processing Plants, NIOSH publication 2004-110d, and other NIOSH literature regarding flavorings (www.cdc.gov/NIOSH). Animals exposed to diacetyl and other related diacetyl substitutes experienced damage to the nose and upper airways, including severe damage to cells lining the respiratory tract. NIOSH has reported that employees exposed to butter flavorings containing diacetyl are at risk of developing occupational lung diseases and that in one instance, similar illnesses have been found among employees producing butter and vanilla flavorings containing diacetyl.

Additional Information

RTECS: SA1850000

12. DISPOSAL RECOMMENDATIONS:

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a

licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

13. TRANSPORTATION INFORMATION:

DOT (US)

UN number: 1993 Class: 3 Packing group: II

Proper shipping name: Flammable Liquid N.O.S.

IMDG

UN number: 1993 Class: 3 Packing group: II

Proper shipping name: Flammable Liquid N.O.S.

IATA

UN number: 1993 Class: 3 Packing group: II

Proper shipping name: Flammable Liquid N.O.S.

14. REGULATORY INFORMATION:

OSHA Hazards

Flammable liquid, Irritant

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

| | | |
|-------------------|----------|---------------|
| pentane-2,3-dione | CAS-No. | Revision Date |
| | 600-14-6 | |

New Jersey Right To Know Components

| | | |
|-------------------|----------|---------------|
| pentane-2,3-dione | CAS-No. | Revision Date |
| | 600-14-6 | |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

*****Danger: Can cause damage to respiratory tract and lungs if inhaled. Highly Flammable.***

*****Warning: Can cause eye, skin, nose and throat irritation.***

15. OTHER INFORMATION:

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the MSDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the MSDS. The user should review these regulations to ensure full compliance.

Material Safety Data Sheet prepared by: **M & U International LLC**