

**1. PRODUCT AND COMPANY IDENTIFICATION:**

<b>PRODUCT CODE</b>	A0494
<b>PRODUCT NAME</b>	2,3 HEXANEDIONE
<b>SUPPLIER</b>	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 3)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)  
Specific target organ toxicity –  
single exposure (Category 3)

**GHS Label elements, including precautionary statements**  
**Pictogram:**



**Signal word**  
Warning

**Hazard statement(s)**  
H226 Flammable liquid and vapour.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.

**Precautionary statement(s)**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P303 P361 P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 P351 P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P332 P313	If skin irritation occurs: Get medical advice/ attention.
P337 P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 P233	Store in a well-ventilated place. Keep container tightly closed.
P403 P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

**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.

**3. COMPOSITION AND INFORMATION ON INGREDIENTS:**

**SYNONYM:** Acetyl butyryl  
**Formula:** C<sub>6</sub>H<sub>10</sub>O<sub>2</sub>  
**Molecular Weight:** 114.14 g/mol  
**CAS-No.:** 3848-24-6  
**EC-No.:** 223-350-8  
**Index-No.:** N/A  
**Concentration:** N/A

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

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**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.

**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 firefighting 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. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours 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 13).

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

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

**Conditions for safe storage**

Store in cool place. 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 multi-purpose 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.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

<b>Appearance</b>	
<b>Form</b>	LIQUID
<b>Colour</b>	YELLOW TO DARK YELLOW
<b>Safety data</b>	
<b>pH</b>	no data available
<b>Melting point (°C)</b>	no data available
<b>Boiling point (°C)</b>	119
<b>Flash point (°F) Closed cup</b>	77
<b>Ignition temperature</b>	no data available
<b>Auto ignition temperature</b>	no data available
<b>Lower explosion limit</b>	no data available
<b>Upper explosion limit</b>	no data available
<b>Vapour pressure (mm Hg@20 °C)</b>	no data available
<b>Density @25 °C</b>	no data available
<b>Water solubility</b>	SLIGHT
<b>Partition coefficient (n-octanol/water)</b>	no data available
<b>Relative vapour density</b>	>1
<b>Odor</b>	CREAMY-SWEET, OILY, BUTTERY
<b>Odour Threshold</b>	no data available
<b>Evaporation rate</b>	no data available

**10. STABILITY AND REACTIVITY:****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

Vapours may form explosive mixture with air.

**Conditions to avoid**

Heat, flames and sparks.

**Materials to avoid**

Strong oxidizing agents, Strong bases

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

**11. TOXICOLOGICAL INFORMATION:****Acute toxicity****Oral LD50**

LD50 Oral - rat - > 5,000 mg/kg

**Inhalation LC50**

No data available

**Dermal LD50**

LD50 Dermal - rabbit - > 5,000 mg/kg

**Other information on acute toxicity**

No data available

**Skin corrosion/irritation**

Skin - rabbit -

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**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.

**Reproductive toxicity**

No data available

**Teratogenicity**

No data available

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

Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

**Aspiration hazard**

No data available

**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](http://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](http://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.

**Synergistic effects**

No data available

**Additional Information**

RTECS: MO3140000

**12. ECOLOGICAL INFORMATION:****Toxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**PBT and vPvB assessment**

No data available

**Other adverse effects**

No data available

**13. 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.

**14. TRANSPORTATION INFORMATION:**

<b>ADN</b>	
<b>UN number</b>	1224
<b>UN proper shipping name</b>	KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL)
<b>Transport hazard class(es)</b>	3
<b>Subsidiary class(es)</b>	-
<b>Packing group</b>	II
<b>Environmental hazards</b>	No
<b>Labels required</b>	3
<b>ADR</b>	
<b>UN number</b>	1224

<b>UN proper shipping name</b> <b>Transport hazard class(es)</b> <b>Subsidiary class(es)</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Labels required</b>	KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 - II No 3
<b>RID</b> <b>UN number</b> <b>UN proper shipping name</b> <b>Transport hazard class(es)</b> <b>Subsidiary class(es)</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Labels required</b>	1224 KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 - II No 3
<b>DOT</b> <b>BULK</b> <b>UN number</b> <b>Proper shipping name</b> <b>Hazard class</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Marine pollutant</b> <b>Packaging exceptions</b> <b>Packaging bulk</b> <b>Labels required</b>	1224 KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 II No 150 242 3
<b>DOT</b> <b>NON-BULK</b> <b>UN number</b> <b>Proper shipping name</b> <b>Hazard class</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Marine pollutant</b> <b>Packaging exceptions</b> <b>Packaging non bulk</b> <b>Labels required</b>	1224 KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 II No 150 202 3
<b>IATA</b> <b>UN number</b> <b>Proper shipping name</b> <b>Transport hazard class(es)</b> <b>Subsidiary class(es)</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Labels required</b>	1224 KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 - II No Not available.
<b>IMDG</b> <b>UN number</b>	1224

<b>UN proper shipping name</b> <b>Transport hazard class(es)</b> <b>Subsidiary class(es)</b> <b>Packing group</b> <b>Environmental hazards</b> <b>Marine pollutant</b> <b>Labels required</b> <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	KETONES, LIQUID, N.O.S. (ACETYL BUTYRYL) 3 - II No Not available. Not applicable.
<b>ADN; ADR; DOT BULK; DOT NON-BULK; IATA; IMDG; RID</b>	

## 15. 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

Hexane-2,3-dione

CAS-No.: 3848-24-6

Revision Date: -

### New Jersey Right to Know Components

Hexane-2,3-dione

CAS-No.: 3848-24-6

Revision Date: -

**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.

**16. OTHER INFORMATION:**

The information in this SDS 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 SDS. 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 SDS. The user should review these regulations to ensure full compliance.

**Prepared By:** M&U International LLC

**REVISED:** 02/17/2015