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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1.1GHS Product identifier
Acetyl acetone, 99%
Code A 1305

2.Hazard identification
2.1Classification of the substance or mixture
Flammable liquids, Category 3
Acute toxicity - Oral, Category 4
2.2GHS label elements, including precautionary statements
Pictogram(s)

Signal word	Warning
Hazard statement(s)	H226 Flammable liquid and vapour H302 Harmful if swallowed
Precautionary statement(s)	
Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P280 Wear protective gloves/protective clothing/eye protection/face protection. P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/\u2026if you feel unwell. P330 Rinse mouth.
Storage	P403+P235 Store in a well-ventilated place. Keep cool.
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification
none

3.Composition/information on ingredients
3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
acetylacetone	acetylacetone	123-54-6	none	100%

4.First-aid measures
4.1Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled
Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
In case of skin contact
Remove contaminated clothes. Rinse and then wash skin with water and soap.
In case of eye contact
First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
If swallowed

Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention .
4.2Most important symptoms/effects, acute and delayed
Inhalation causes dizziness, headache, nausea, vomiting and loss of consciousness. Contact with liquid irritates eyes. (USCG, 1999)
4.3Indication of immediate medical attention and special treatment needed, if necessary
FIRST AID: Inhalation--Fresh air, rest. Artificial respiration if indicated. Refer for medical attention. Skin--Remove contaminated clothes. Rinse and then wash skin with water and soap. Eyes--First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor. Ingestion--Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

5.Fire-fighting measures
5.1Extinguishing media
Suitable extinguishing media
To fight fire, use alcohol foam, carbon dioxide, or dry chemical.
5.2Specific hazards arising from the chemical
Behavior in Fire: Vapor is heavier than air and may travel to a source of ignition and flash back. (USCG, 1999)
5.3Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.
6.Accidental release measures
6.1Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
6.2Environmental precautions
Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Ventilation. Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.
6.3Methods and materials for containment and cleaning up
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water. Do NOT let this chemical enter the environment (extra personal protection: filter respirator for organic gases and vapors).

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Fireproof. Separated from strong oxidants. Keep in the dark.Fireproof. Separated from strong oxidants. Keep in the dark.

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
no data available
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

Physical state	colorless or yellow colored liquid
Colour	Colorless or slightly yellow liquid
Odour	Pleasant odor
Melting point/ freezing point	-23\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	140.4\u00b0C(lit.)
Flammability	Flammable.

Lower and upper explosion limit / flammability limit	Lower flammable limit in air: 2.4%; Upper flammable limit in air: 11.6%
Flash point	38\u00b0C
Auto-ignition temperature	350\u00b0C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.6 mPa.s at 20\u00b0C
Solubility	In water:16 g/100 mL (20 \u00baC)
Partition coefficient n-octanol/water (log value)	log Kow = 0.40
Vapour pressure	6 mm Hg (20 \u00b0C)
Density and/or relative density	0.975g/mLat 25\u00b0C(lit.)
Relative vapour density	3.5 (vs air)
Particle characteristics	no data available

10.Stability and reactivity
10.1Reactivity
no data available
10.2Chemical stability
Stable under recommended storage conditions.
10.3Possibility of hazardous reactions
Flammable liquid when exposed to heat or flame.The vapour is heavier than air.Ketones, such as PENTANE-2,4-DIONE, are reactive with many acids and bases liberating heat and flammable gases (e.g., H2). The amount of heat may be sufficient to start a fire in the unreacted portion of the ketone. Ketones react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H2) and heat. Ketones are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. They react violently with aldehydes, HNO_3, HNO_3 + H_2O_2, and $HClO_4$. May dissolve plastics (USCG, 1999).
10.4Conditions to avoid
no data available
10.5Incompatible materials
Incompatible with oxidizing materials.
10.6Hazardous decomposition products
no data available
11.Toxicological information
Acute toxicity
Oral: LD50 Rat (male) oral 760 mg/kg
Inhalation: LC50 Rat inhalation 1224 ppm/4 hr (5.1 mg/L/4 hr)
Dermal: LD50 Rabbit percutaneous 810 mg/kg
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
no data available
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: LC50 Pimephales promelas (fathead minnow) 200 mg/L/24 hr /Conditions of bioassay not specified in source examined
Toxicity to daphnia and other aquatic invertebrates: EC50 Daphnia magna (water flea) 75 mg/L/48 hr; Effect: mortality or immobility; closed static bioassay, total hardness ($CaCO_3$) 240 mg/L, pH 8.0 + or - 0.3, aerated (before use), carbon-filtered well water, 23\u00b0C, 16 hr photoperiod ... /Reagent grade
Toxicity to algae: no data available
Toxicity to microorganisms: no data available
12.2Persistence and degradability

AEROBIC: In a screening study using settled sewage seed at 20\u00b0C, 5.6, 40.0, 62.8, and 69.6 % of theoretical B.O.D. was determined after 5, 10, 15, and 20 incubation days, respectively(1).

12.3Bioaccumulative potential

An estimated BCF of 3.2 was calculated in fish for acetyl acetone(SRC), using a log Kow of 0.40(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4Mobility in soil

The Koc of acetyl acetone is estimated as 39(SRC), using a log Kow of 0.40(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that acetyl acetone is expected to have very high mobility in soil.

12.5Other adverse effects

no data available

13.Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1UN Number

ADR/RID: UN2310 IMDG: UN2310 IATA: UN2310

14.2UN Proper Shipping Name

ADR/RID: PENTANE-2,4-DIONE
IMDG: PENTANE-2,4-DIONE
IATA: PENTANE-2,4-DIONE

14.3Transport hazard class(es)

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
acetylacetone	acetylacetone	123-54-6	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.