# SAFETY DATA SHEET

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier**

**Product name:** Eastman(TM) MIAK

**Product No.:** EAN 908327. 01298-00, P0129801, P0129800, E0129801, P0129810, P0129811, P0129812, P0129813, P0129809, P0129807, P0129808

**Synonyms, Trade Names:** 01298-00

**Additional identification**

| | |
|---|---|
| **Chemical name:** | 5-methyl-2-hexanone |
| **CAS-No.:** | 110-12-3 |

**Relevant identified uses of the substance or mixture and uses advised against**

**Identified uses:** Chemical Intermediate

**Uses advised against:** None known.

**Details of the supplier of the safety data sheet**

**Manufacturer / Supplier**

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

**Emergency telephone number:**

For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

## SECTION 2: Hazards identification

**Hazard classification:**

**Physical hazards**

| | |
|---|---|
| Flammable liquids | Category 3 |

**Health hazards**

| | |
|---|---|
| Acute toxicity (Inhalation) | Category 4 |

**OSHA Specified Hazards:** not applicable

**Warning label items including precautionary statement:**

**Pictogram:**

**Signal words:** WARNING!

**Hazard Statement(s):**
H226: Flammable liquid and vapor.
H332: Harmful if inhaled.

**Precautionary statement:**

**Prevention:**
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/vapors/spray.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**
P370 + 378: In case of fire: Use water spray, carbon dioxide, dry chemical or foam for extinction.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**Storage:**
P403+P235: Store in a well-ventilated place. Keep cool.

**Disposal:**
P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC):** Prolonged or repeated skin contact may cause drying, cracking, or irritation.

## SECTION 3: Composition/information on ingredients

### Substances / Mixtures

#### General information:

| Chemical name | Concentration | Additional identification | Notes |
|---|---|---|---|
| methyl isoamyl ketone | 100% | CAS-No.: 110-12-3 | # |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
This substance has workplace exposure limit(s).

## SECTION 4: First aid measures

### Description of first aid measures

| | |
|---|---|
| **Inhalation:** | Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately. |
| **Eye contact:** | Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist. |
| **Skin contact:** | Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes. |
| **Ingestion:** | Seek medical advice. |
| **Most important symptoms and effects, both acute and delayed:** | None known. |

**Indication of any immediate medical attention and special treatment needed**

| | |
|---|---|
| **Hazards:** | None known. |
| **Treatment:** | Treat symptomatically. |

## SECTION 5: Firefighting measures

| | |
|---|---|
| **General fire hazards:** | Flammable liquid and vapor. USE WATER WITH CAUTION. Material will float and may ignite on surface of water. |

**Extinguishing media**

| | |
|---|---|
| **Suitable extinguishing media:** | Water spray. Dry chemical. Carbon Dioxide. Foam. |
| **Unsuitable extinguishing media:** | None known. |
| **Special hazards arising from the substance or mixture:** | Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Forms peroxides of unknown stability. |

**Advice for firefighters**

| | |
|---|---|
| **Special fire fighting procedures:** | Water may be ineffective in fighting the fire. Use water spray to keep fire-exposed containers cool. |
| **Special protective equipment for fire-fighters:** | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |

## SECTION 6: Accidental release measures

| | |
|---|---|
| **Personal precautions, protective equipment and emergency procedures:** | Wear appropriate personal protective equipment. |
| **Environmental precautions:** | Do not release into the environment. |

**Methods and material for containment and cleaning up:** Eliminate sources of ignition. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

**Notification Procedures:** In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

## SECTION 7: Handling and storage:

**Precautions for safe handling:** Avoid breathing mist or vapor. Avoid prolonged or repeated contact with skin. Use only with adequate ventilation. Wash thoroughly after handling. Minimize exposure to air. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Do not allow to evaporate to near dryness. Do not distill to near dryness. Addition of water or appropriate reducing materials will lessen peroxide formation.

**Conditions for safe storage, including any incompatibilities:** Keep container tightly closed and in a well-ventilated place. Store away from heat and light.

**Specific end use(s):** Chemical Intermediate

## SECTION 8: Exposure controls/personal protection

**Control parameters**

**Occupational exposure limits**

Country specific exposure limits have not been established or are not applicable unless listed below.

| Chemical name | Type | Exposure Limit values | Source |
|---|---|---|---|
| 5-methylhexan-2-one; isoamyl methyl ketone | PEL | 100 ppm 475 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006) |
| | TWA | 20 ppm | US. ACGIH Threshold Limit Values (02 2013) |
| | STEL | 50 ppm | US. ACGIH Threshold Limit Values (02 2013) |

**Exposure controls**

**Appropriate engineering controls:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment**

**General information:** Eye bath. Safety shower. Washing facilities.

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection:** It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, chemical-resistant gloves should be worn. Contact health and safety professional or manufacturer for specific information.

**Other:** No data available.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Respirator type: Chemical respirator with organic vapor cartridge and full facepiece. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information. For high airborne concentrations, use an approved supplied-air respirator. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas warning properties are poor, or if air purifying filter rating may be exceeded.

**Hygiene measures:** Observe good industrial hygiene practices.

**Environmental Controls:** No data available.

## SECTION 9: Physical and chemical properties

**Information on basic physical and chemical properties**

**Appearance**

| | |
|---|---|
| **Physical State:** | Liquid |
| **Form:** | Liquid |
| **Color:** | Colorless |
| **Odor:** | ketone |
| **Odor Threshold:** | 0.012 ppm |
| **pH:** | No data available. |
| **Freezing Point:** | -73.9 °C |
| **Boiling Point:** | 144 °C |
| **Flash Point:** | 36 °C (Tagliabue Closed Cup) |
| **Evaporation Rate:** | No data available. |
| **Flammability (solid, gas):** | Not applicable |
| **Flammability Limit - Upper (%)–:** | 8.2 %(V) |
| **Flammability Limit - Lower (%)–:** | 1.05 %(V) |

| | |
|---|---|
| **Vapor pressure:** | 6.0 mbar (20 °C) |
| **Vapor density (air=1):** | 3.9 |
| **Specific Gravity:** | 0.8119 (20 °C) |
| **Solubility(ies)** | |
| **Solubility in Water:** | 5.4 g/l |
| **Solubility (other):** | No data available. |
| **Partition coefficient (n-octanol/water):** | log Pow: 1.88 |
| **Autoignition Temperature:** | 400 °C (ASTM E659) |
| **Decomposition Temperature:** | No data available. |
| **Dynamic Viscosity:** | 0.704 mPa.s (25 °C) |
| **Kinematic viscosity:** | No data available. |
| **Explosive properties:** | Not classified |
| **Oxidizing properties:** | Not classified |

## SECTION 10: Stability and reactivity

| | |
|---|---|
| **Reactivity:** | None known. |
| **Chemical stability:** | Stable |
| **Possibility of hazardous reactions:** | Forms peroxides of unknown stability. |
| **Conditions to avoid:** | Heat, sparks, flames. |
| **Incompatible materials:** | Strong oxidizing agents. |
| **Hazardous decomposition products:** | Carbon Dioxide. Carbon Monoxide. |

## SECTION 11: Toxicological information

**Information on likely routes of exposure**

| | |
|---|---|
| **Inhalation:** | Harmful if inhaled. |
| **Ingestion:** | None known. |
| **Skin contact:** | Prolonged or repeated skin contact may cause drying, cracking, or irritation. |
| **Eye contact:** | None known. |

**Information on toxicological effects**

**Acute Toxicity**

**Oral**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | Oral LD-50: (Rat): 5.657 mg/kg |

**Dermal**

| | |
|---|---|
| **Product:** | No data available. |

| | |
|---|---|
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | Dermal LD-50: (Guinea Pig): > 10 ml/kg |

**Inhalation**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | No data available. |

**Repeated dose toxicity**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | NOEL (Rat, Oral Study, 90 d): 200 ppm |

**Skin corrosion/irritation:**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | (Guinea Pig, 4 h): slight |

**Serious eye damage/eye irritation:**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | (Rabbit): slight |

**Respiratory or skin sensitization:**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | Skin Sensitization:, (Guinea Pig) - non-sensitizing |

**Mutagenicity**

**In vitro**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | Mutagenicity - Mammalian, : negative +/- activation<br>Chromosomal aberration, : negative +/- activation<br>Mutagenicity - Bacterial, : negative +/- activation |

**In vivo**

| | |
|---|---|
| **Product:** | No data available. |
| **Specified substance(s)** | |
| 5-methylhexan-2-one; isoamyl methyl ketone | No data available. |

**Carcinogenicity**

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Reproductive toxicity

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Specific target organ toxicity - single exposure

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Specific target organ toxicity - repeated exposure

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Aspiration hazard

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — May be harmful if swallowed and enters airways.

**Other adverse effects:** No data available.

## SECTION 12: Ecological information

### Toxicity

#### Acute toxicity

#### Fish

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — LC-50 (Fish, 96 h): 159 mg/l

#### Aquatic invertebrates

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

#### Chronic Toxicity

#### Fish

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Aquatic invertebrates

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Toxicity to Aquatic Plants

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — EC-50 (Alga, 72 h): > 100 mg/l (highest concentration tested)

## Persistence and degradability

### Biodegradation

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — 67 % (28 d, Ready Biodegradability: Closed Bottle Test) Readily biodegradable

### Biological Oxygen Demand:

**Product** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

### Chemical Oxygen Demand:

**Product** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — 2.1 g/g

### BOD/COD ratio

**Product** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

## Bioaccumulative potential

**Product:** No data available.

**Specified substance(s)**

5-methylhexan-2-one; isoamyl methyl ketone — No data available.

**Mobility in soil:** log Koc: 2.16

**Results of PBT and vPvB assessment:** No data available.

| | |
|---|---|
| 5-methylhexan-2-one; isoamyl methyl ketone | Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria |

**Other adverse effects:** No data available.

## SECTION 13: Disposal considerations

**Waste treatment methods**

**General information:** No data available.

**Disposal methods:** Dispose of waste and residues in accordance with local authority requirements. Mix with compatible chemical which is less flammable and incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

## SECTION 14: Transport information

*Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.*

**DOT**

Possible Shipping Description(s):

UN 2302 5-Methylhexan-2-one 3 III

**IMDG - International Maritime Dangerous Goods Code**

Possible Shipping Description(s):

UN 2302 5-METHYLHEXAN-2-ONE 3 III

**IATA**

Possible Shipping Description(s):

UN 2302 5-Methylhexan-2-one 3 III

## SECTION 15: Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

**This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.**

**WHMIS (Canada) Status:** controlled
**WHMIS (Canada) Hazard Classification:** B/2

**SARA 311-312 Hazard Classification(s):**
immediate (acute) health hazard
fire hazard

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical List**
NONE

**OSHA:** hazardous

**TSCA (US Toxic Substances Control Act):** This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

**DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act):** This product is listed on the DSL or otherwise complies with CEPA new substance notification requirements.

**AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme):** This product is listed on AICS or otherwise complies with NICNAS.

**MITI (Japanese Handbook of Existing and New Chemical Substances):** This product is listed in the Handbook or has been approved in Japan by new substance notification.

**ECL (Korean Toxic Substances Control Act):** This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.KE-24242

**Philippines Inventory (PICCS) :** This product is listed on the Philippine Inventory or otherwise complies with PICCS.

**Inventory of Existing Chemical Substances in China:** All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

## SECTION 16: Other information

**HMIS® Hazard Ratings:** Health - 1, Flammability - 3, Chemical Reactivity - 0

*HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.*

| | |
|---|---|
| **Revision Information:** | New SDS |
| **Key literature references and sources for data:** | No data available. |
| **Training information:** | No data available. |
| **Issue date:** | 10/21/2014 |
| **SDS No.:** | |
| **Disclaimer:** | This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment. |