

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

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

1.1 Product identifier

Trade name : BC Methyl Ethyl Ketone

Product code : S2201

Registration number EU : 01-2119457290-43-0000
CAS-No. : 78-93-3

Index-No. : 606-002-00-3

Other means of identification : 2-Butanone, butan-2-one, Butanone, Ethyl methyl ketone, MEK

EC-No. : 201-159-0

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

Use of the Substance/Mixture : Use only in industrial processes.

Recommended restrictions on use : This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Company : **Shell Chemicals Europe B.V.**
PO Box 2334
3000 CH Rotterdam
Netherlands

Telephone : +31 (0)10 441 5137 / +31 (0)10 441 5191

Telefax : +31 (0)20 716 8316 / +31 (0)20 713 9230

E-mail address of person responsible for the SDS : sccmsds@shell.com

1.4 Emergency telephone number

Emergency telephone number : +44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per week)
National Poison Counselling Centre (UZEM) – 114

SAFETY DATA SHEET

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification T.R. SEA No 28848

Flammable liquids, Category 2

H225: Highly flammable liquid and vapour.

Eye irritation, Category 2

H319: Causes serious eye irritation.

Specific target organ toxicity - single exposure, Category 3, Central nervous system

H336: May cause drowsiness or dizziness.

, Narcotic effects

2.2 Label elements

Labelling T.R. SEA No 28848

Hazard pictograms :



Signal word : Danger

Hazard statements :

H225

PHYSICAL HAZARDS:

Highly flammable liquid and vapour.

HEALTH HAZARDS:

Causes serious eye irritation.

H319

May cause drowsiness or dizziness.

H336

ENVIRONMENTAL HAZARDS:

Not classified as an environmental hazard under GHS criteria.

Supplemental Hazard Statements : EUH066

Repeated exposure may cause skin dryness or cracking.

Precautionary statements : **Prevention:**
P210

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

Response:

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

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/ doctor if you feel unwell.

Storage:

P403 + P235

Store in a well-ventilated place. Keep cool.

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Disposal:

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.

Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.

If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

Exposure may enhance the toxicity of other materials.

See Chapter 11 for details.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Methyl ethyl ketone, 78-93-3

Index-No. : 606-002-00-3

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	T.R. SEA No 28848	Concentration (% w/w)
Methyl ethyl ketone	78-93-3 201-159-0 / 01-0000468649-83	Flam. Liq.2; H225 Eye Irrit.2; H319 STOT SE3; H336	100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Not expected to be a health hazard when used under normal conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

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- | | |
|-------------------------|--|
| In case of skin contact | : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention. |
| In case of eye contact | : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment. |
| If swallowed | : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Rinse mouth.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing. |

4.2 Most important symptoms and effects, both acute and delayed

- | | |
|----------|---|
| Symptoms | : Not considered to be an inhalation hazard under normal conditions of use.
Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.
No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
Ingestion may result in nausea, vomiting and/or diarrhoea.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.
Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination.
Continued inhalation may result in unconsciousness and death. |
|----------|---|

4.3 Indication of any immediate medical attention and special treatment needed

- | | |
|-----------|--|
| Treatment | : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Call a doctor or poison control center for guidance.
Potential for chemical pneumonitis. |
|-----------|--|

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Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : None

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Carbon monoxide may be evolved if incomplete combustion occurs.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Standard procedure for chemical fires.

Further information : Clear fire area of all non-emergency personnel.
Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Observe the relevant local and international regulations
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
Local authorities should be advised if significant spillages cannot be contained.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Vapour may form an explosive mixture with air.
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.

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Stay upwind and keep out of low areas.

6.2 Environmental precautions

- Environmental precautions : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Ventilate contaminated area thoroughly. Monitor area with combustible gas indicator.

6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Technical measures : Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Ensure that all local regulations regarding handling and storage facilities are followed.
- Advice on safe handling : Avoid contact with skin, eyes and clothing. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.

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BC Methyl Ethyl Ketone

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Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Bulk storage tanks should be diked (bunded).
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.
The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.
Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Do NOT use compressed air for filling, discharging, or handling operations.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
- Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel.
Unsuitable material: Natural, butyl, neoprene or nitrile rubbers.

7.3 Specific end use(s)

- Specific use(s) : Ensure that all local regulations regarding handling and storage facilities are followed.
See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Methyl ethyl ketone	78-93-3	TWA (8 Hour)	200 ppm 600 mg/m ³	TR OEL
		STEL 15 min	300 ppm 900 mg/m ³	TR OEL
		TWA	200 ppm 600 mg/m ³	2000/39/EC
Further information	Indicative			

SAFETY DATA SHEET

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Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

		STEL	300 ppm 900 mg/m3	2000/39/EC
Further information	Indicative			

Biological occupational exposure limits

No biological limit allocated.

8.2 Exposure controls

Engineering measures

Use sealed systems as far as possible.

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Local exhaust ventilation is recommended.

Firewater monitors and deluge systems are recommended.

Eye washes and showers for emergency use.

Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Eye protection : Wear goggles for use against liquids and gas.
Wear full face shield if splashes are likely to occur.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Butyl rubber. Nitrile rubber. Incidental contact/Splash protection: PVC or neoprene rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this

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Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

- Skin and body protection : Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.
Skin protection is not required under normal conditions of use. For prolonged or repeated exposures use impervious clothing over parts of the body subject to exposure.
If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard, and provide employee skin care programmes.
- Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)].
- Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Thermal hazards : Not applicable

Environmental exposure controls

- General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

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Version 1.3

SDS Number: 800010056424

Information on accidental release measures are to be found in section 6.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Liquid.
Colour	: clear
Odour	: characteristic
Odour Threshold	: Data not available
pH	: Not applicable
Melting point/freezing point	: -86 °C
Boiling point/boiling range	: 79,5 °C
Flash point	: -9 °C Method: Abel
Evaporation rate	: 3,3 Method: DIN 53170, di-ethyl ether=1
Flammability	
Flammability (solid, gas)	: Not applicable
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit	: 11,5 %(V)
Lower explosion limit	: 1,8 %(V)
Vapour pressure	: 12,600 Pa (20 °C)
Relative vapour density	: 2,4 (20 °C)
Relative density	: 0,804 - 0,806 (20 °C) Method: ASTM D4052
Density	: 0,804 - 0,806 kg/m3 (20 °C) Method: ASTM D4052
Solubility(ies)	

SAFETY DATA SHEET

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Version 1.3

SDS Number: 800010056424

Water solubility : 250 g/l Miscible. (20 °C)

Solubility in other solvents : Data not available

Partition coefficient: n-octanol/water : log Pow: 0,3

Auto-ignition temperature : 515 °C

Decomposition temperature : Data not available

Viscosity
Viscosity, dynamic : 0,42 mPa.s (20 °C)
Method: ASTM D445

Viscosity, kinematic : Data not available

Explosive properties : Not applicable

Oxidizing properties : Data not available

9.2 Other information

Surface tension : 24,8 mN/m, 20 °C

Conductivity : Electrical conductivity: > 10,000 pS/m

A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be a static accumulator.

Molecular weight : 72,11 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions : Reacts with strong oxidising agents.

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

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Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.
Prevent vapour accumulation.
In certain circumstances product can ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Product:

Acute oral toxicity : LD 50 (Rat, male and female): >2000 -<= 5000 mg/kg
Method: Test(s) equivalent or similar to OECD Test Guideline 423
Test substance: Butan-2-ol
Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male): > 10 ml/kg/bw
Method: Test(s) equivalent or similar to OECD Test Guideline 402
Remarks: Based on available data, the classification criteria are not met.

Components:

Methyl ethyl ketone:

Acute oral toxicity : LD 50 (Rat, male and female): >2000 -<= 5000 mg/kg
Method: Test(s) equivalent or similar to OECD Test Guideline 423
Test substance: Butan-2-ol
Remarks: Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50 (Rabbit, male): > 10 ml/kg/bw
Method: Test(s) equivalent or similar to OECD Test Guideline

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

402

Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product:

Species: Rabbit

Method: OECD Test Guideline 404

Test substance: Butan-2-ol

Remarks: Based on available data, the classification criteria are not met.

Repeated exposure may cause skin dryness or cracking.

Components:

Methyl ethyl ketone:

Species: Rabbit

Method: OECD Test Guideline 404

Test substance: Butan-2-ol

Remarks: Based on available data, the classification criteria are not met.

Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Product:

Species: Rabbit

Method: Test(s) equivalent or similar to OECD Test Guideline 405

Remarks: Causes serious eye irritation.

Components:

Methyl ethyl ketone:

Species: Rabbit

Method: Test(s) equivalent or similar to OECD Test Guideline 405

Remarks: Causes serious eye irritation.

Respiratory or skin sensitisation

Product:

Species: Guinea pig

Method: OECD Test Guideline 406

Remarks: Based on available data, the classification criteria are not met.

Components:

Methyl ethyl ketone:

Species: Guinea pig

Method: OECD Test Guideline 406

Remarks: Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Germ cell mutagenicity

Product:

Genotoxicity in vitro

: Method: Test(s) equivalent or similar to OECD Guideline 471
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 473
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 476
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 480
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 482
Remarks: Based on available data, the classification criteria are not met.

Genotoxicity in vivo

: Species: Mouse
Method: Test(s) equivalent or similar to OECD Test Guideline 474
Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity- Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

Components:

Methyl ethyl ketone:

Genotoxicity in vitro

: Method: Test(s) equivalent or similar to OECD Guideline 471
Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 473
Remarks: Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

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Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

: Method: Test(s) equivalent or similar to OECD Test Guideline 476

Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 480

Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to OECD Test Guideline 482

Remarks: Based on available data, the classification criteria are not met.

Genotoxicity in vivo

: Species: Mouse

Method: Test(s) equivalent or similar to OECD Test Guideline 474

Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity- Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Product:

Carcinogenicity - Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

Components:

Methyl ethyl ketone:

Carcinogenicity - Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

Material	SEA Carcinogenicity Classification
Methyl ethyl ketone	No carcinogenicity classification.

Reproductive toxicity

Product:

Effects on fertility

: Species: Rat

Sex: male and female

Application Route: Oral

Method: Equivalent or similar to OECD Test Guideline 416

Test substance: Butan-2-ol

Remarks: Based on available data, the classification criteria

SAFETY DATA SHEET

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SDS Number: 800010056424

are not met.

Effects on foetal development

: Species: Rat, female
Application Route: Inhalation
Method: Test(s) equivalent or similar to OECD Test Guideline 414
Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

Components:

Methyl ethyl ketone:

Effects on fertility

: Species: Rat
Sex: male and female
Application Route: Oral

Method: Equivalent or similar to OECD Test Guideline 416
Test substance: Butan-2-ol
Remarks: Based on available data, the classification criteria are not met.

Effects on foetal development

: Species: Rat, female
Application Route: Inhalation
Method: Test(s) equivalent or similar to OECD Test Guideline 414
Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment

: This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Exposure routes: Inhalation

Target Organs: Central nervous system

Remarks: May cause drowsiness or dizziness.

Components:

Methyl ethyl ketone:

Exposure routes: Inhalation

Target Organs: Central nervous system

Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

Remarks: Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Low systemic toxicity on repeated exposure.

Components:

Methyl ethyl ketone:

Remarks: Based on available data, the classification criteria are not met.

Low systemic toxicity on repeated exposure.

Repeated dose toxicity

Product:

Species: Rat, male and female

Application Route: Inhalation

Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs: No specific target organs noted

Components:

Methyl ethyl ketone:

Species: Rat, male and female

Application Route: Inhalation

Test atmosphere: vapour

Method: Test(s) equivalent or similar to OECD Test Guideline 413

Target Organs: No specific target organs noted

Aspiration toxicity

Product:

Based on available data, the classification criteria are not met.

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Components:

Methyl ethyl ketone:

Based on available data, the classification criteria are not met.

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Further information

Product:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

Remarks: Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Components:

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Methyl ethyl ketone:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Product:

- | | |
|--|--|
| Toxicity to fish (Acute toxicity) | : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |
| Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) | : EC50 (Daphnia magna (Water flea)): 308 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |
| Toxicity to algae (Acute toxicity) | : EC50 (Selenastrum capricornutum (green algae)): 2.029 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |
| Toxicity to fish (Chronic toxicity) | : Remarks: Data not available |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : Remarks: Data not available |
| Toxicity to bacteria (Acute toxicity) | : (Pseudomonas putida): 1.150 mg/l
Exposure time: 16 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |

Components:

Methyl ethyl ketone:

- | | |
|--|---|
| Toxicity to fish (Acute toxicity) | : Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |
| Toxicity to daphnia and other aquatic invertebrates (Acute toxicity) | : EC50 (Daphnia magna (Water flea)): 308 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l |
| Toxicity to algae (Acute toxicity) | : EC50 (Selenastrum capricornutum (green algae)): 2.029 mg/l
Exposure time: 96 h |

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Method: OECD Test Guideline 201

Remarks: Practically non toxic:

LL/EL/IL50 > 100 mg/l

Toxicity to bacteria (Acute toxicity) : (Pseudomonas putida): 1.150 mg/l
Exposure time: 16 h
Method: Other guideline method.
Remarks: Practically non toxic:
LL/EL/IL50 > 100 mg/l

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: Data not available

12.2 Persistence and degradability

Product:

Biodegradability : Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Remarks: Readily biodegradable.
Oxidises rapidly by photo-chemical reactions in air.

Components:

Methyl ethyl ketone:

Biodegradability : Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Remarks: Readily biodegradable.
Oxidises rapidly by photo-chemical reactions in air.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

Components:

Methyl ethyl ketone:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Product:

Mobility : Remarks: Dissolves in water.

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Components:

Methyl ethyl ketone:

Mobility : Remarks: Dissolves in water.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

Components:

Methyl ethyl ketone:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Other adverse effects

Product:

Further information : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Additional ecological information : Remarks: Does not have ozone depletion potential.

Remarks: Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Components:

Methyl ethyl ketone:

Additional ecological information : Remarks: Does not have ozone depletion potential.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

courses.

Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.

Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Local regulations may be more stringent than regional or national requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging

: Drain container thoroughly.

After draining, vent in a safe place away from sparks and fire.

Residues may cause an explosion hazard.

Do not, puncture, cut, or weld uncleaned drums.

Send to drum recoverer or metal reclaimer.

Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

SECTION 14: Transport information

14.1 UN number

ADR : UN 1193

RID : UN 1193

IMDG : UN 1193

IATA : UN 1193

14.2 UN proper shipping name

ADR : ETHYL METHYL KETONE

RID : ETHYL METHYL KETONE

IMDG : ETHYL METHYL KETONE

IATA : METHYL ETHYL KETONE

14.3 Transport hazard class(es)

ADR : 3

RID : 3

IMDG : 3

IATA : 3

14.4 Packing group

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

ADR

Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3

RID

Packing group : II
Classification Code : F1
Hazard Identification Number : 33
Labels : 3

IMDG

Packing group : II
Labels : 3

IATA

Packing group : II
Labels : 3

14.5 Environmental hazards

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

Pollution category : Z
Ship type : 3; Must be Double Hulled
Product name : Methyl ethyl ketone

Additional Information : This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry. Transport in bulk according to Annex II of Marpol and the IBC Code

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

SECTION 15: Regulatory information

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

KKDIK (30105 (Bis)) - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex 17) : Conditions of restriction for the following entries should be considered: Entry number 3

Other regulations : The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Regulations on the health and safety precautions for chemicals in the workplace. Regulations on the fire protection of buildings. Regulations on the prevention of industrial accidents and the reduction of their effects.

The components of this product are reported in the following inventories:

DSL : Listed

IECSC : Listed

KECI : Listed

PICCS : Listed

TSCA : Listed

ENCS : Listed

TCSI : Listed

NZIoC : Listed

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SAFETY DATA SHEET

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BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

SECTION 16: Other information

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Prepared by

Name : Eren Aktas
Certified Qualification date : 15.05.2024
Certificate number : TÜV/11.241.01
Expiry date : 15.05.2029

Further information

Training advice : Provide adequate information, instruction and training for operators.
Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.

SAFETY DATA SHEET

Prepared in accordance with the provisions of KKDIK Annex-2 Regulation, 23.06.2017, No: 30105

BC Methyl Ethyl Ketone

Initial release date: 2022/07/18

Revision Date: 06.06.2024

Version 1.3

SDS Number: 800010056424

Sources of key data used to compile the Safety Data Sheet : The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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