Product Safety Summary

ExxonMobil™ MEK (Methyl Ethyl Ketone)

This Product Safety Summary document is a high-level summary intended to provide the general public with an overview of product safety information on this chemical substance. It is not intended to provide emergency response, medical or treatment information, or to provide a discussion of all safety and health information. This document is not intended to replace the (Material) Safety Data Sheet. Warnings and handling precautions provided below are not intended to replace or supersede manufacturers’ instructions and warning for their consumer products which may contain this chemical substance.

1. Chemical Identity

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Chemical Name</th>
<th>Other Names</th>
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<tbody>
<tr>
<td>78-93-3</td>
<td>Methyl Ethyl Ketone</td>
<td>Ethyl Methyl Ketone; 2-Butanone; Methyl Acetone</td>
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2. Product Uses

MEK is a liquid solvent used in surface coatings, adhesives, printing inks, chemical intermediates, magnetic tapes and as dewaxing agents in lubricant base oil production. MEK also is used as a solvent for fats, oils, waxes and resins. It is a highly efficient and versatile solvent for surface coatings. Because of its effectiveness as a solvent, MEK is especially valuable in formulating high solids coatings, which help to reduce emissions from coating operations.

3. Physical / Chemical Properties

MEK is a highly flammable material in both the liquid and vapor forms, has a relatively high vapor pressure, and should be handled only with adequate ventilation and in areas where ignition sources have been removed (e.g. open flames, static electricity sources, unprotected light switches). The flash point is 25°F / -4°C.

4. Health Information

MEK is generally recognized to have low acute and chronic toxicity if ingested and/or breathed. High concentrations (above 200 ppm) in the air can cause eye and lung irritation, may cause drowsiness and dizziness, and may cause central nervous system (CNS) depression. If this occurs, seek immediate medical attention. It is not regarded as a mutagen, a carcinogen, or a concern for reproductive, developmental, or nervous system toxic effects. MEK may increase the neurotoxicity of compounds such as n-hexane and methyl n-butyl ketone.

MEK is naturally present at measurable levels in a wide variety of foods, including meats, vegetables, fruits, nuts and dairy products. It has been rated as a GRAS (Generally Recognized as Safe) substance by the U.S. Food & Drug Administration and has been approved by the FDA as a direct food additive for use as a flavoring agent. MEK has also been recognized by the World Health Organization as a food additive or flavoring agent that poses “no safety concern” because it is endogenous in humans as a component of fatty acid and carbohydrate metabolism.

An extensive study was conducted on "reasonably anticipated children’s exposures to MEK" from commonly found items such as the solvent in wood stain and varnish, spray paint, hobby use adhesive and hobby use model paint. Though most products that have been identified as containing MEK are not intended for use by children, exposure typically would occur, if at all, through the child’s presence in the room where the product is used. The conclusion of the report was that reasonably anticipated children’s exposures to MEK from intended uses of consumer products containing MEK, and from other expected sources, are unlikely to pose

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significant health risks. For additional information please see Voluntary Children's Chemical Evaluation Program (VCCEP) web links in Section 11.

MEK is naturally present in humans as a result of its presence in various foods. MEK can also be absorbed into the body via skin contact, inhalation, or ingestion. The bulk of MEK taken into the body enters the general metabolism and is eliminated as simple compounds such as carbon dioxide and water within 24 hours.

5. Additional Hazard Information

If accidentally swallowed, small amounts of liquid may be aspirated into the lungs during ingestion or from vomiting, this may cause severe lung inflammation and lung edema (an accumulation of fluid in the lungs). This is a medical emergency which must be immediately and properly treated.

6. Food Contact Regulated Uses

Appropriate manufacturing and distribution practices are employed to ensure the quality of this product when offered for use in indirect food contact applications.

7. Environmental Information

MEK is present in the environment from natural sources such as trees and ferns. It is not expected to present a threat to the environment because of its low toxicity, high volatility and complete solubility in water. MEK is rapidly degraded in water, soil, and air. Although MEK is not a hazardous air pollutant, it is a volatile organic compound (VOC), thus considerable measures are taken to prevent its release to the atmosphere.

8. Exposure Potential

- **Workplace exposure** – This refers to potential exposure in a manufacturing facility or through evaporation in various industrial applications. Generally, exposure of personnel in manufacturing facilities is relatively low because the process, storage and handling operations are enclosed. The US Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) is 200 parts per million (ppm) per an 8-hour work day.

- **Consumer use of products containing MEK** – This category of exposure is highly variable depending on the products used and the conditions under which they are used. Exposure of the majority of consumers to commercial MEK sources is likely to be infrequent and of short duration. Exposure could occur through the use of MEK in adhesives or in lacquers and paints. The best way to prevent exposure to vapors is to work in well-ventilated areas.

- **Environmental releases** – As a chemical manufacturer, we are committed to operating in an environmentally responsible manner everywhere we do business. Our efforts are guided by in-depth scientific understanding of the environmental impact of our operations, as well as by the social and economic needs of the communities in which we operate. Industrial spills or releases are rare; however a spill may pose a flammability issue. Our operational improvement targets and plans are based on driving incidents with real environmental impact to zero and delivering superior environmental performance.

9. Manufacture of Product

- **Process** – Most MEK is produced from sec-butanol. The alcohol is obtained in a two-step process starting from butenes.

10. Risk Management
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- **Workplace Risk Management** – When using this product, make sure that there is adequate ventilation. Always use chemical resistant gloves to protect your hands and skin and always wear eye protection such as chemical goggles. Do not eat, drink, or smoke where chemicals are handled, processed, or stored. Wash hands and skin following contact. If this product gets into your eyes, flush eyes thoroughly with tap water. If irritation occurs, get medical assistance. Please refer to the (Material) Safety Data Sheet.

- **Consumer Risk Management** - MEK manufactured by ExxonMobil is not sold directly to the public for general consumer uses. This chemical may be repackaged and sold directly to the public for general consumer uses. Always follow manufacturers’ instructions, warnings and handling precautions when using their products.

11. Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this product and may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant ExxonMobil (Material) Safety Data Sheet at:

- [http://www.msds.exxonmobil.com](http://www.msds.exxonmobil.com)

12. Conclusion Statement

Methyl Ethyl Ketone (MEK) ...

- is a widely used industrial solvent and chemical intermediate.
- is low in toxicity. It is naturally present in the environment and is found in some dairy products (yogurt and cheese), fruits and vegetables.
- does not cause adverse health or environmental effects at levels typically found in the workplace or environment.
- is highly flammable with a high vapor pressure; use only with good ventilation; avoid all ignition sources.