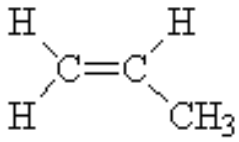
Product Stewardship Summary
Propylene

The product stewardship summary is intended to give general information about the chemical or categories of chemicals addressed. It is not intended to provide an in-depth discussion of all health and safety information. Additional information on this chemical is available through the applicable Material Safety Data Sheet which must be consulted before using this chemical. The product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:
Propylene is probably the oldest petrochemical feedstock in the gas industry. It is one of the smallest stable unsaturated hydrocarbon molecules used in the gas industry and one of the highest volume chemicals produced globally. The propylene molecule is produced as a co-product of ethylene production through the steam cracking (steam pyrolysis) of hydrocarbon feedstocks. Feedstocks used for steam cracking range from ethane to naphtha and gas oils. Propylene is also produced as a by-product of petroleum refining. Propylene is sold in three separate quality grades: refinery (~70%), chemical (~92-96%), and polymer (99.5%). Chevron Phillips Chemical sells refinery (also known as P-P mix), and polymer grades.

Chemical Formula: C_3H_6 CAS Number: 115-07-1 Synonyms：1-propene, propene, methylethene, methylethylene

Chemical Structure:



Product Uses:
Propylene is used mainly to produce polypropylene plastics for injection molding and fibers and for manufacturing cumene (used in phenol production). Propylene is also used to make propylene oxide, acrylic acid, oxo-alcohols and isopropanol.

Physical/Chemical Properties:
Propylene is a highly flammable chemical. The flash point is -108^{o}C (-162^{o}F). It is an explosion hazard and can react vigorously with other materials to produce explosive mixtures. It is a gas at room temperature and is a liquid under pressure.

Health Information:
Propylene is not toxic by acute inhalation exposure. Prolonged or repeated inhalation exposure at low concentrations is not expected to cause adverse health effects. Propylene is a simple asphyxiant (reducing available oxygen for breathing). Exposure to high concentration levels may cause central nervous system effects, including anesthetic effects. The explosive range of airborne concentrations for propylene is reached before any physiologic effects can be manifested. There is no evidence that long-term exposure causes any adverse genetic, developmental, reproductive or carcinogenic effects in humans. Ingestion and dermal exposure is unlikely due to the volatile nature of this material. It is not expected to be a skin or eye irritant in the gaseous form, but may produce burns (frostbite) when released from the compressed liquid form.

Environmental Information:
Propylene is not expected to be harmful to the environment. If introduced into the environment, propylene will quickly vaporize into the atmosphere and then rapidly degrade through indirect photolytic processes. It is not expected to partition into water or soil in any appreciable amount or to bioaccumulate. Any propylene remaining in soil or water will be degraded quickly by microorganisms. Propylene is a volatile organic compound (VOC) and is subject to US EPA and state regulations that limit VOC emissions. Industrial emissions of propylene are reported to the EPA and made available to the public in the Toxic Release Inventory (TRI).

Exposure Potential:
Exposure to propylene in occupational and non-occupational settings is expected to be very limited. Propylene is usually handled in a closed system and human exposure is minimal. In the case of an accidental release, propylene is expected to volatilize quickly into the atmosphere.

- *Workplace use*: This refers to potential exposure to propylene to persons in a manufacturing facility or through various industrial applications. Manufacturing and transport involving propylene are usually conducted in closed systems, so human exposure is expected to be very limited. Occupational exposure may occur during sampling, when filling cylinders, during cutting gas applications, or due to unexpected leakages resulting from equipment failure.
- *Consumer use*: There is no direct consumer use of propylene. Non-occupational exposure to propylene is expected to be limited to exposure following inadvertent release of the product.
- *Potential environmental release*: Propylene may be released to the environment in gaseous emissions from industrial production, chemical utilization, various combustion processes and by accidental release. Propylene is also released to the environment from natural sources including some trees, fruits, germinating beans, corn, cotton and pea seed and ocean sediments as a microbiological degradation product. Chevron Phillips Chemical is committed to operating in an environmentally responsible manner and has adopted the American Chemistry Council's Responsible Care® initiative.

Risk Management:
Chevron Phillips Chemical is committed to Product Stewardship and doing business responsibly. We endeavor to provide sufficient information for the safe use and handling of all our products. To that end, Material Safety Data Sheet and certificate of analysis are provided to the customers. In addition, we have completed a Hazard and Exposure Risk Characterization (HERC) to evaluate the potential risks associated with the distribution and use of propylene.

Regulatory Information:
Regulations exist that govern the manufacture, sale, transportation, use and/or disposal of propylene polymer and refinery grade products. These regulations may vary by city, state, country or geographic region. Additional helpful information may be found by consulting the relevant product Material Safety Data Sheet and local and Federal regulations.

Sources of Additional Information:

- Organization for Economic Cooperation and Development (OECD) - eChemPortal web-based search tool (use applicable CAS No): http://webnet3.oecd.org/echemportal/
- U.S. Environmental Protection Agency (US EPA) - High Production Volume Information System (HPVIS): http://www.epa.gov/hpvis/index.html
- European Chemical Substances Information System (ESIS): http://ecb.jrc.it/esis/
- European Chemicals Agency (ECHA) – Information on Registered Substances: http://apps.echa.europa.eu/registered/registered-sub.aspx
- Chevron Phillips Chemical's olefins product website: http://www.cpchem.com/bl/olefins/en-us/Pages/Products.aspx
- Chevron Phillips Chemical's Material Safety Data Sheets: http://www.cpchem.com/en-us/pages/msdssearch.aspx

Conclusion:
Propylene is a major chemical intermediate and used primarily to make other industrial chemicals. Propylene is a simple asphyxiant. Exposure at high levels may cause central nervous system effects and exposure to compressed liquid form may cause frostbite. Propylene is highly flammable. Appropriate personal protective equipment practices and labeling, storage, and transportation procedures shall be followed. Further, the relevant product Material Safety Data Sheets and applicable regulatory guidelines and requirements, including, but not limited to, Occupational Health and Safety Administration (OSHA) guidelines, should be consulted prior to the use or handling of propylene polymer and refinery grade products.

Contact Information:
http://www.cpchem.com/

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