Product Stewardship Summary
DIESEL PRODUCT GROUP

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 is available through the applicable Material Safety Data Sheet (MSDS) which should be consulted before use of any chemical. This product stewardship summary does not supplant or replace required regulatory and/or legal communication documents.

Chemical Identity:

Most diesel products are fuel oils that are manufactured from crude petroleum. They are generally blended and further formulated with additives to improve properties required to meet technical and use specifications. The Diesel Product Group is currently comprised of 24 individual products that are grouped and evaluated based on their viscosity and flashpoint. These products generally have a viscosity range between 2 and 3.64 cP (at 40 ^{o}C) and flashpoint ≥ 142 ^{o}F, and are typically characterized as Diesel No. 2 Test Fuel (*MSDS # CPC00523*). For a detailed product list, see the Chevron Phillips Chemical product website.

Category Justification:

The diesel products are complex mixtures of aliphatic and aromatic (benzene and related compounds, and possibly polycyclic aromatic hydrocarbons; PAHs) petroleum hydrocarbons. These products may contain substances with varying amounts of nitrogen, sulfur, and other elements. Products within this group have similar physical and health hazards, and environmental fate. They are typically differentiated by their viscosities and flashpoints.

Product Uses:

The diesel products are generally used as emission certification test fuels, reference fuels for obtaining the cetane number of diesel fuels, oil classification test fuels, and high performance heavy duty cycle fuels. Products in this group are commercially available to industrial customers only, which primarily includes: Lubricant Manufacturers, Engine Component Manufacturers, Distributors, Engine Designers and Manufacturers, Testing or Research and Development Facilities.

Physical/Chemical Properties:

The diesel products are moderately volatile, flammable, and combustible liquids. These products have the potential to cause fires if they are exposed to an ignitable source. Electrostatic charge can accumulate and create a hazardous condition when handling these materials. Containers can explode under pressurized conditions. Due to their inherent explosive characteristics, there are specific requirements for handling, storage, transportation, labeling, and disposal. However, it should be noted that these products are typically stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Health Information:

Overall, diesel products are expected to have low to moderate acute and short-term toxicity in humans. These products are moderately irritating to the eyes and skin. Prolonged exposure to high vapor concentrations may cause respiratory irritation, central nervous system (CNS) effects, kidney toxicity, and

lower the ability of the blood to clot. Repeated dermal contact with these products may cause defatting of the skin. In addition, dermal absorption may also result in kidney toxicity. If ingested, these products may cause regurgitation and aspiration to the lungs, which can result in fluid accumulation in the lung and inflammation (pneumonitis). Limited animal toxicity data suggest that the diesel products may be suspected carcinogens via the dermal route. The available human carcinogenicity data indicate insufficient evidence as to their carcinogenic potential in humans.

Environmental Information:

The environmental hazard potential for the diesel products is expected to be varied because their toxicity and fate will depend on the individual components in the mixture, which can change as they become "weathered" in the environment. Overall, diesel products can cause significant harm to aquatic life. Birds, particularly, waterfowls, may be affected externally and internally by oil contamination. Plant life may also sustain long-term growth inhibition. Available data suggest that the bioaccumulation potential of the diesel products may be low; however, data related to their biomagnification potential or food chain impacts are limited. The individual constituents of the diesel products can be biodegraded to varying degrees and at different rates.

Exposure Potential:

The most likely routes of exposure to the diesel product are eye and skin contact. Because the diesel products have moderate volatility at room temperature, exposures to high vapor concentrations during normal handling is not expected to occur frequently; however, in confined spaces at high temperatures, significant vapor exposure levels are possible.

Workplace use: The potentially exposed populations include: (1) workers who manufacture and/or blend these products, or further formulate them with additives to meet technical specifications; (2) quality assurance workers who sample and analyze the products to ensure that they meet specifications; (3) workers involved in distribution and storage of these products; and (4) commercial consumers, in occupational settings, that use these products in intended applications. The most likely routes of exposure to the diesel products in a workplace setting are eye and dermal contact, and inhalation exposure. The probability of exposure to personnel is expected to be low because the diesel products are sold to experienced industrial customers that are familiar with their intended applications, safe handling, storage, and disposal requirements. Manufacturing, quality assurance, and transportation workers will likely wear appropriate personal protective equipment (PPE), and will also likely have access to engineering controls to prevent exposure. Customers are also likely to use appropriate PPE during handling and use. In addition, customer facilities typically have risk mitigation measures in place to address potential physical hazards or accidental releases.

Consumer use: Potential exposure to the general public is not anticipated to be likely for these products as they are not sold to the general population. If a large scale spill or fire occurred near a residential setting, odor complaints and/or inhalation exposures to the general population are possible.

Potential Environmental Release: There may be some potential for exposure to the environment from accidental releases of the diesel products during transportation of large quantities over long distances via trailers and railcars; however, the frequency of distribution incidents involving accidental releases of these products has been low, and reported product volumes spilled have been minimal. Chevron Philips Chemical is committed to operating in an environmentally responsible manner and has adopted the American Chemical 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. We begin by ensuring that all of our customers, distributors, carriers, and users of the products in the Diesel Product Group are well informed about the properties of each product. To that end, a Material Safety Data Sheet and a certificate of analysis accompany each shipment from our manufacturing plant. In addition, we have completed a Hazard and Exposure Risk Characterization (HERC) for these products to evaluate the potential risks associated with their distribution and use.

Regulatory Information:

Regulations exist that govern the manufacture, sale, transportation, use, and disposal of diesel products. These regulations may vary by city, state, country or geographic region. Additional relevant information may be found by consulting the applicable product Material Safety Data Sheet.

Sources of Additional Information:

- Agency for Toxic Substances and Disease Registry (ATDSR). 1995. Toxicological Profile for Fuel Oils. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry. June 1995. http://www.atsdr.cdc.gov/toxprofiles/tp75.html

- ATDSR. 1996. Fact Sheet: Fuel Oils (CAS# 8008-20-6, 70892-10-3, 68476-30-2, 68476-34-6, 68476-31-3). Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry. September 1996. http://www.atsdr.cdc.gov/toxprofiles/tp75.html

- Chevron Phillips Chemical. 2003. Diesel Racing Fuel. *MSDS # CPC00314*. Revision 1.00. Dated 4/01/2003. http://www.cpchem.com/enu/products_product_index.asp

- Chevron Phillips Chemical. 2008. Diesel No. 2 Test Fuel. *MSDS # CPC00523*. Revision No. 4.01. Dated 10/14/2008 http://www.cpchem.com/enu/products_product_index.asp

- Chevron Phillips Chemical. 2008. Diesel Secondary Reference Fuel. *MSDS # 664950*. Revision 7.00. Dated 10/22/2008. http://www.cpchem.com/enu/products_product_index.asp

- International Agency for Research on Cancer. (IARC). 1989. Diesel Fuels. Summaries and Evaluation: Vol 45. Last updated January 21, 1998. Available online at: http://www.inchem.org/documents/iarc/vol45/45-05.html

- IARC. 1989. Diesel and Gasoline Engine Exhausts and Some Nitroarenes. Summary of Data Reported and Evaluated. Volume 45. Last updated January 1, 1998. Available online at: http://monographs.iarc.fr/ENG/Monographs/vol46/volume46.pdf

- International Program on Chemical Safety (IPCS) 1996. Diesel Fuel and Diesel Exhaust Emissions. Environmental Health Criteria 171. United Nations Environment Program, International Labor Organization, World Health Organizations, Geneva, 1996. http://www.inchem.org/documents/ehc/ehc/ehc171.htm

- Occupational Health and Safety Administration (OSHA). 2006. Chemical Sampling Information: Diesel Fuel. Posted September 25, 2006. Available online at: http://www.osha.gov/dts/chemicalsampling/data/CH_234655.html

Conclusion:

Diesel fuels contain components that are classified as hazardous chemicals. Efforts should be taken to minimize long-term (chronic) or repeated exposures to these products by adhering to proper handling, use, use of proper protective equipment, labeling, storage, and transportation procedures and requirements. The relevant product Material Safety Data Sheet 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 these products.

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