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Product Stewardship Summary Spent Caustic (from Normal Alpha Olefins unit)

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

Chemical identity:

Spent Caustic results from the alpha olefin production at the Cedar Bayou Plant in Texas. The main components are water, sodium hydroxide, sodium aluminate, and sodium carbonate.

Product Uses:

Spent Caustic is reacted with water and aluminum hydrate to produce sodium aluminate, alumina, and other products, which are sold to paper mills and catalyst manufacturers. Spent Caustic when used, as is, as a feedstock in the manufacture of sodium aluminate, is excluded from the definition of solid waste and requires no disposal by Chevron Phillips Chemical.

Physical/Chemical Properties:

Spent Caustic is a cloudy liquid which may contain an oily film (top phase) and a heavy (bottom) phase of brownish gray sludge. Spent Caustic is not classified by the U.S. Department of Transportation or Occupational Health and Safety Administration (OSHA) as flammable or combustible.

Health Information:

Exposures to Spent Caustic are expected to cause permanent damage to skin and eyes; ingestion may cause severe irritation and permanent damage to the mouth, throat, and stomach, and may be fatal. Breathing of mists of this material may cause respiratory irritation and repeated and prolonged exposure may cause lung damage. Spent Caustic is not expected to cause reproductive or developmental toxicity, genetic toxicity, or cancer.

Environmental Information:

Based on available data for the components, Spent Caustic is expected to be toxic to aquatic organisms in the immediate vicinity of release to a body of water, due to an

increase in pH and to the presence of aluminum. Spent Caustic is not expected to bioconcentrate in fish or other aquatic organisms. If Spent Caustic is released to water or soil, components are not likely to volatilize to the atmosphere, but will partition primarily to the sediment or remain in the soil. Fate in the soil and sediment will depend on the amount released and the composition of the receiving medium. Depending on the properties of the soil, some components may display high mobility. Aluminum cannot be destroyed in the environment. Most aluminum will ultimately end up in the soil or sediment, where, under acidic conditions, aluminum may accumulate. Exposure of the environment to Spent Caustic is expected to be very low.

Exposure Potential:

Exposure potential is considered to be low, however, based on the typical uses/applications of Spent Caustic within the industry as we are aware of it. Potential avenues for exposure might be as follows:

- *Workplace use:* This refers to potential exposure to Spent Caustic to persons in an industrial manufacturing facility or through evaporation in various industrial applications. Although Spent Caustic is produced in closed systems, it should be common practice to use personal protective equipment.

Spent Caustic is manufactured and transported in closed systems, which limits general exposure; however, there is some potential for exposure to individuals during loading and unloading operations and/or collection of samples for analysis. Adherence to proper protective safety equipment and safe handling practices should reduce potential exposure.

- *Consumer use:* Potential exposure or impact to the general public is not anticipated for Spent Caustic as it is sold by Chevron Phillips Chemical to sophisticated industry users and not to the general population.
- *Potential environmental release:* Since Spent Caustic is routinely consumed internally, is transported only a necessary distance, and is typically handled and stored in closed systems, potential exposure of the environment to Spent Caustic is expected to be very low. 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. We make product information available to all of our customers, distributors, carriers, and users of these products which contain detail about the properties of each product. To that end, a Safety Data Sheet and a certificate of analysis accompany each shipment from our manufacturing plant.

Before using these products, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the product for the specific use in question. It is the ultimate responsibility of the user to ensure suitability for use and determine if this information is applicable to the user's specific application. Chevron Phillips Chemical does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, or allegedly arising from any usage of any trade or from any course of dealing in connection with the use of the information contained herein or any product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or any product itself.

Finally, when handling Spent Caustic product, any user should consult the relevant product Safety Data Sheet and review applicable regulatory guidelines and requirements, including, but not limited, to OSHA guidelines.

Regulatory Information:

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

Sources of Additional Information:

- Organization for Economic Cooperation and Development (OECD) - eChemPortal web-based search tool (use applicable CAS No): <http://www.echemportal.org/>
- European Chemicals Agency (ECHA) – Information on Registered Substances: <http://echa.europa.eu/information-on-chemicals/registered-substances>
- Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles: <http://www.atsdr.cdc.gov/toxprofiles/index.asp>
- Safety Data Sheet: <http://www.cpchem.com/en-us/pages/msdssearch.aspx>

Conclusion:

Spent Caustic contains components that are classified as hazardous chemicals. Efforts should be taken to minimize eye, dermal and inhalation exposures to this product by adhering to safe handling procedures, designated applications and uses, appropriate personal protective equipment practices, and appropriate labeling, storage, and transportation procedures and requirements. The relevant product Safety Data Sheet and applicable regulatory guidelines and requirements, including, but not limited to, OSHA guidelines, should be consulted prior to the use or handling of this product.

Contact Information:

<http://www.cpchem.com/>

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