Mobil Material Safety Data Bulletin

An Explanation of Terms -- U.S. Products

 ♦ GEN 0098023(053198)

Introduction

A Mobil Material Safety Data Bulletin (MSDB), commonly referred to as a Material Safety Data Sheet (MSDS), is a compilation of health-related information, procedures for emergency situations, physical properties, and recommendations to help assure the safe handling of a particular Mobil product. The MSDB meets all of the requirements of the OSHA Hazard Communication Standard (29 CFR 191 0.1200). As an additional customer service, we provide an MSDB for our nonhazardous products as well.

Mobil provides an MSDB upon initial purchase, within 3 months of a significant change in hazardous product MSDB information, and upon first purchase each year for products containing a SARA 313 regulated ingredient. An MSDB may be requested at any time by calling the MSDS information number indicated in Section 1 of the MSDB. Some MSDBs are available on the Internet (www.mobil.com).

The following explanations of section contents are provided, ordered as you will find them within the U.S. MSDB. Please refer to the MSDB as you go through the following 16 sections which conform to the ANSI Z400.11993 standard and international formats.

Section 1. Product and Company Identification

Indicates if MSDB is based on supplier information. Identifies the product trade name as it appears on the product container; our address and telephone numbers; and the date the MSDB was last revised. Please use the Product and MSDS Information phone number to request data regarding product applications and to obtain an MSDB. The emergency number is for urgent health, release, and transportation situations. The CHEMTREC number is for reporting transportation emergencies.

Section 2. Composition/Information on Ingredients

Ingredients disclosure in this section is based upon exposure limits and definitions of hazardous components considered relevant in the U.S., subject to applicable trade secret protections.

Chemical Names and Synonyms – A generic description of product components.

Ingredients Considered Hazardous to Health – Lists chemicals present above certain concentrations which either have exposure limits or have been determined to be hazardous by Mobil. The Chemical Abstract Service (CAS) number and approximate weight percentage is listed for each chemical. The exposure limits for these chemicals are listed in Section 8 of the MSDB.

Other Potentially Hazardous Ingredients – Lists chemicals present above certain concentrations which do not have regulatory exposure limits but which are physical (combustible, flammable, etc.) or health (defat skin, etc.) hazards. Includes CAS number and approximate weight percentage for each chemical.

Footnotes – Provides other amplifying information.

Section 3. Hazards Identification

Summarizes key emergency response information including a statement of whether or not the product is hazardous by the criteria in the OSHA Hazard Communication Standard; effects of overexposure to the product; physical appearance; unusual fire and explosion hazards; DOT Emergency Response Guide (ERG) number; and for Mobil use, a numerical Safety Equipment Code (SEC) which indicates hazard severity for MCCCPD materials.

Section 4. First Aid Measures

Contains recommended first aid procedures for relevant types of exposure (e.g., eye contact, skin contact, inhalation, or ingestion). Also includes notes to treating physicians. The information is for emergency situations only.

Section 5. Firefighting Measures

Recommends suitable extinguishing media, gives fire fighting instructions based on criteria established by the National Fire Protection Association (N EPA), gives advise on any special protective equipment for fire fighters (such as self-contained breathing apparatus), and identifies any unusual fire and explosion hazards.

Flash Point – Temperature at which a material will generate sufficient vapor to ignite in the presence of an ignition source. OSHA classifies a material with a flash point below 100ºF as flammable, and with a flash point at or above 100ºF and below 200ºF as combustible. The DOT defines materials with a flash point of 141º or less as flammable, and with a flash point between 141ºF and below 200ºF as combustible. Both OSHA and DOT require that flash points be determined using closed cup methods such as ASTM D93 or ASTM D56.

Flammable Limits – The range of gas and vapor concentrations (percent in air) which will burn in the presence of an ignition source. Flammable range is expressed as Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL). If the flash point is above 250ºF, no flammable limits are shown on the MSDB.

NFPA Hazard ID – Coding system developed by the NFPA. Codes of 0 to 4 are assigned to the categories of Health, Flammability, and Reactivity. The lowest level of hazard is 0, and the highest is 4. For non-fire situations, the NFPA code and the Hazardous Material Information System (HMIS) code are identical. For fire situations, the HMIS Health code may differ from the NEPA Health code.

Hazardous Decomposition Products – Combustion byproducts which may be formed if the product is burned.

Section 6. Accidental Release Measures

Recommends procedures and precautions to be taken in the event of an accidental release or spill. Procedures for disposing of the product are given in Section 13. The reporting requirements indicated are for federal regulations. Since state and local reporting requirements may also exist, consult state and local law for guidance.

Section 7. Handling and Storage

Recommends any special precautions to be followed during the handling and storage of Mobil products. If a product is OSHA hazardous, the precautionary warning label text will be shown in Section 16.

Section 8. Exposure Controls/ Personal Protection

As a consequence of Mobil s Product Stewardship Program, many of our products are nonhazardous. Product toxicity, or lack thereof, is determined in our Toxicology Testing Program. When there is potential for adverse health effects from direct exposure to the product as packaged for sale, recommendations are made for general ventilation, and for respiratory, eye and skin protection. Depending on customer use conditions, need for protective measures may vary. Regulated components of products are also shown in this section, along with their airborne exposure limits. Terms associated with exposure limits include:

Source – Indicates organization that established the exposure limit.

Mobil – Exposure values utilized by Mobil for its facilities are displayed if they are = or < the corresponding ACGIH TLV. ACGIH - American Conference of Governmental Industrial Hygienists establishes Threshold Limit Values (TLV).

OSHA – Occupational Safety & Health Administration establishes Permissible Exposure Limits (PEL).

TWA – Time Weighted Average is the airborne concentration of a substance averaged over a normal eight hour workday.

STEL – Short Term Exposure Limit - is the airborne concentration of a substance typically averaged over a 15 minute period. Used for substances with potential health effects as a result of a brief exposure to a high concentration.

ppm – Parts of gas or vapor per million parts of air. Common unit of measure for exposure limits for gases or vapors.

mg/m3 – Milligrams of a substance per cubic meter of air. Common unit of measure for exposure limits for dusts or mists.

Note – Provides further exposure limit information such as Ceil for ceiling limits which may not be exceeded during any part of the work day.

Section 9. Physical and Chemical Properties

The information in this section represents typical chemical and physical properties not product specifications. The purpose is to provide data for health and safety assessments not product performance. For technical data on Mobil products, please contact your marketing representative, or call the product information number indicated in Section 1 of the MSDB. The less familiar terms used in this. section are explained below. Some properties are not addressed in the MSDB if they are not applicable (NA), or if they have not been established for (NE), a given product. Product will sink (>1) or float (<1) in water. Essentially the same as specific gravity. Solubility Degree of solubility in water at room temperature.

Term Solubility

Negligible 0.0 — 0.1%

Slight 0.1 — 1.0%

Moderate 1.0 — 10%

Appreciable — >10%

Complete — 100%

Partition Coefficient – The solubility of a substance in nOctanol compared to its solubility in water. Low partition coefficient indicates product is not expected to accumulate in the fatty tissue of aquatic organisms.

Viscosity – A Measure of resistance to flow. Some low viscosity hydrocarbon oils (<1 5ºCs at 40ºC) have been shown to defat the skin and result in irritation or dermatitis on prolonged or repeated contact.

D=Decomposes – Indicates that the product begins to change chemically before reaching the test endpoint.

Section 10. Stability and Reactivity

Information is given on conditions and materials to avoid in order to prevent creation of a hazardous situation. Hazardous substances which may be formed during thermal or chemical breakdown of the product are also listed.

Section 11. Toxicological Data

Toxicological testing is an important part of Mobil s Product Stewardship Program. This section summarizes available test data and scientific literature for ingredients in our products, and is the basis for determining regulatory classification and labeling requirements for the product as a whole.

Acute Tests – Determine the potential hazards of a product based on short-term exposure. Results range from practically nontoxic or nonirritating, to very toxic or severe irritant. Used to determine emergency and first aid procedures.

Subchronic Tests – Used to determine potential hazards from periodic exposure to one or more ingredients in a product. Chronic Tests Used to evaluate the potential long-term effects of prolonged or repeated exposure to one or more ingredients in a product.

Mutagenic Tests – Used to evaluate the potential for one or more ingredients in a product to cause genetic changes. Also used as a predictor of cancer-causing potential.

Reproductive Tests – Used to evaluate potential of one or more ingredients in a product to have effects on the unborn, or the ability to conceive and bear offspring.

Other Data – Any other information that has an impact on toxicological properties, such as lubricant base oil properties, potential for skin sensitization, etc.

Section 12. Ecological Information

Summarizes the environmental fate, effects, and behavior of the prod&ct, if known.

Section 13. Disposal Considerations

Gives advice on recommended methods of disposing of product. In all cases, products should be disposed of in accordance with current legal requirements. A statement regarding status of the unused product pursuant to RCRA regulations is included. The waste generator is responsible for determining the hazard classification of used product. State and local regulations may be more stringent than federal regulations. Because of the complexity of disposal regulations, we suggest that you consult state and local law for guidance.

Section 14. Transportation Information

This section contains information for classifying and labeling hazardous materials in the U.S. (DOT), over the high seas (IMO), via air (ICAO/IATA), in Canada (TDGR), and in Europe (RID/ADR). Combustible products shipped in non-bulk quantities (less than 119 gallons) may be exempt from transportation regulations. If a product is not classified as a hazardous material for shipping purposes, not applicable will be indicated. An ID number beginning with UN is required for shipments outside of the North American continent. MSDBs for products containing environmentally hazardous substances include the pounds of product which must be spilled during transport to reach the U.S. DOT reportable quantity (RQ) of the hazardous substance. This product RQ should not be confused with the hazardous substance RQ. Product ingredients classified as Marine Pollutants (MARPOL) when shipped in bulk are identified in this section.

Section 15. Regulatory Information

As a customer service, some information regarding status of a product and its ingredients with certain federal and state regulations may be included in this section. However, customers are responsible for ensuring compliance with all applicable regulations which may apply to use and handling of our products.

Inventory Status – Status of product ingredient registration on national chemical listings to include TSCA (U.S.), EINECS/ELINCS (Europe), AICS (Australia), DSL (Canada), MITI (Japan), KECI (S. Korea), PICCS (Philippines), and IECS/NEPA (China). For information regarding registration on other chemical listings, please call the product information number in Section 1 of the MSDB.

SARA – Provides information necessary for complying with the community right-to-know (RTK), inventory reporting, and toxic release inventory (TR I) reporting requirements under SARA. Product ingredients regulated under SARA will be shown with CAS No. and weight percentage.

FDA/USDA – If the product meets FDA criteria, or has a USDA approval, the specific criteria and approval rating will be shown.

Drug and Explosive Precursors – Certain chemicals are controlled by various federal agencies due to their potential for use in manufacturing illegal drugs and explosives. If these controlled ingredients are present in a product, a statement regarding regulatory compliance will be shown.

European Hazard Warning Labels – If the product is hazardous by European dangerous substances and preparations directives, appropriate risk (R) and safety (5) label codes will be shown.

List Citations – Product ingredients are compared electronically to a number of federal and state regulatory lists, If an ingredient is included in one of the lists in the Regulatory Lists Searched code key, and if it is present at levels above respective list thresholds, the ingredient, along with its CAS No. and list code, will be shown. The criteria for disclosing chemical components in this section are not necessarily the same as the criteria used to disclose components in Section 2.

The following lists are included in the regulatory review process:

ACGIH All – All chemicals covered by the American Conference of Governmental Industrial Hygienist TLV's.

ACGIH A1 – List of materials which, in the opinion of ACGIH, are confirmed to cause cancer in humans.

ACGIH A2 – List of materials which, in the opinion of ACGIH, are suspected of causing cancer in humans.

NTP CARC – Materials classified in the National Toxicology Program annual report as known carcinogens.

NTP SUS – Materials classified in NTP annual report as anticipated to be carcinogenic.

IARC 1 – List of materials which the International Agency for Research on Cancer believes cause cancer in humans.

IARC 2A – List of materials which IARC believes probably cause cancer in humans.

IARC 2B – List of materials which IARC believes possibly cause cancer in humans.

OSHA CARC – List of OSHA regulated carcinogens and potential carcinogens.

OSHA Z – List of all materials regulated by OSHA. TSCA 4 List of materials covered by an EPA test rule or order under Section 4 of the Toxic Substance Control Act.

TSCA 5a2 – List of materials covered by an EPA Significant New Use Rule under TSCA Section 5(a)(2).

TSCA 5e – List of materials covered by an EPA consent order under TSCA Section 5(e).

TSCA 6 – List of materials covered by an EPA final risk management action under TSCA Section 6. TSCA 12b List of materials subject to EPA export notification requirements under TSCA Section 12(b).

CA P65 CARC – List of materials subject to warning requirements under California Proposition 65 (Safe Drinking Water and Toxic enforcement Act of 1986) due to cancer potential.

CA P65 REPRO – List of materials subject to warning requirements under California Proposition 65 due to potential for affecting the reproductive system.

CA RTK – The Director s List of Hazardous Substances, developed pursuant to the California Hazardous Substances Disclosure to Employees Act.

FL RTK – The Florida Substance List, developed pursuant to the Florida Toxic Substances in the Workplace Act.

IL RTK – The Toxic Substance List developed pursuant to the Illinois Toxic Substance Disclosure to Employees Act.

LA RTK – The Louisiana State Right-to-Know Hazardous Chemicals List, developed pursuant to the Hazardous Material Information Development, Preparedness, and Response Act. MI 293 List of chemicals on the Michigan Critical Materials Register (environmental groundwater hazardous substances).

MN RTK – List of Hazardous Substances, developed pursuant to the Minnesota Employee Right-to-Know Act.

NJ RTK – Three lists developed pursuant to the New Jersey Worker and Community Right-to-Know Act. PA RTK Three lists developed pursuant to the Pennsylvania Worker and Community Right-to-Know Act. RI RTK List of chemicals on the Rhode Island State Hazardous Substances register.

For status of compliance with other regulations, please call the information number in Section 1 of the MSDB.

Section 16. Other Information

If a product is OSHA hazardous, the precautionary label text to be included on container labels is shown in this section. This section also includes a use description for the product. For some products, additional ingredients are also disclosed.

Information intended for internal Mobil use includes:

MHC – Material Hazard Code determined by acute toxicological testing for oral, dermal, inhalation, eyes, and skin routes of exposure. Codes range from 0 to 4 with 4 being the most severe. An asterisk indicates that the MHC is based on data from testing of a similar material. A code of 2 or greater classifies the product as hazardous under both U.S. and European criteria.

MPPEC – Mobil Personal Protective Equipment Code. Assumes direct exposure to undiluted product.

Primary Codes:

A — Minimal protective equipment for a given facility s operations (determined locally).

B — Code A + eye protection.

C — Code A + skin protection.

D — Code A + eye and skin protection.

E — Protection from severe eye and skin hazard needed.

X — Special protective equipment needed.

Ancillary Codes:

P — Particulate respiratory protection.

V — Vapor respirator needed.

H — Noxious vapors released when heated.

F — Flash point <100ºF (37.8ºC)

REQ — Mobil affiliate that requested the MSDB.

Safe Use Code — used by Mobil's E&P facilities.

TRN — MSDB numerical identifier

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