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# SAFETY DATA SHEET

# SECTION 1

# PRODUCT AND COMPANY IDENTIFICATION

# PRODUCT

Product Name: VACMUL 3A

Product Description: Petroleum Hydrocarbons

Product Code: 2015702005A2, 671305-00, 972484

Intended Use: Metal processing fluid

#### **COMPANY IDENTIFICATION**

Supplier:

### **EXXON MOBIL CORPORATION**

22777 Springwoods Village Parkway Spring, TX 77253 USA 24 Hour Health Emergency 609-737-4 Transportation Emergency Phone 800-424-5 Product Technical Information 800-662-4 MSDS Internet Address http://www

# 609-737-4411 800-424-9300 or 703-527-3887 CHEMTREC 800-662-4525 http://www.exxon.com, http://www.mobil.com

# **SECTION 2**

HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

# CLASSIFICATION:

Aspiration toxicant: Category 1.

LABEL: Pictogram:



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Signal Word: Danger

#### Hazard Statements:

H304: May be fatal if swallowed and enters airways.

# **Precautionary Statements:**

P273: Avoid release to the environment.P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P331: Do NOT induce vomiting. P391: Collect spillage.P405: Store locked up.P501: Dispose of contents and container in accordance with local regulations.

Contains: HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)

Other hazard information:

# HAZARD NOT OTHERWISE CLASSIFIED (HNOC): None as defined under 29 CFR 1910.1200.

#### PHYSICAL / CHEMICAL HAZARDS

No significant hazards.

#### **HEALTH HAZARDS**

High-pressure injection under skin may cause serious damage. This product may be used in certain applications where misting can occur. Excessive exposure to liquids and mists may cause skin and eye irritation. In addition, excessive exposure to mists may cause respiratory irritation and damage and aggravate pre-existing emphysema or asthma. Repeated exposure may cause skin dryness or cracking. Mists may be irritating to the eyes, nose, throat, and lungs. Excessive exposure may result in eye, skin, or respiratory irritation.

# **ENVIRONMENTAL HAZARDS**

Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	1	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health:	1*	Flammability: 1	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3

# **COMPOSITION / INFORMATION ON INGREDIENTS**



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This material is defined as a complex substance.

#### Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
HYDROTREATED MIDDLE DISTILLATE (PETROLEUM)	64742-46-7	100%	H304, H401, H411

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

As per paragraph (i) of 29 CFR 1910.1200, formulation is considered a trade secret and specific chemical identity and exact percentage (concentration) of composition may have been withheld. Specific chemical identity and exact percentage composition will be provided to health professionals, employees, or designated representatives in accordance with applicable provisions of paragraph (i).

# SECTION 4 FIRST AID MEASURES

#### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

# EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

Seek immediate medical attention. Do not induce vomiting.

#### NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

# **SECTION 5**

# FIRE FIGHTING MEASURES

# **EXTINGUISHING MEDIA**

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.



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#### Inappropriate Extinguishing Media: Straight Streams of Water

#### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Unusual Fire Hazards:** Pressurized mists may form a flammable mixture.

**Hazardous Combustion Products:** Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

#### FLAMMABILITY PROPERTIES

Flash Point [Method]: >120°C (248°F) [ASTM D-92] Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D Autoignition Temperature: N/D

#### **SECTION 6**

# ACCIDENTAL RELEASE MEASURES

#### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

#### **PROTECTIVE MEASURES**

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to aromatic hydrocarbons are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Do not touch or walk through spilled material. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Recover



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by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

#### **ENVIRONMENTAL PRECAUTIONS**

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

# SECTION 7 HANDLING AND STORAGE

#### HANDLING

Avoid breathing mists or vapors. Avoid contact with skin. Small metal particles from machining may cause abrasion of the skin and may predispose to dermatitis. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

#### STORAGE

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers.

# **SECTION 8**

#### **EXPOSURE CONTROLS / PERSONAL PROTECTION**

# **EXPOSURE LIMIT VALUES**

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit / Sta	ndard	NOTE	Source
HYDROTREATED MIDDLE	Mist.	TWA	5 mg/m3	N/A	OSHA Z1
DISTILLATE (PETROLEUM)					
HYDROTREATED MIDDLE		TWA	5 mg/m3	N/A	ExxonMobil



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DISTILLATE (PETROLEUM)					
HYDROTREATED MIDDLE	Inhalable	TWA	5 mg/m3	N/A	ACGIH
DISTILLATE (PETROLEUM)	fraction.				

**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following is recommended: 5 mg/m<sup>3</sup> - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

No biological limits allocated.

# **ENGINEERING CONTROLS**

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

#### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Particulate air-purifying respirator approved for dust / oil mist is recommended.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended. Chemical type goggles should be worn during misting operations.

Skin and Body Protection: Any specific clothing information provided is based on published literature or



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manufacturer data. The types of clothing to be considered for this material include: If prolonged or repeated contact is likely, chemical, and oil resistant clothing is recommended.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

#### ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

#### **GENERAL INFORMATION**

Physical State: Liquid Color: Colorless to Yellow Odor: Characteristic Odor Threshold: N/D

#### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.887 Flammability (Solid, Gas): N/A Flash Point [Method]: >120°C (248°F) [ASTM D-92] Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D Autoignition Temperature: N/D Boiling Point / Range: > 232°C (450°F) **Decomposition Temperature: N/D** Vapor Density (Air = 1): > 2 at 101 kPa Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C Evaporation Rate (n-butyl acetate = 1): N/D pH: N/A Log Pow (n-Octanol/Water Partition Coefficient): N/D Solubility in Water: Negligible Viscosity: 4.18 cSt (4.18 mm2/sec) at 40 °C Oxidizing Properties: See Hazards Identification Section.

# OTHER INFORMATION

Freezing Point: N/D Melting Point: N/A Pour Point: 3°C (37°F) DMSO Extract (mineral oil only), IP-346: < 3 %wt



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# SECTION 10

# STABILITY AND REACTIVITY

**REACTIVITY:** See sub-sections below.

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11

### TOXICOLOGICAL INFORMATION

# INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on assessment of the components.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	May dry the skin leading to discomfort and dermatitis. Based on assessment of the components.
Еуе	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer.
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico- chemical properties of the material.
Germ Cell Mutagenicity: No end point data	Not expected to be a germ cell mutagen.



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for material.	
Carcinogenicity: No end point data for	Not expected to cause cancer.
material.	
Reproductive Toxicity: No end point data	Not expected to be a reproductive toxicant.
or material.	
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for	Not expected to cause organ damage from prolonged or repeated
material.	exposure.

# OTHER INFORMATION

# For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. Oil Mist (highly refined oils): Animals exposed to high concentrations of mist developed oil retention, inflammation, and oil granulomas in the respiratory tract. Oils exposed to high temperatures, cracking conditions, or mixing with tramp / used oils may introduce polycyclic aromatic compounds or microbial contaminants that could result in cancer or severe respiratory hazards.

#### **Contains:**

Middle distillates: Carcinogenic in animal tests. Lifetime skin painting tests produced tumors, but the mechanism is due to repeated cycles of skin damage and restorative hyperplasia. This mechanism is considered unlikely in humans where such prolonged skin irritation would not be tolerated. Did not cause mutations In Vitro. Inhalation of vapors did not result in reproductive or developmental effects in laboratory animals. Inhalation of high concentrations in animals resulted in respiratory tract irritation, lung changes and some reduction in lung function. Non-sensitizing in test animals.

# The following ingredients are cited on the lists below: None.

	REGULATORY LISTS SE	EARCHED
1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

#### **SECTION 12**

#### **ECOLOGICAL INFORMATION**

The information given is based on data available for the material, the components of the material, and similar materials.

# ECOTOXICITY



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Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

#### MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Majority of components -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

# PERSISTENCE AND DEGRADABILITY

# **Biodegradation:**

Majority of components -- Expected to be inherently biodegradable

# Atmospheric Oxidation:

Majority of components -- Expected to degrade rapidly in air

#### **BIOACCUMULATION POTENTIAL**

Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

# OTHER ECOLOGICAL INFORMATION

VOC: 122.8 G/L [ASTM E1868-10]

# SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

#### **DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

## **REGULATORY DISPOSAL INFORMATION**

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken



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for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

#### **SECTION 14**

TRANSPORT INFORMATION

LAND (DOT): Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

Footnote: If shipped over water, product TDG classification as shown below for SEA (IMDG).

#### SEA (IMDG)

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Hydro treated middle distillate) Hazard Class & Division: 9 EMS Number: F-A, S-F UN Number: 3082 Packing Group: III Marine Pollutant: Yes Label(s): 9 Transport Document Name: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (Hydro treated middle distillate), 9, PG III, MARINE POLLUTANT

# AIR (IATA)

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (Hydro treated middle distillate) Hazard Class & Division: 9 UN Number: 3082 Packing Group: III Label(s) / Mark(s): 9, EHS Transport Document Name: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (Hydro treated middle distillate), 9, PG III

#### **SECTION 15**

## **REGULATORY INFORMATION**

**OSHA HAZARD COMMUNICATION STANDARD:** This material is considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.

Listed or exempt from listing/notification on the following chemical inventories: AICS, DSL, IECSC, KECI, PICCS, TCSI, TSCA



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SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Immediate Health. Delayed Health.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

# The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
HYDROTREATED MIDDLE	64742-46-7	1, 4, 17, 18
DISTILLATE (PETROLEUM)		

# --REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

# SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

**KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):** 

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

# THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified. Hazard Identification: Health Hazards information was modified. Section 01: Company Mailing Address information was modified. Section 02: GHS Contains for LABEL\_GHS codes information was modified. Section 05: Hazardous Combustion Products information was modified. Section 06: Protective Measures information was modified.



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Section 07: Handling and Storage - Handling information was modified. Section 07: Handling and Storage - Storage Phrases information was modified. Section 08: Exposure Limits Table information was modified. Section 09: Color information was modified. Section 11: Aspiration Test Data information was added. Section 11: Carcinogen Test Data information was added. Section 11: Lactation Test Data information was added. Section 11: Mutagen Test Data information was added. Section 11: Reproductive Test Data information was added. Section 11: Respiratory Sensitization Test Data information was added. Section 11: Skin Sensitization Test Data information was added. Section 11: Target Organ Toxicity - Repeat Test Data information was added. Section 11: Target Organ Toxicity - Single Test Data information was added. Section 15: Community RTK - Header information was modified. Section 15: Inventory - Header information was deleted. Section 15: List Citations Table information was modified. Section 15: National Chemical Inventory Listing information was modified. Section 15: Special Cases - Header information was deleted. Section 15: Special Cases Table information was deleted. Section 15: Status - Header information was deleted. Section 16: Revision Information - Implementation of GHS requirements phrase. information was deleted. The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is

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