

Revision Date: 16 Mar 2020

Page 1 of 12

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# SAFETY DATA SHEET

# **SECTION 1**

# PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT** 

Product Name: MOBIL DYNAGEAR 4000
Product Description: Base Oil and Additives

**Product Code:** 2015A020M020, 510560-00, 97BY76

Intended Use: Grease

**COMPANY IDENTIFICATION** 

Supplier: EXXON MOBIL CORPORATION

22777 Springwoods Village Parkway

Spring, TX 77389 USA

24 Hour Health Emergency 609-737-4411

Transportation Emergency Phone 800-424-9300 or 703-527-3887 CHEMTREC

Product Technical Information 800-662-4525

MSDS Internet Address www.exxon.com, www.mobil.com

# **SECTION 2**

# HAZARDS IDENTIFICATION

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

# **CLASSIFICATION:**

Skin Sensitizer: Category 1.

# LABEL: Pictogram:



Signal Word: Warning

#### **Hazard Statements:**

H317: May cause allergic skin reaction.

# **Precautionary Statements:**

P261: Avoid breathing fumes. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves.P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P333 + P313: If skin irritation or rash occurs: Get medical advice/attention. P362 + P364: Take off contaminated clothing and wash it before reuse.P501: Dispose of contents and container in accordance with local regulations.

Contains: 5,5'-DITHIOBIS-1.3,4--THIADIAZOLE-2(3H)-THIONE



Revision Date: 16 Mar 2020

Page 2 of 12

#### 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. Mildly irritating to skin. May be irritating to the eyes, nose, throat, and lungs.

#### **ENVIRONMENTAL HAZARDS**

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

NFPA Hazard ID: Health: 2 Flammability: 1 Reactivity: 0 HMIS Hazard ID: Health: 2 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**

This material is defined as a mixture.

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

Name	CAS#		GHS Hazard Codes
		Concentration*	
5,5'-DITHIOBIS-1.3,4THIADIAZOLE-2(3H)-THIONE**	72676-55-2	1 - < 5%	H317, H401, H411
AMINES, C12-14-TERT-ALKYL	68955-53-3	0.1 - < 0.25%	H302, H311, H317, H330(2), H314(1B), H400(M factor 1), H410(M factor 1)
BUTENE, HOMOPOLYMER	9003-29-6	20 - < 30%	H304
C16-18-(EVEN NUMBERED, SATURATED AND UNSATURATED)-ALKYLAMINES	1213789-63-9	0.01 - < 0.025%	H302, H304, H335, H314(1B), H373, H400(M factor 10), H410(M factor 10)
GRAPHITE**	7782-42-5	1 - < 5%	None
MOLYBDENUM (IV) SULFIDE**	1317-33-5	1 - < 5%	None
NAPHTHENIC ACIDS, ZINC SALTS**	12001-85-3	0.1 - < 1%	H317, H319(2A), H401, H411
ZINC DIALKYL DITHIOPHOSPHATE**	68457-79-4	1 - < 2.5%	H315, H318, H401, H411

<sup>\*</sup> 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



Revision Date: 16 Mar 2020

Page 3 of 12

accordance with applicable provisions of paragraph (i).

# **SECTION 4**

#### **FIRST AID MEASURES**

#### **INHALATION**

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

# **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

First aid is normally not required. Seek medical attention if discomfort occurs.

# **SECTION 5**

#### **FIRE FIGHTING MEASURES**

#### **EXTINGUISHING MEDIA**

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

**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.

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

# FLAMMABILITY PROPERTIES

Flash Point [Method]: >150°C (302°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** >260°C (500°F)

## **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.



Revision Date: 16 Mar 2020

Page 4 of 12

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#### 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: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor 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 hydrocarbons are recommended. 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: Scrape up spilled material with shovels into a suitable container for recycle or disposal.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Skim from surface.

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**

Prevent entry into waterways, sewers, basements or confined areas.

# SECTION 7

# **HANDLING AND STORAGE**

#### **HANDLING**

Avoid contact with skin. Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is not a static accumulator.

# STORAGE

Do not store in open or unlabelled containers. Keep away from incompatible materials.

# **SECTION 8**

# **EXPOSURE CONTROLS / PERSONAL PROTECTION**

#### **EXPOSURE LIMIT VALUES**

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

Substance Name	Form	Limit / Standard		NOTE	Source	
GRAPHITE**	Respirable fraction.	TWA	5 mg/m3		N/A	OSHA Z1



Revision Date: 16 Mar 2020

Page 5 of 12

GRAPHITE**	Total dust.	TWA	15 mg/m3	N/A	OSHA Z1
GRAPHITE**	Respirable fraction.	TWA	2 mg/m3	N/A	ACGIH
MOLYBDENUM (IV) SULFIDE** [as Mo]	Total dust.	TWA	15 mg/m3	N/A	OSHA Z1
MOLYBDENUM (IV) SULFIDE** [as Mo]	Inhalable fraction.	TWA	10 mg/m3	N/A	ACGIH
MOLYBDENUM (IV) SULFIDE** [as Mo]	Respirable fraction.	TWA	3 mg/m3	N/A	ACGIH

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:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

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:

Chemical resistant gloves are recommended.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

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Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after



Revision Date: 16 Mar 2020

Page 6 of 12

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:** Solid Form: Semi-fluid Color: Black Odor: Characteristic Odor Threshold:

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

Relative Density (at 15.6 °C): 0.91 Flammability (Solid, Gas): N/A

Flash Point [Method]: >150°C (302°F) [ASTM D-92]

**UEL: 7.0** Flammable Limits (Approximate volume % in air): LEL: 0.9

**Autoignition Temperature:** >260°C (500°F) **Boiling Point / Range:** 220°C (428°F) **Decomposition Temperature:** N/D

Vapor Density (Air = 1): N/D

Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C **Evaporation Rate (n-butyl acetate = 1):** 

Log Pow (n-Octanol/Water Partition Coefficient):

Solubility in Water: Negligible

4000 cSt (4000 mm2/sec) at 40 °C

Oxidizing Properties: See Hazards Identification Section.

# OTHER INFORMATION

**Freezing Point:** N/D **Melting Point:** N/D

DMSO Extract (mineral oil only), IP-346: < 3 %wt

NOTE: Most physical properties above are for the oil component in the material.

#### **SECTION 10** STABILITY AND REACTIVITY

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

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



Revision Date: 16 Mar 2020

Page 7 of 12

**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.	Negligible hazard at ambient/normal handling temperatures.
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.	Mildly irritating to skin with prolonged exposure. Based on assessment of the components.
Eye	
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.	May cause allergic skin reaction. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico- chemical properties of the material.
<b>Germ Cell Mutagenicity:</b> No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
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 material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

# **TOXICITY FOR SUBSTANCES**

NAME	ACUTE TOXICITY
AMINES, C12-14-TERT-ALKYL	Dermal Lethality: LD50 251 mg/kg (Rat); Inhalation Lethality: 4
	hour(s) LC50 1.19 mg/l (Vapor) (Rat); Oral Lethality: LD50 612



Revision Date: 16 Mar 2020

Page 8 of 12

mg/kg (Rat)

#### OTHER INFORMATION

#### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

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

-- REGULATORY LISTS SEARCHED--

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 for the material, components of the material, or for similar materials, through the application of bridging principals.

#### **ECOTOXICITY**

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

# **MOBILITY**

Base oil component -- 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:**

Base oil component -- Expected to be inherently biodegradable

## **BIOACCUMULATION POTENTIAL**

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

# **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**

Suitable routes of disposal are supervised incineration, preferentially with energy recovery, or appropriate recycling methods in accordance with applicable regulations and material characteristics at the time of disposal.

#### REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous



Revision Date: 16 Mar 2020

Page 9 of 12

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 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

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

# 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: AllC, DSL, ENCS, IECSC, KECI, PICCS, TSCA

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

SARA (311/312) REPORTABLE GHS HAZARD CLASSES: Respiratory or Skin Sensitization

**SARA (313) TOXIC RELEASE INVENTORY:** 

Chemical Name	CAS Number	Typical Value
ZINC DIALKYL	68457-79-4	1 - < 2.5%
DITHIOPHOSPHATE**		

The following ingredients are cited on the lists below:



Revision Date: 16 Mar 2020

Page 10 of 12

Chemical Name	CAS Number	List Citations
GRAPHITE**	7782-42-5	1, 4, 13, 16, 17, 18
HEXANOIC ACID, 2-ETHYL-,	136-53-8	15
ZINC SALT		
HYDROTREATED HEAVY NAPHTHENIC DISTILLATE	64742-52-5	13, 17, 18
MOLYBDENUM (IV) SULFIDE**	1317-33-5	1, 4, 13, 16
NAPHTHENIC ACIDS, ZINC SALTS**	12001-85-3	15
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	17, 18, 19
SEVERELY HYDROTREATED HEAVY PARAFFINIC DISTILLATE	64742-54-7	19
ZINC DIALKYL DITHIOPHOSPHATE**	68457-79-4	13, 15, 17, 18, 19

#### -- 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):

H302: Harmful if swallowed; Acute Tox Oral, Cat 4

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

H311: Toxic in contact with skin; Acute Tox Dermal, Cat 3

H314(1B): Causes severe skin burns and eye damage; Skin Corr/Irritation, Cat 1B

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H317: May cause allergic skin reaction; Skin Sensitization, Cat 1

H318: Causes serious eve damage; Serious Eve Damage/Irr, Cat 1

H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A

H330(2): Fatal if inhaled; Acute Tox Inh, Cat 2

H335: May cause respiratory irritation; Target Organ Single, Resp Irr

H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

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

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

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



Revision Date: 16 Mar 2020

Page 11 of 12

# THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified. Composition: Concentration Footnote information was modified. Composition: Defined as statement (GHS) information was modified.

Composition: US GHS Footnote information was modified. GHS Health Classification information was modified.

GHS Health Symbol information was modified.

Hazard Identification: US - Hazards Statement - GHS information was modified.

Section 01: Company Mailing Address information was modified.

Section 06: Accidental Release Measures - Environmental Precautions information was modified.

Section 06: Protective Measures information was modified.

Section 08: ACGIH Biological Limits - Allocation information was modified.

Section 08: Exposure Control - Note information was modified.

Section 08: Personal Protection information was modified.

Section 09: Evaporation Rate information was modified.

Section 09: Phys/Chem Properties Note information was modified.

Section 09: Section 9 Footnotes information was modified.

Section 09: Viscosity information was modified.

Section 11 Acute Toxicity data - Header information was added.

Section 11 Substance Name - Header information was added.

Section 11 Substance Toxicity table - Header information was added.

Section 11 Substance Toxicology table information was added.

Section 11: Acute Toxicity Table Header information was modified.

Section 11: Additional Health Information information was modified. Section 11: Chronic Tox - Component information was modified.

Section 11: Other Health Effects Header information was modified.

Section 11: Other Health Effects information was modified.

Section 12: Bioaccumulation - Header information was modified.

Section 12: Ecological Information - Acute Aquatic Toxicity information was modified.

Section 12: Ecological Information - Bioaccumulation information was modified.

Section 12: Ecological Information - Biodegradation information was modified.

Section 12: Ecological Information - Mobility information was modified.

Section 12: Ecotoxicity - Header information was modified.

Section 12: Mobility - Header information was modified.

Section 12: Persistence and Degradability- Header information was modified.

Section 13: Disposal Considerations - Disposal Recommendations information was modified.

Section 13: Disposal Recommendations - Note information was modified.

Section 13: Regulatory Disposal Information information was modified.

Section 15: National Chemical Inventory Listing information was modified.

Section 16: Copyright - XOM information was modified.

Section 16: HCode Key information was modified.

Section 16: MSN, MAT ID information was modified.

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Revision Date: 16 Mar 2020

Page 12 of 12

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