



Mystik® Tetrिमoly® Extreme Duty Grease


Material Safety Data Sheet

CITGO Petroleum Corporation
P.O. Box 3758
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MSDS No. 665056002

Revision Date 10/24/2001

IMPORTANT: Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

Hazard Rankings		
	HMIS	NFPA
Health Hazard	1	0
Fire Hazard	1	1
Reactivity	0	0
* = Chronic Health Hazard		
Protective Equipment		
Minimum Requirements See Section 8 for Details		
		

Emergency Overview

Physical State Semi-solid to solid (Smooth texture)
Color Dark gray to black. **Odor** Mild petroleum odor

WARNING:

If stored or applied via high-pressure grease gun, a potential skin injection hazard may exist.
Injection under the skin can cause severe injury.
Most damage occurs in the first few hours.
Initial symptoms may be minimal.
Hot grease will cause thermal burns upon contact.
This product can cause mild skin irritation and inflammation.
Spills may create a slipping hazard.

SECTION 1: IDENTIFICATION

Trade Name	Mystik® Tetrिमoly® Extreme Duty Grease	Technical Contact	(918) 495-5933
Product Number	665056002	Medical Emergency	(918) 495-4700
CAS Number	Mixture.	CHEMTREC Emergency (United States Only)	(800) 424-9300
Product Family	Lubricating Grease		
Synonyms	Lubricating Grease; Legacy Code No.: 5830X001; Former ILS Code: 65056; CITGO SAP Product Code No.: 665056002		

SECTION 2: COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
1) Distillates, petroleum, hydrotreated heavy naphthenic	64742-52-5	60 - 80
2) Residual oils, petroleum, solvent-refined	64742-01-4	5 - 20
3) Lithium Carboxylate Soap	Proprietary	1 - 15
4) Proprietary Ingredients	Proprietary Mixture	1 - 10
5) Distillates, petroleum, hydrotreated light naphthenic	64742-53-6	0 - 10
6) Molybdenum Disulfide	1317-33-5	1 - 5
7) Distillates, petroleum, solvent-refined heavy paraffinic	64741-88-4	0 - 2
8) Distillates, petroleum, hydrotreated heavy paraffinic	64742-54-7	0 - 2
9) Organic Zinc Compound	Proprietary	0 - 1

SECTION 3: HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact.

Signs and Symptoms of Acute Exposure

- Inhalation** No significant adverse health effects are expected to occur upon short-term exposure at ambient temperatures. If heated above its flash point, this product's vapors may cause respiratory tract irritation. Repeated or prolonged overexposure to product mists can result in respiratory tract inflammation and an increased risk of infection.
- Eye Contact** This material can cause mild eye irritation from contact with product or product mists.
- Skin Contact** This material can cause mild skin irritation from prolonged or repeated skin contact. Injection under the skin can cause inflammation, swelling and mild central nervous system depression. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage. Initial symptoms may be minor. Injection of petroleum hydrocarbons requires immediate medical attention.
- Ingestion** Contact with hot material may cause thermal burns. If swallowed, no significant adverse health effects are anticipated. This material can cause a laxative effect. If swallowed in large quantities, this material can obstruct the intestine.
- Chronic Health Effects Summary** Contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation of petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects.
- Conditions Aggravated by Exposure** Medical conditions aggravated by exposure to this material may include pre-existing skin disorders.
- Target Organs** This material may cause damage to the following organs: skin.
- Carcinogenic Potential** This product does not contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification				OSHA Physical Hazard Classification					
Irritant	<input type="checkbox"/>	Toxic	<input type="checkbox"/>	Combustible	<input type="checkbox"/>	Explosive	<input type="checkbox"/>	Pyrophoric	<input type="checkbox"/>
Sensitizer	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input type="checkbox"/>	Oxidizer	<input type="checkbox"/>	Water-reactive	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>	Unstable	<input type="checkbox"/>

SECTION 4: FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

- Inhalation** Vaporization is not expected at ambient temperatures. This material is not expected to cause inhalation-related disorders under anticipated conditions of use. In case of overexposure, move the person to fresh air.
- Eye Contact** Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.
- Skin Contact** Remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.

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Ingestion	Do not induce vomiting unless directed to by a physician. Rinse out mouth with water. Never give anything by mouth to a person who is not fully conscious. Allow small quantities to pass through the digestive system. If large amounts are swallowed or irritation or discomfort occurs, seek medical attention immediately.
Notes to Physician	In the event of injection in underlying tissue, immediate treatment should include extensive incision, debridement and saline irrigation. Inadequate treatment can result in ischemia and gangrene. Early symptoms may be minimal.

SECTION 5: FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-IIIB combustible material. Slightly combustible!		
Flash Point Method	OPEN CUP: >200°C (>392°F) (Estimated.).		
Lower Flammable Limit	No data.	Upper Flammable Limit	No data.
Autoignition Temperature	Not available.		
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur, phosphorus, zinc and/or nitrogen.		
Special Properties	Fight the fire from a safe distance in a protected location. Open any masses with a water stream to prevent reignition due to smoldering. Cool surface with water fog. Molten material can form flaming droplets if ignited. Water or foam can cause frothing. Use of water on product above 100° C (212° F) can cause product to expand with explosive force. Do not allow liquid runoff to enter sewers or public waters.		
Extinguishing Media	Use dry chemical, foam, Carbon Dioxide or water fog.		
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.		

SECTION 6: ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 7: HANDLING AND STORAGE

Handling	If this product is stored or applied in high-pressure systems such as grease guns or hydraulic lines, there is the potential for accidental injection into the skin and underlying tissues. Hydrocarbons injected into skin or underlying tissues are not readily removed by body fluids and can cause pain, swelling, chemical irritation, infection and tissue destruction. Early symptoms may be minimal. Workers must be aware of the significant hazards associated with a hydrocarbon injection injury. In the event of an injection injury, workers should seek medical treatment immediately. Avoid water contamination and elevated temperatures to minimize product degradation. Empty containers may contain product residues that can ignite with explosive force. Do not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.
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Storage Keep container closed. Do not store with strong oxidizing agents. Do not store at temperatures above 120° F or in direct sunlight for extended periods of time. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits (see below). An eye wash station and safety shower should be located near the work-station.

Personal Protective Equipment Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.



Eye Protection Safety glasses equipped with side shields should be adequate protection under most conditions of use. Wear goggles and/or face shield if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). Have suitable eye wash water available.

Hand Protection Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.

Body Protection Use clean and impervious protective clothing (e.g., neoprene or Tyvek®) if splashing or spraying conditions are present. Protective clothing may include long-sleeve outer garment, apron, or lab coat. If significant contact occurs, remove oil-contaminated clothing as soon as possible and promptly shower. Launder contaminated before reuse or discard. Wear heat protective boots and protective clothing when handling material at elevated temperatures.

Respiratory Protection Vaporization is not expected at ambient temperatures. Therefore, the need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
1) Distillates, petroleum, hydrotreated heavy naphthenic	ACGIH (United States). TWA: 5 mg/m ³ STEL: 10 mg/m ³ OSHA (United States). TWA: 5 mg/m ³
2) Molybdenum Disulfide	ACGIH (United States). TWA: 10 mg/m ³

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Semi-solid to solid (Smooth texture)	Color	Dark gray to black.	Odor	Mild petroleum odor
Specific Gravity	0.96 (Water = 1)	pH	Not applicable.	Vapor Density	>1 (Air = 1)
Boiling Point/Range	Not available.			Melting/Freezing Point	Not available.
Vapor Pressure	Not applicable.			Viscosity (cSt @ 40°C)	Not available.
Solubility in Water	Insoluble in cold water.			Volatile Characteristics	Negligible volatility
Additional Properties	NLGI Grade: 2 Thickener: Lithium Texture: Smooth				

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from extreme heat, sparks, open flame, and strongly oxidizing conditions.		
Materials Incompatibility	Strong oxidizers.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

SECTION 11: TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data	<p>Distillates, petroleum, hydrotreated heavy naphthenic: ORAL (LD50): Acute: >5000 mg/kg [Rat]. DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].</p> <p>Residual oils, petroleum, solvent-refined: ORAL (LD50): Acute: >5000 mg/kg [Rat]. DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].</p> <p>Distillates, petroleum, hydrotreated light naphthenic: ORAL (LD50): Acute: >5000 mg/kg [Rat]. DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].</p> <p>Molybdenum Disulfide: ORAL (LD50): Acute: >6000 mg/kg [Rat].</p> <p>Distillates, petroleum, hydrotreated heavy naphthenic: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.</p> <p>Residual oils, petroleum, solvent-refined: Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.</p>
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Distillates, petroleum, hydrotreated light naphthenic:

INHALATION (LC50) Acute: 9.6 mg/L (Female Rat).
INHALATION (LC50) Acute: 10.5 mg/L (Male Rat).
ORAL (LD50) Acute: > 5,000 mg/kg (Rat screen level).
DERMAL (LD50) Acute: > 2,000 mg/kg (Rabbit screen level).
DRAIZE EYE Acute: Non-irritating (Rabbit).
DRAIZE DERMAL Acute: Mild skin irritant (Rabbit).
BUEHLER DERMAL Acute: Non-sensitizing (Guinea Pig).
28-Day DERMAL Sub-Chronic: Mild to moderate skin irritant (Rabbit & Rat).

A life-time dermal application of severely hydrotreated light naphthenic oils produced skin masses on mice which correlated with the skin irritation response levels of the test animals. Additional studies attribute these masses to a weak promotional activity. These studies indicate that light naphthenic oils are not mutagenic, tumor initiators nor complete chemical carcinogens. These materials have not been determined to be carcinogenic by IARC, NTP or OSHA.

Molybdenum Disulfide:

In general, insoluble compounds of molybdenum, such as molybdenum disulfide, exhibit a low order of toxicity. Molybdenum disulfide dust can cause eye, skin and respiratory tract irritation due to frictional action. Other effects of molybdenum disulfide dusts and mists are similar to those of nuisance particulates. In acute ingestion studies with rats and guinea pigs, no fatalities were reported when doses of molybdenum disulfide as high as 6.0 grams per kilogram of body weight. In a subchronic oral study, no signs of toxicity appeared in rats receiving molybdenum disulfide at 10 to 500 milligrams of molybdenum disulfide per animal per day. In an experimental study, guinea pigs were exposed to an average concentration of 286 milligrams of molybdenum disulfide dust per cubic meter for one hour per day, five days per week for five weeks. Of the 25 animals studied, one animal died within three days; the appearance of the other animals was normal.

Greases:

Injection of pressurized hydrocarbons under the skin, in muscle or into the blood stream can cause irritation, inflammation, swelling, fever, and systemic effects, including mild central nervous system depression. Injection of pressurized hydrocarbons can cause severe, permanent tissue damage.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Ecological effects testing has not been conducted on this material. Discharges are expected to cause only localized and non-persistent environmental damage.
Environmental Fate	An environmental fate analysis has not been conducted on this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum-based products. Petroleum-based (mineral) lube oils will normally float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway might be enough to cause a fish kill or create an anaerobic environment.

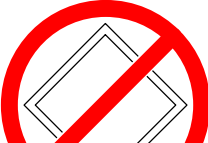
SECTION 13: DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a RCRA "hazardous waste" at the time of disposal. Transportation, treatment, storage and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional US EPA office for guidance concerning case specific disposal issues.

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SECTION 14: TRANSPORT INFORMATION

DOT Status	Not a U.S. Department of Transportation regulated material.		
Proper Shipping Name	Not regulated.		
Hazard Class	Not regulated.	Packing Group(s)	Not applicable.
		UN/NA ID	Not regulated.
Reportable Quantity	A Reportable Quantity (RQ) has not been established for this material.		
Placards		Emergency Response Guide No.	Not applicable.
		HAZMAT STCC No.	Not assigned.
		MARPOL III Status	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15: REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.
SARA 313	This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Zinc and Zinc Compounds, Concentration: 0 - 1%
CWA	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): None identified.
New Jersey Right-to-Know Label	Petroleum Oil (Grease)
Additional Regulatory Remarks	No additional regulatory remarks.

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SECTION 16: OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION

Version Number 2.1
Revision Date 10/24/2001
Print Date Printed on 10/24/2001.

ABBREVIATIONS

AP = Approximately Established EQ = Equal > = Greater Than < = Less Than NA = Not Applicable ND = No Data NE = Not

ACGIH = American Conference of Governmental Industrial Hygienists AIHA = American Industrial Hygiene Association
IARC = International Agency for Research on Cancer NTP = National Toxicology Program
NIOSH = National Institute of Occupational Safety and Health OSHA = Occupational Safety and Health Administration
NPCA = National Paint and Coating Manufacturers Association HMIS = Hazardous Materials Information System
NFPA = National Fire Protection Association EPA = Environmental Protection Agency

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