Safety Data Sheet

Revision 6/06/2016

Section 1. Product and Company Identification

Product Name: **TMC Used Reference Oil**
TMC Used Reference Oil represents fully-formulated research engine and gear oils that have been run in test engines or rigs. For more specific information please contact the TMC.

Other means of identification: Used Fully Formulated Reference Research Engine or Gear Oil
Recommended use: Supplied only for laboratory analytical testing purposes.

Restriction on Use: This material should not be used for any other purpose than that recommended without expert advice.

Manufacturer or supplier's detail:

ASTM Test Monitoring Center (TMC)
6555 Penn Avenue
Pittsburgh, PA 15206 USA
412-365-1000

Email address for further information: GHS-sds@astmtmc.cmu.edu
USA emergency telephone number: 1-800-424-9300 Ext. 3905
International emergency telephone number +1 202-366-4488
CHEMTREC Customer Number CCN3905

Section 2. Hazards Identification

Classification of the chemical in accordance with paragraph (d) of OSHA 29 CFR 1910.1200

This material is not considered to be hazardous according to regulations.

GHS-Classification: Category 1B - Carcinogenicity

Category 2 Skin Corrosion / Irritation,

Category 2 Eye Damage / Irritation

Category 2B Sensitization – Respiratory

Category 1 Sensitization – Skin

Category 1 Germ Cell Mutagenicity

Category 1B Toxic to Reproduction

Category 1B Specific Target Organ Toxicity - Single Exposure

Category 1 (kidneys, central nervous system, lungs) Specific Target Organ Toxicity - Single Exposure,

Category 3 (central nervous system and respiratory tract) Aspiration Hazard, Category 1

Pictograms: GH07, GHS08

Pictogram:

Signal Word: Danger!

GHS Label elements, including precautionary statements:

Hazard statements:

H319: Causes serious eye irritation.

H350: May cause cancer (skin).

H302: Harmful if swallowed.

H317: May cause allergic skin reaction.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H340: May cause genetic defects and cancer.

H360: May damage fertility or the unborn child.

H370: Causes damage to organs.

H335 + H336: May cause respiratory irritation, drowsiness or dizziness.

H304: May be fatal if swallowed and enters airways.

Precautionary Statements:

Prevention

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P 280: Wear protective gloves/eye protection/face protection.

P308 + P313: If exposed or concerned, get medical attention.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

Supplemental Information

Avoid prolonged or repeated contact with used motor oils. Used motor oil is a possible skin cancer hazard based on animal data.

Response

P 305 + P 351 + P 338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue to rinse. P 337 + P313: If eye irritation persists: Get medical advice/attention.

Other hazards which do not result in classification

This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).

This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Warning: If this material is overheated, especially in the presence of water, hydrogen sulphide may be released; this can can cause rapid respiratory collapse, coma and death without necessarily any warning odour being sensed.

HMIS & NFPA Classification: Health: 2
Flammability: 1
Physical hazards: 0

[1] Hazard Rating: least=0, slight=1, moderate=2, high=3, extreme=4

Section 3. Composition/Information on Ingredients

This material is considered hazardous according to GHS-Classification

Name	CAS Number	Percent by Weight
Lubricating oils, used	70514-12-4	80 - 100%
Water/Solids	7732-18-5	20 - 0%
Hydrocarbon solvents. May include gasoline, diesel fuel, jet fuel, mineral spirits, etc.	Not Available	10 – 0%
Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%.	Not Available	1.5 – 0%

GHS Label elements, including precautionary statements: See section 2.

Potential Health Effects: See Section2.

Section 4. First Aid Measures

Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Ingestion: Clean mouth with water and spit. Treat symptomatically. Get medical attention.

Aspiration: Material can be aspirated into lungs during act of swallowing or vomiting. This could result in severe injury to the lungs and death.

Skin Contact: Wash contact areas with soap and water. Get medical attention if symptoms occur. If product is injected under the skin, or into any part of the body the person is to be evaluated by a physician immediately.

Eye Contact: Flush thoroughly with water. If irritation occurs, get medical attention.

Section 5. Fire Fighting Measures

General Fire Hazards: Standard procedures for chemical fires.
Suitable Extinguishing Media: CO_2 , dry chemical or foam.
Unsuitable Extinguishing Media: Straight streams of water, as this will spread fire.
Fire Fighting: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers or drinking supply. Firefighters should use standard protective equipment and self-contained breathing apparatus. Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, fume, aldehydes, hydrogen sulphide, sulfur, zinc and phosphorus oxides, complete combustion products, and oxides of carbon.
Flash point: > 100°C (212°F) ASTM D92

Section 6. Accidental Release Measures

Land Spill: Dike far ahead of larger spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas. Pick up free liquid for recycle and/or disposal. Residual material can be absorbed with inert material.

Water Spill: Stop leak if no risk is apparent. Confine the spill immediately with booms. Warn other shipping. Remove from 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 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.

Section 7. Handling and Storage

Smoking, eating and drinking should be prohibited in application area.
Avoid any contact with product. Prevent small spills and leakage to avoid slip hazard.

Incompatible materials and coatings: No data available.
Storage temperature: ≤ 40°C (104°F)
Do not reheat above 60°C (140°F)
Keep container closed in dry and well ventilated area.

No decomposition if stored and applied as directed.
Keep away from incompatible materials.
Storage: The container choice, for example storage vessel, may affect static accumulation and dissipation. Do not store in open or unlabelled containers.

Product may contain Zinc Dialkyl DithioPhosphate (ZDDP), a thermally sensitive substance. Do not heat above 60°C (140°F). High temperatures can cause the release of highly toxic hydrogen sulphide. In addition, decomposition vapors are also flammable and may suddenly ignite when mixed with air in the presence of ignition sources such as sparks or flames.

Static Accumulator: This material is a static accumulator.

Section 8. Exposure Controls/Personnel Protection

Exposure Limit Values:

Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%.

Exposure limits for materials that can be formed when handling the product: When mists/aerosols can occur, the following are recommended:
ACGIH: 0.05 mg/m3 TWA (related to Lead)
OSHA Final: 30 µg/m3 Action Level (See 29 CFR 1910.1025); 50 µg/m3 TWA (See 29 CFR 1910.1025, related to Lead)
50 µg/m3 TWA (related to Lead)
OSHA Vacated: 1 mg/m3 TWA (related to Nickel)
NIOSH: 0.050 mg/m3 TWA (related to Lead) 0.002 mg/m3 Ceiling (15 min, related to Arsenic)

Follow applicable regulations.

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

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

Skin Protection: No skin protection is required under ordinary use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact. Any specific clothing or glove information is based on published literature or manufacture data.

Specific Hygiene Measures: Always observe good personnel hygiene measures, such as washing after handling material 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.

Aspiration: Material can be aspirated into lungs during act of swallowing or vomiting. This could result in severe injury to the lungs and death.

Eye Protection: Safety glasses with side shields are recommended.

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 specifications. Contact supplier for additional information.
Physical State: Liquid
Form: Liquid
Color: Colorless to Black
Odor: Hydrocarbon
Odor Threshold: Not Determined

Relative Estimated Density (@15°C): 0.5 – 0.9 g/cm^3 ASTM D4052
Flash Point: >100°C (212°F) ASTM D92 or D93
Auto Ignition Temperature: Not Determined
Flammable Limits (approximate volume % in air): LEL 0.9 UEL 7.0
Explosive Limits: Not Determined
Boiling Point/Range: Estimated >300°C (600°F)
Vapor Density: Not Determined
Vapor Pressure: Estimated <0.1 kPa @ 20°C
Evaporation Rate: Not Determined
Decomposition Temperature: Not Determined
Solubility In Water: Negligible
Pour Point: Not Determined
Melting/Freezing Point: Not Determined
DMSO Extract by IP346: <3.0 wt% (mineral oil component)
Viscosity, kinematic: Estimated >22 mm^2/s @ 40°C (104°F)
pH: Not Applicable

Section 10. Stability and Reactivity

Stability: Material is stable under normal conditions.
Conditions to Avoid: Excessive heat. High energy sources of ignition.
Reactivity: No dangerous reaction known under conditions of normal use.

Possibility of Hazardous Reactions: No hazardous to be specifically mentioned.

Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition: No decomposition if used as directed.

Section 11. Toxicological Information

Acute Toxicity

Route of Exposure	Conclusion/Remarks
Inhalation	
Toxicity: No data available	Minimally Toxic. Based on assessment of the components.
Irritation: No data available	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Toxicity: No data available	Minimally Toxic. Based on assessment of components.
Skin	
Toxicity: No data available	Minimally Toxic. Based on assessment of components.
Irritation: No data available	Negligible hazard at ambient/normal handling temperatures.
Eye	
Irritation: No data available	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

Chronic/Other Effects
Product considered carcinogenic.
The following ingredients are cited on the regulatory lists below: None.
1= NTP CARC 3= IAR 1 5= IARC 2B
2= NTP SUS 4= IARC 2A 6= OSHA CRAC

Section 12. Ecological Information

The following toxicity information is to be used as a guideline for the products listed in Section 1. For specific product information contact the supplier.

Ecotoxicity

Component Analysis - LD50/LC50 Lubricating oils, used (70514-12-4)
Dermal LD50 Rabbit >4480 mg/kg; Oral LD50 Rat >2000 mg/kg
Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%. (Not Available)
Oral LD50 Rat 984 mg/kg (related to Iron)

Fish
Mineral Oil LC 50 (Fathead Minnow, 4d): > 100mg/L
Aquatic Invertebrates
Mineral Oil LC 50 (Water Flea (Daphnia magna), 2 d): >10,000 mg/l
LC 50 (Water Flea (Daphnia magna), 21 d): >10 mg/l
NOEC (Water Flea (Daphnia magna), 21 d): >10 mg/l
Toxicity to Aquatic Plants
Mineral Oil EC 50 (Green Algae (Scenedesmus quadricauda), 3 Days): > 100 mg/l
Toxicity to Soil Dwelling Organisms
No data available.
Sediment Toxicity
No data available.
Toxicity to Terrestrial Plants
No data available.
Toxicity to Above-Ground Organisms
No data available.
Toxicity to Microorganisms
No data available.

Persistence and Degradability

Biodegradation
Mineral Oil Not readily degradable.
Mobility
Mineral Oil Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

Section 13. Disposal Considerations

Disposal Instructions: Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Emptied containers retain product residue, follow labels warnings even after container is emptied.
Contaminated Packaging: Container packaging may exhibit hazards.

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.
Air (IATA): Not Regulated for Air Transport.

Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. Review classification requirements before shipping materials at elevated temperatures.

Section 15. Regulatory Information

Federal Regulations

SARA 302/304

Component Analysis

Based on the ingredient(s) listed in SECTION 3, this product does not contain "extremely hazardous substances" listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or Section 304 as identified in 40 CFR Part 355, Appendix A and B.

SARA 311/312 Hazardous Categories

This product poses the following health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA):
Acute Health: Yes Chronic Health: Yes Fire: No Pressure: No Reactive: No

SARA Section 313

Component Analysis

This product contains a "toxic" chemical subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%.	1.0 % de minimis concentration (dust or fume only, related to Zinc)

CERCLA

Component Analysis

Based on the ingredient(s) listed in SECTION 3, this product contains the following "hazardous substance" listed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4 with the following reportable quantities (RQ):

Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%.	454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm, related to Zinc)

TSCA Inventory

Component Analysis

Component	CAS #	TSCA
Lubricating oils, used	70514-12-4	No
Water/Solids	7732-18-5	Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	MA	MN	NJ	PA	CA
Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%. ([1]related to: Zinc) ([2]related to: Lead)	Not Available	Yes[1]	Yes[1]	Yes[1]	Yes[1]	Yes[1]

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Canadian Regulations

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by the CPR.

Component Analysis Component

Component	CAS #	CAN
Lubricating oils, used	70514-12-4	DSL
Water/Solids	7732-18-5	DSL

Canadian WHMIS Information

D2A, D2B

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List: Metals. May include lead, iron, zinc, copper, chromium, arsenic, nickel and others: each below 1.0 WT%. 0.1 % (related to Lead)

The following ingredients may be contained in products listed in Section 1. For specific ingredients by product contact the supplier.

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	12, 16, 17, 18
ZINC ALKYLDITHIOPHOSPHATE	68649-42-3	13, 15, 19
ZINC DITHIOPHOSHATE	68649-42-3	13, 15, 19
HIGHLY REFINED MINERAL OIL	64742-54-7	17, 18
HIGHLY REFINED MINERAL OIL	64742-65-0	17, 18
TRACE METALS	Confidential Business Information	10

Regulatory Lists Searched				
1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 Reproductive	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 Carcinogen	15 = MI 293		

Section 16. Other Information

This Safety Data Sheet contains the following revisions: None

The information contained in this document is based upon data believed to be reliable at the time of going to press and relates to the matters specifically mentioned in this document. This information is offered to cover the ASTM Test Monitoring Center's inventory of used reference oils identified in Section 1. Although the ASTM Test Monitoring Center has used information provided by their suppliers in the preparation of this information, in the absence of any overriding obligations arising under a specific contract, no representation, warranty (express or implied), or guarantee is made to the suitability, accuracy, reliability or completeness of the information; nothing in this document shall reduce the user's responsibility to satisfy itself as to the suitability, accuracy, reliability and completeness of such information for its particular use; there is no warranty against intellectual property infringement; and the ASTM Test Monitoring Center shall not be liable for any loss, damage or injury that may occur from the use of this information other than death or personal injury caused by its negligence. No statement shall be construed as an endorsement of any product or process. For greater certainty, before use of the information contained in this document, particularly if the product is used for the purpose or under conditions which are abnormal or not reasonably foreseeable, this information must be reviewed with the supplier of this information.