

1. Identification

Product identifier KLONDIKE ARCTIC Full Synthetic TDTO-4 Transmission / Drive Train Oil

Other means of identification

Product code ARTIC Full Synthetic TDTO-4

Recommended use Synthetic Transmission / Drive Train Fluid

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name KLONDIKE Lubricants Corporation
Address 3078 275th Street
 Langley, BC V4W 3L4
 Canada
Telephone General Information 1-877-293-4691
Website www.klondikelubricants.com
E-mail info@klondikelubricants.com
Emergency phone number Chemtrec (Within US) 1-800-424-9300
 Chemtrec (International) 1-703-527-3887

Supplier Refer to Manufacturer

2. Hazard(s) identification

Physical hazards This mixture does not meet the classification criteria according to OSHA HazCom 2012.

Health hazards This mixture does not meet the classification criteria according to OSHA HazCom 2012.

Environmental hazards This mixture does not meet the classification criteria according to OSHA HazCom 2012.

OSHA defined hazards This mixture does not meet the classification criteria according to OSHA HazCom 2012.

Label elements

Hazard symbol None.
Signal word None.
Hazard statement The mixture does not meet the criteria for classification.
Precautionary statement

Prevention Observe good industrial hygiene practices.
Response Wash hands after handling.
Storage Store away from incompatible materials.
Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) May cause mild skin and eye irritation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
1-decene Tetramer, Mixed With 1-decene Trimer,hydrogenated	REACTION PRODUCTS OF 1-DECENE, HYDROGENATED	68649-12-7	60 - < 100
1-decene, Homopolymer, Hydrogenated	HYDROGENATED POLYDECENE	68037-01-4	10 - < 30
Diisononyl Adipate	Hexanedioic acid, diisononyl ester	33703-08-1	7 - < 13
Mineral Oil	Not Available	64742-53-6	1 - < 5

Chemical name	Common name and synonyms	CAS number	%
Zinc, Dithiophosphate Di-c1-14-alkyl Esters	PHOSPHORODITHIOIC ACID, O,O-DI-C1-14-ALKYL ESTERS, ZINC SALTS.	68649-42-3	1 - < 5

The exact concentrations of the above listed chemicals are being withheld as a trade secret as allowed by 29CFR1910.1200.

4. First-aid measures

Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and plenty of water. Get medical attention if irritation develops and persists.
Eye contact	Flush with large amounts of water for 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Do not induce vomiting. Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	May be mildly irritating to skin, eyes and respiratory system. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms may include stinging and tearing. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Evacuate area and fight fire from a safe distance. Ventilate the contaminated area. Remove all sources of ignition. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.
Hazardous combustion products	Carbon oxides.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	The product is immiscible with water and will spread on the water surface. Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Absorb spillage with non-combustible, absorbent material. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. When using do not eat or drink. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash thoroughly after handling. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Store in tightly closed original container in a dry, cool and well-ventilated place. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS). Keep away from food, drink and animal feedings. Use care in handling/storage.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Components

Type

Value

Form

Zinc, Dithiophosphate
Di-c1-14-alkyl Esters (CAS
68649-42-3)

TWA

None

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components

Type

Value

Form

Mineral Oil (CAS
64742-53-6)

PEL

5 mg/m³

Mist.

2000 mg/m³

500 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components

Type

Value

Form

Mineral Oil (CAS
64742-53-6)

STEL

10 mg/m³

Mist.

TWA

5 mg/m³

Mist.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear protective gloves. Advice should be sought from glove suppliers.

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Seek advice from respiratory protection specialists.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

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.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Liquid.

Color

Amber.

Odor

Mild petroleum odor.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

Not available.

Initial boiling point and boiling range	Not available.
Flash point	> 200.0 °C (392 °F)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0.01 mm Hg
Vapor density	> 10
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	Negligible
Specific gravity	0.85

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	May cause mild skin irritation.
Eye contact	May cause mild eye irritation.
Ingestion	May cause discomfort if swallowed.

Most important symptoms/effects, acute and delayed May be mildly irritating to skin, eyes and respiratory system. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms may include stinging and tearing. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Information on toxicological effects

Acute toxicity May cause mild irritation to skin, eyes and respiratory system. May cause irritation of the gastrointestinal tract.

Components	Species	Test Results
1-decene Tetramer, Mixed With 1-decene Trimer,hydrogenated (CAS 68649-12-7)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	1.17 mg/l, 4 hours Mist
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
1-decene, Homopolymer, Hydrogenated (CAS 68037-01-4)		
Acute		
<i>Inhalation</i>		
LC50	Rat	1.17 mg/l, 4 hours Mist
Diisononyl Adipate (CAS 33703-08-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	No data in literature
<i>Inhalation</i>		
LC50	Rat	> 5.7 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
Mineral Oil (CAS 64742-53-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	2.18 mg/l, 4 hours (Mist)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
Zinc, Dithiophosphate Di-c1-14-alkyl Esters (CAS 68649-42-3)		
Acute		
<i>Dermal</i>		
LC50	Rabbit	No data in literature
<i>Inhalation</i>		
LC50	Rat	No data in literature
<i>Oral</i>		
LD50	Rat	26100 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation May be irritating to the skin.

Serious eye damage/eye irritation May be irritating to eyes.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitizer This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). The highly refined mineral oils in this product contain <3% (w/w) DMSO-extract, according to IP346

IARC Monographs. Overall Evaluation of Carcinogenicity

Mineral Oil (CAS 64742-53-6) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Mineral Oil (CAS 64742-53-6)

Known To Be Human Carcinogen.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified as a specific target organ toxicity -single exposure.
Specific target organ toxicity - repeated exposure	Not classified as a specific target organ toxicity -repeated exposure.
Aspiration toxicity	Not expected to be an aspiration hazard.
Chronic effects	Prolonged or repeated contact may cause drying, cracking and defatting of the skin.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results
1-decene Tetramer, Mixed With 1-decene Trimer,hydrogenated (CAS 68649-12-7)		
Aquatic		
<i>Acute</i>		
Algae	EC50	Green algae (Selenastrum capricornutum) > 1000 mg/l, 72 hours
Crustacea	EC50	Water flea (Daphnia magna) > 1000 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) > 1000 mg/l, 96 hours
<i>Chronic</i>		
Algae	NOEC	Green algae (Selenastrum capricornutum) 1000 mg/l, 72 hours
Crustacea	NOEC	Water flea (Daphnia magna) 125 mg/l, 21 days
1-decene, Homopolymer, Hydrogenated (CAS 68037-01-4)		
Aquatic		
<i>Acute</i>		
Algae	EC50	Green algae (Selenastrum capricornutum) > 1000 mg/l, 72 hours
Crustacea	EC50	Water flea (Daphnia magna) > 1000 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) > 1000 mg/l, 96 hours
<i>Chronic</i>		
Algae	NOEC	Green algae (Selenastrum capricornutum) 1000 mg/l, 72 hours
Crustacea	NOEC	Water flea (Daphnia magna) 125 mg/l, 21 days
Mineral Oil (CAS 64742-53-6)		
<i>Acute</i>		
Other	LC50	Freshwater shrimp (Gammarus pulex) > 10000 mg/l, 96 Hours
<i>Chronic</i>		
	NOEC	Rainbow trout (Oncorhynchus mykiss) 1000 mg/l, 14 days
Aquatic		
<i>Acute</i>		
Fish	LC50	Fathead minnow (Pimephales promelas) > 100 mg/l, 96 Hours
<i>Chronic</i>		
Crustacea	NOEC	Water flea (Daphnia magna) 10 mg/l, 21 days

Components	Species	Test Results
Zinc, Dithiophosphate Di-c1-14-alkyl Esters (CAS 68649-42-3)		
Aquatic		
<i>Acute</i>		
Algae	EC50	Green algae (Selenastrum capricornutum) 1 - 5 mg/l, 96 hours
Crustacea	EC50	Water flea (Daphnia magna) 1 - 1.5 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 1 - 5 mg/l, 96 hours
<i>Chronic</i>		
Algae	NOEC	Green algae (Selenastrum capricornutum) 1 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability	Not inherently biodegradable.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List. This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Zinc, Dithiophosphate Di-c1-14-alkyl Esters (CAS 68649-42-3) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Zinc, Dithiophosphate Di-c1-14-alkyl Esters	68649-42-3	1 - < 5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Mineral Oil (CAS 64742-53-6)

US. New Jersey Worker and Community Right-to-Know Act

Zinc, Dithiophosphate Di-c1-14-alkyl Esters (CAS 68649-42-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Zinc, Dithiophosphate Di-c1-14-alkyl Esters (CAS 68649-42-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 01-09-2020
Version # 02

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Revision Information

Physical & Chemical Properties: Multiple Properties