

SECTION 1: Identification

Product identifier	BT 5W-20
Other means of identification	Estolide (biobased ester) Motor Oil Blend Lube Oil Sample (On TSCA), XLTCOIL3
Relevant identified uses of the substance or mixture and uses advised against	For research use only
Details of the supplier of the safety data sheet	Biosynthetic Technologies, LLC 2 Park Plaza, Suite 200, Irvine, CA 92614 +1 (949) 390-5910
Emergency Telephone Number	+1 (949) 390-5915 (US business hours).
Emergency Email Address	jakeb@biosynthetic.com

SECTION 2: Hazard Identification

Classification of the substance or mixture in accordance with paragraph (d) of 1910.1200

Caution- This is a research sample and the toxicological and ecotoxicological properties have not been fully evaluated. Results below are based on the hazard classifications of the components.

Label elements:

Pictogram	None.
Signal word	None.
Hazard statements	None.
Precautionary statements	None.
Supplemental information	Not available.

Other hazards This mixture contains no substance considered to be persistent, bioaccumulation or toxic.

SECTION 3: Composition

Substances:

<i>Declarable components</i>	<i>Conc. (wt%)</i>	<i>EC No.</i>	<i>CAS No.</i>
None			
<i>Other components</i>			
Estolide (biobased ester)	35	NA	1365345-64-7
Highly refined mineral oil	>=10 - <65	NA	Trade Secret

^a NA: not available.

Ingredients are either not hazardous or are below the regulatory disclosure limit.

Specific information about chemical identity and exact concentration of composition is a trade secret and is therefore withheld.

SECTION 4: First Aid Measures

Description of first aid measures:

Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms, call a doctor.
Skin	Wash off well with soap and water. If skin irritation or rash occurs, get medical attention. Launder clothing before re-use.
Eye	Rinse cautiously with room-temperature water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.
Ingestion	Rinse mouth with water, and give milk or water to drink. Call a poison center or doctor if you feel unwell. Do not induce vomiting, unless instructed by medical personnel.
Most important symptoms and effects, both acute and delayed	Not available.
Indication of any immediate medical attention and special treatment needed	Treat symptoms as they occur.

SECTION 5: Fire and Explosion Data

Extinguishing media:

Suitable	Small fire: carbon dioxide, dry chemical powder, water spray, or foam. Large fire: water spray, foam.
Unsuitable	Water jet is not recommended. Water spray may cause spattering of liquid and spreading of fire.
Special hazards arising from the substance or mixture	Not classified as flammable, but is a combustible liquid, which will burn during a fire to produce strong heat, black smoke, and harmful gases.
Advice for firefighters	Remove containers from fire or cool them with water spray. Firefighters should wear an approved self-contained breathing apparatus and full protective clothing.

SECTION 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	For large spills, wear full personal protection. Keep unauthorized personnel from the spillage area. The product is greasy and will cause slip hazard. Ventilate area. Extinguish sources of ignition. Follow prescribed procedures for responding to large spills and reporting to
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	authorities.
Environmental precautions	Prevent product from entering water courses or drainage system.
Methods and material for containment and cleaning up	<p>Stop the source of leak or release. Clean up spill as soon as possible.</p> <p>For small quantities, wipe off with cloth or paper.</p> <p>For large quantities, recover by using techniques such as pumping, or absorption with an inert material such as dry sand.</p> <p>Wash contaminated surfaces with water and detergent, or solvent, to remove oily film, and collect waste, washings, and contaminated materials for safe disposal.</p> <p>Place waste in a container for disposal.</p>
Reference to other sections	<p>For recommended personal protective equipment, see Section 8.</p> <p>For disposal considerations, see Section 13.</p>

SECTION 7: Handling and Storage

Precautions for safe handling	<p>Avoid skin and eye contact. Use protective measures described in Section 8. Use only in a well-ventilated area. Wash hands after use. Avoid smoking, eating and drinking in application area.</p> <p>Keep away from sources of ignition.</p> <p>No data available on loading/unloading temperature</p> <p>Substance is not a static accumulator</p>
Conditions for safe storage, including any incompatibilities	Store containers in a cool, dry, well ventilated place away from direct sunlight and sources of ignition.
Specific end use(s)	Not available.

SECTION 8: Exposure Controls/Personal Protection

Control parameters:

EU, UK, US, Canadian, and Australian limit values	None
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Monitoring procedure	BS EN 14042:2003; Workplace Atmospheres; Guide for the Application and Use of Procedures for the Assessment of Exposure to Chemical and Biological Agents, or specific national equivalent.
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Other: human health (DNELs, DMELs, PELs, TLVs)	When aerosols/ mists can occur, recommended TLV of 5mg/m ³
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Other: environmental (PNEC)	Not available.
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Exposure controls:

Engineering controls	<p>Good general ventilation is recommended for handling the product.</p> <p>For processing, where mist or vapor might be formed, local exhaust ventilation or use in a</p>
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	closed system is recommended.
Personal protective equipment	The need for personal protective equipment should be based on a workplace risk assessment for the particular use. Avoid skin and eye contact by wearing chemical resistant gloves (neoprene, latex, or rubber are recommended) and eye protection. Where more extensive contact may occur, wear protective clothing (e.g. apron, overalls). If exposure to vapors or spray is possible, wear respiratory protection. PPE should be to national standards. Consult manufacturers concerning breakthrough times.
Environmental exposure controls	Not available.

SECTION 9: Physical and Chemical Properties

Appearance		Dark brown yellow liquid
Odor		Hydrocarbon-like
Odor threshold		Not available
pH		Not available
Melting/freezing point	ASTM D97	Not available
Initial boiling point/range		Not available
Flash point	ASTM D93	100 °C
Evaporation rate		Not available
Flammability (solid, gas)		Not available
Flamm. or expl. limits		Not available
Vapor pressure		<0.1 hPa estimated
Vapor density		Not available
Relative density		0.95 g/ml
Solubilities		Water: negligible
Partition coeff. (log K _{ow})	OECD 117	Not available
Auto-ignition temp.	ASTM E659	Not applicable
Decomposition temp.		Not available
Viscosity		100 cSt at 40 °C
Explosive properties		Not available
Oxidizing properties		Not available
DMSO extract by IP 346		Less than 3.0wt% (mineral component only)

SECTION 10: Stability and Reactivity Data

Reactivity	Not know to have hazardous reactivity
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Chemical stability	Stable under ambient conditions.
Possibility of hazardous reactions	No hazardous polymerization.
Conditions to avoid	High temperatures, sources of ignition, and strong sunlight.
Incompatible materials	Strong acids, alkalis, or oxidizing agents.
Hazardous decomposition products	Hydrogen sulfide

If decomposition is suspected, or if the product has been overheated, do not open the container, discontinue heating and secure the unit. Initiate emergency procedures, taking all necessary precautions to avoid exposure to noxious or flammable gases, such as evacuation of contaminated areas and use of suitable respiratory protection.

SECTION 11: Toxicological Information

The toxicological properties of the material have not been fully investigated. The data listed below is derived from GHS classification for this material

Acute toxicity	No data is available on product itself
Skin corrosion/irritation	No data is available on product itself
Serious eye damage/irritation	No data is available on product itself
Respiratory or skin sensitization	No data is available on product itself
Germ cell mutagenicity	No data is available on product itself
Carcinogenicity	No data is available on product itself
Reproductive toxicity	No data is available on product itself
STOT-single exposure	No data is available on product itself
STOT-repeated exposure	No data is available on product itself
Aspiration hazard	May be fatal if swallowed and enters airways

SECTION 12: Ecological Information

The toxicological properties of the material have not been fully investigated. The data listed below is derived from GHS classification for this material

Toxicity	Contains no substance known to be hazardous to the environment
Persistence and degradability	Contains no substance known to not be degradable in waste water treatment plants
Bioaccumulative potential	Not available.
Mobility in soil	Not available
Results of PBT and vPvB	Not available.

assessment

Other adverse effects Not available.

SECTION 13: Disposal Considerations

Waste treatment methods Incineration or landfill may be suitable for this product. Disposal via the drains is not recommended. Disposal must be in accordance with current national and local regulations. Chemical residues generally count as special waste. General EU requirements are given in Directive 2008/98/EC. Check legislation for requirements in your region.

SECTION 14: Transportation Information

Harmonized Tariff Code of Components	3824.90.4140; Fatty substances of animal or vegetable origin and mixtures thereof; mixtures of fatty acid esters 2710.19.30 Lubricating oils and greases with or without additives, containing weight 70% or more of petroleum oils
UN Number	Not classified as dangerous goods for transport.
UN proper shipping name	Not applicable.
Transport hazard class(es)	Not applicable.
Packing group	Not applicable.
Environmental hazards	Not classified as marine pollutant/environmentally hazardous.
Special precautions for user	Not available.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

SECTION 15: Other Regulatory Information

OSHA Hazard Communication Standard

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200

CERLA Reportable Quantity

This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERLA). Contact local authorities to determine if other reporting requirements apply.

SARA 311/312 Hazards

No SARA Hazards

EPCRA – Emergency Planning Right to Know

SARA 302	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.	
SARA 313	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313	
US State Regulations		
Massachusetts Right to Know Components	Highly refined mineral oil	64742-65-0
	Highly refined mineral oil	64741-88-4
Pennsylvania Right to Know Components		
	Highly refined mineral oil	64742-54-7
	Highly refined mineral oil	64741-88-4
	Highly refined mineral oil	64742-65-0
New Jersey Right to Know Components		
	Highly refined mineral oil	64742-54-7
	Highly refined mineral oil	64741-88-4
	Highly refined mineral oil	64742-65-0
California Prop. 65		
This Product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.		

SECTION 16: Other Information

Revisions	This SDS is the first version, incorporating information for various world regions, using classification according to the UN GHS Regulation.	
Abbreviations	DNEL, derived no-effect level; DMEL, derived minimum effect level; EC, effect concentration; EL, effect level; LC, lethal concentration; LD, lethal dose; LL, lethal loading; PBT, persistent, bioaccumulative, and toxic; STOT, specific target organ toxicity; vPvB, very persistent, very bioaccumulative.	
References	Information on Registered Substances; Chemical Substance Search; European Chemicals Agency (ECHA), available at the ECHA website: http://echa.europa.eu . Supplier safety data sheet.	
Basis of classification	The mixture is self-classified on the basis of available information.	
List of R-phrases	None.	
List of hazard statements	None.	

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