

Prepared according to Global Harmonized System (GHS) standards

## SECTION 1

## CHEMICAL PRODUCT IDENTIFICATION

Doosan  
2905 Shawnee Industrial Way  
Suwanee, GA 30024  
(678) 714-6000

**Product Trade Name:** Doosan 80W-90 Gear Oil

**CAS Number:** Mixture

**Synonyms/Other:** N/A

**Part Number(s):** 940301-12344, 940301-12345, 940301-12346, 940301-12347, 940301-13490

**Recommended Use:** Gear lubricant

**Restrictions on Use:** Not Determined

**Created Date:** 1/25/2016

**Preparation/Revision Date:** 4/13/2018

**Emergency Phone Number:** 1-800-424-9300 (CHEMTREC)

**SDS CODE:** 13825

## SECTION 2


## HAZARD IDENTIFICATION

**Appearance:** Amber, brown

**Odor:** Petroleum

**Classification:** Sensitization - skin category 1  
Single target organ toxicant – repeated exposure category 2

**Target Organs:** Skin, Stomach and intestines

**Pictogram(s):** 

**Signal Word:** WARNING

**Hazard Statement:** H317 - May cause an allergic skin reaction  
H373 - May cause damage to organs through prolonged or repeated exposure

**Other Hazards:** Not determined.

**Prevention:** P260 - Do not breathe dust/fume/gas/mist/vapours/spray  
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray  
P272 - Contaminated work clothing should not be allowed out of the workplace  
P285 - In case of inadequate ventilation wear respiratory protection

**Response:** P314 - Get Medical advice/attention if you feel unwell  
P321 - Specific treatment (see Section 4)  
P363 - Wash contaminated clothing before reuse  
P302+P352 - IF ON SKIN: Wash with soap and water  
P333+P313 - If skin irritation or a rash occurs: Get medical advice/attention

**Storage Procedures:** None required.

**Disposal:** P501 - Dispose of contents and container in accordance with federal, state, and local regulations

**Other:** See section 11 for complete health hazard information.

## SECTION 3 COMPOSITION OF INGREDIENTS

Component	CAS Number	Percentage (by weight)
Highly refined mineral oil (C15 - C50)	Mixture	70-99%
Olefin sulfide	Mixture	1.0-5.0%
Methacrylate copolymer	Mixture	0.1-5.0%
Phosphoric acid ester, amine salt	Mixture	1.0-5.0%
Alkylamine salt of alkyl phosphoric acid	Trade Secret	0.1-2.0%

Trade Secret Information: Specific chemical(s) and/or percentage of composition has been withheld as a trade secret.  
The balance of components do not contribute to the overall classification of the fluid, according to the GHS Standard.

## SECTION 4 FIRST AID MEASURES

<b>Eye Contact:</b>	If irritation occurs, cautiously rinse eyes with lukewarm, gently flowing water for 5 minutes, while holding the eyelids open. If eye irritation persists: Get medical advice/attention.
<b>Skin Contact:</b>	Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash skin with lukewarm, gently flowing water and mild soap until product is removed. Call a doctor if you feel unwell. If skin irritation or rash occurs: Get medical advice/attention. Discard contaminated clothing.
<b>Inhalation:</b>	Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the doctor
<b>Ingestion:</b>	If you feel unwell or concerned: Get medical advice/attention. Rinse mouth. Do NOT induce vomiting. If vomiting occurs naturally, lie on your side, in the recovery position.
<b>Other:</b>	No additional information

## SECTION 5 FIRE FIGHTING MEASURES

<b>Flash Point:</b>	214°C by Cleveland Open Cup Tester.
<b>Flammable limits:</b>	Not determined.
<b>Extinguishing media:</b>	Use dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.
<b>Special firefighting procedures:</b>	DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).
<b>Unusual fire &amp; explosion hazards:</b>	Dense smoke may be generated while burning. Toxic fumes, gases or vapors may evolve on burning. High temperatures may create heavy flammable vapors that may settle along ground level and low spots to create an invisible fire hazard.
<b>Byproducts of combustion:</b>	Fires involving this product may release oxides of carbon, phosphorus, nitrogen and sulfur; reactive hydrocarbons and irritating vapors.
<b>Autoignition temperature:</b>	Not determined.
<b>Explosion data:</b>	Not determined. Care should always be exercised in dust/mist areas.
<b>Other:</b>	Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Spill control procedures (land):** Immediately turn off or isolate any source of ignition (pilot lights, electrical equipment, flames, heaters, etc.). Evacuate area and ventilate. Personnel wearing proper protective equipment should contain spill immediately with inert materials (sand, earth, chemical spill pads of cotton) by forming dikes. Dikes should be placed to contain spill in a manner that will prevent material from entering sewers and waterways. Large spill, once contained, may be picked up using explosion proof, non-sparking vacuum pumps, shovels, or buckets, and disposed of in suitable containers for disposal. Clean up residue with an appropriate solvent. If a large spill occurs notify appropriate authorities. In case of road spill or accident contact Chem-Trec (800-424-9300).

**Spill control procedures (water):** Try to contain large spills with floating booms to prevent spill from spreading. Remove from surface by skimming or with suitable adsorbents. If a large spill occurs notify appropriate authorities (normally the National Response Center or Coast Guard at 800-424-8802).

**Waste disposal method:** Do not empty into drains. All disposals must comply with federal, state, and local regulations. The material, if spilled or discarded may be a regulated waste. Refer to state and local regulations. Department of Transportation (DOT) regulations may apply for transporting this material when spilled. See Section 14.

**Other:** CAUTION - If spilled material is cleaned up using a regulated solvent, the resulting waste mixture will be regulated.

**SECTION 7 HANDLING AND STORAGE**

**Handling procedures:** Keep containers closed when not in use. Do not transfer to unmarked containers. Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld, or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.  
Handling temperatures should not exceed 60°C (140°F) to minimize danger of burns. Open containers carefully in a well ventilated area or use appropriate respiratory protection. Wash thoroughly after handling.

**Storage procedures:** Store containers away from heat, sparks, open flame, or oxidizing materials. Extended storage at excessive temperatures may produce odorous and toxic fumes from product decomposition.

**Additional information:** No additional information.

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Exposure limits/standards for materials that can be formed when handling this product:

	<b>OSHA TWA</b>	<b>OSHA STEL</b>	<b>ACGIH TWA</b>
Contains highly refined petroleum oil	*5 mg/m <sup>3</sup> (PEL)	*10 mg/m <sup>3</sup>	*5 mg/m <sup>3</sup> (TLV)

\* Exposure limits not defined. Limits used are for, "oil mist".

TWA – Time Weighted Average is the employee’s average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.

STEL – Short Term Exposure Limit is the employee’s 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified.

All base oils, including additive carriers, contain <3.0% DMSO extractable material.

<b>Personal protection:</b>	Applicable mainly to persons in repeated contact situations such as packaging of product, service/maintenance, and cleanup/spill control personnel.
<b>Respiratory protection:</b>	None required if ventilation is adequate. Otherwise a respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed. Where misting may occur, wear an MSHA/NIOSH approved (or equivalent) half-mask form dust/mist air purifying respirator.
<b>Eye protection:</b>	Eye protection is strongly recommended. Wear safety glasses with side shields or vented/splash proof goggles (ANSI Z87.1 or approved equivalent).
<b>Hand protection:</b>	Impervious, chemically resistant gloves such as neoprene or nitrile rubber to avoid skin sensitization and absorption.
<b>Other protection:</b>	Use of an apron and overboots of chemically impervious materials such as neoprene or nitrile rubber is recommended based on level of activity and exposure. If handling hot material use insulated protective equipment. Launder soiled clothes. Properly dispose of contaminated leather articles and other materials which cannot be decontaminated.
<b>Local control measures:</b>	Use adequate ventilation when working with material in an enclosed area. Mechanical methods such as fume hoods or area fans may be used to reduce localized vapor/mist areas. If vapor or mist is generated when the material handled, adequate ventilation in accordance with good engineering practice must be provided to maintain concentrations below the specified exposure. Eyewash stations and showers should be available in areas where this material is used and stored.
<b>Other:</b>	Consumption of food and drink should be avoided in work areas where product is present. Always wash hands and face with soap and water before eating, drinking or smoking.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Amber, brown
<b>Odor:</b>	Petroleum
<b>Odor threshold:</b>	Not determined.
<b>pH:</b>	Not applicable.
<b>Melting/Freezing point:</b>	Not determined.
<b>Initial boiling point:</b>	Not determined.
<b>Boiling range:</b>	Not determined.
<b>Flash point:</b>	214°C.
<b>Evaporation rate:</b>	Not determined.
<b>Flammability:</b>	Not determined.
<b>Upper flammable limit:</b>	Not determined.
<b>Lower flammable limit:</b>	Not determined.
<b>Vapor pressure:</b>	Not determined.
<b>Vapor density:</b>	Not determined.
<b>Relative density:</b>	Not determined.
<b>Solubility:</b>	Negligible in water, miscible in most petroleum solvents.
<b>Partition Coefficient:</b>	Not determined.
<b>Auto-ignition temperature:</b>	Not determined.
<b>Decomposition temperature:</b>	Not determined.
<b>Viscosity:</b>	136 cSt at 40°C.
<b>Other</b>	Not applicable.

## SECTION 10

## STABILITY AND REACTIVITY

<b>Reactivity</b>	
<b>Chemical stability:</b>	Material is chemically stable at room temperatures and pressure.
<b>Hazardous polymerization:</b>	Will not occur.

<b>Conditions to avoid:</b>	Avoid high temperatures and product contamination.
<b>Incompatibility with other materials:</b>	Avoid contact with acids and strong oxidizing materials.
<b>Decomposition products:</b>	Smoke, carbon monoxide, carbon dioxide, and other aldehydes of incomplete combustion. Oxides of carbon, nitrogen, and sulfur; reactive hydrocarbons and irritating vapors.
<b>Other:</b>	Not applicable.

## SECTION 11

## TOXICOLOGICAL INFORMATION

### Acute toxicity (LD50) \*See note at the bottom of the section

<b>Oral:</b>	>5000 mg/kg
<b>Dermal:</b>	>5000 mg/kg
<b>Inhalation:</b>	>20.0 mg/l
<b>Skin irritation:</b>	Non-irritant
<b>Eye irritation:</b>	Non-irritant
<b>Dermal sensitization:</b>	May cause an allergic skin reaction
<b>Respiratory sensitization:</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Aspiration Hazard:</b>	Not applicable

### Chronic Toxicity

<b>Mutagenicity:</b>	Not suspected of causing genetic defects
<b>Carcinogenicity:</b>	Not suspected of causing cancer.
<b>Reproductive toxicity:</b>	Not expected to have adverse effects on reproduction.
<b>STOT-single exposure:</b>	Not expected to have adverse effects.
<b>STOT-repeated exposure:</b>	May cause damage to organs through prolonged or repeated exposure.
<b>Other:</b>	*All data in this section is based off calculations from Part 3 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) utilizing information from the constituent components.

## SECTION 12

## ECOLOGICAL INFORMATION

### Environmental toxicity

<b>Fish:</b>	> 100 mg/l.
<b>Invertebrates:</b>	> 100 mg/l.
<b>Aquatic plants:</b>	> 100 mg/l.
<b>Microorganism:</b>	> 100 mg/l.
<b>Persistence/Degradability:</b>	This product is not expected to be readily biodegradable.
<b>Bioaccumulation:</b>	Not determined.
<b>Mobility in soil:</b>	Not determined.
<b>Other:</b>	All classifications are based on calculations in Part 4 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) utilizing information from the constituent components.

## SECTION 13

## DISPOSAL CONSIDERATIONS

<b>Waste disposal:</b>	This product unadulterated by other materials can be classified as a non-hazardous waste. Depending on use, used product may be regulated. Dispose of in a licensed facility. Do not discharge product in to sewer system. Dispose of containers by crushing or puncturing, so as to prevent unauthorized use of used containers. Waste management should be in full compliance with federal, state, and local laws.
------------------------	--

**Other** The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate.

## SECTION 14

## TRANSPORT INFORMATION

**Land Transport (DOT):** Not regulated for land transport.  
**Proper Shipping Name:** Not applicable.  
**Land Transport (TDG):** Not regulated for land transport.  
**Proper Shipping Name:** Not applicable.  
**Sea Transport (IMDG):** Not regulated for sea transport.  
**Proper Shipping Name:** Not applicable.  
**Air Transport (IATA):** Not regulated for air transport.  
**Proper Shipping Name:** Not applicable.  
**Other:** Not applicable.

## SECTION 15

## REGULATORY INFORMATION

### Federal Regulation

**Clean water act/oil:** Under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Control Act of 1990, this material is considered an oil. Any spill or discharges that produce a visible sheen or film on surface of water, or in waterways, ditches, or sewers leading to surface water must be reported. Contact the National Response Center at 800-424-8802.

**TSCA:** All components of this material are listed in the U.S. TSCA Inventory.

**Other TSCA:** Not applicable.

**SARA title III:** Section 302/304 extremely hazardous substances:  
None.

Section 311, 312 hazard categorization:

Acute (immediate health effects):	NO
Chronic (delayed health effects):	YES
Fire (hazard):	NO
Reactivity (hazard):	NO
Pressure ( sudden release hazard):	NO

Section 313 toxic chemicals:

No components present are at or greater than the de minimis (minimum reportable) concentration requirements for reporting.

**CERCLA:** For stationary/moving sources – reportable quantity (due to): Not hazardous due to the petroleum exclusion.

### State Regulations

**Right-to-know** Not determined.

**California Prop 65:** This product can expose you to chemical(s) which are known to the State of California to cause cancer and reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Other:** A release of this product, as supplied, is exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). However, releases may be reportable to the Nation Response Center under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5) - see head of Section 15. Failure to report may result in substantial civil and criminal penalties.

Recommend contacting the local authorities in the event of any type of spill to determine local reporting requirements and also to aid in the cleanup.

## SECTION 16

## OTHER INFORMATION

	<b>NFPA 704</b>	<b>NPCA-HMIS</b>	<b>KEY</b>
<b>HEALTH:</b>	1	1	0 = Minimal
<b>FIRE:</b>	1	1	1 = Slight
<b>REACTIVITY:</b>	0	0	2 = Moderate
<b>SPECIFIC HAZARD:</b>	None	N/A	3 = Serious
<b>PROTECTION INDEX:</b>	N/A	B	4 = Severe

Version: II

INFORMATION PROVIDED IN THIS SDS IS CONSIDERED ACCURATE AND RELIABLE BASED ON INFORMATION ISSUED FROM INTERNAL AND OUTSIDE SOURCES TO THE BEST OF THE AUTHORS' KNOWLEDGE. HOWEVER, THE AUTHOR'S MAKE NO REPRESENTATIONS, GUARANTEES OR WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR THE PARTICULAR PURPOSE, REGARDING THE ACCURACY OF SUCH INFORMATION OR THE RESULT TO BE OBTAINED FROM THE USE THEREOF, OR AS TO THE SUFFICIENCY OF THE INFORMATION HEREIN PRESENTED. THE AUTHORS ASSUME NO RESPONSIBILITY FOR INJURY TO RECIPIENT OR TO THIRD PERSONS OR FOR ANY DAMAGE TO ANY PROPERTY AND RECIPIENT ASSUMES ALL SUCH RISKS.

Revisions / Comments: Three year update - 4132018

Internal use only: OB19-PM