

Section 1. Identification

Product name Optigear Synthetic A 320
SDS # 450763
Historic SDS #: 61832
Code 450763-US03

Relevant identified uses of the substance or mixture and uses advised against

Product use Gear lubricant
 For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Manufacturer Castrol Industrial North America, Inc.
 150 W. Warrenville Road
 Naperville, IL 60563

Supplier Castrol Industrial North America, Inc.
 150 W. Warrenville Road
 Naperville, IL 60563
 Product Information: +1-877-641-1600

EMERGENCY SPILL INFORMATION: 1 (800) 424-9300 CHEMTREC (USA)

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture SKIN SENSITIZATION - Category 1

GHS label elements

Hazard pictograms



Signal word **Warning**
Hazard statements May cause an allergic skin reaction.

Precautionary statements

Prevention **W**ear protective gloves. Avoid breathing vapor. Contaminated work clothing must not be allowed out of the workplace.

Response IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention.

Storage Not applicable.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified Defatting to the skin.

| | | |
|--|----------------------------------|-------------------------|
| Product name Optigear Synthetic A 320 | Product code 450763-US03 | Page: 1/10 |
| Version 3 | Date of issue 06/23/2015. | Format US |
| | | Language ENGLISH |
| | (US) | (ENGLISH) |

Section 3. Composition/information on ingredients

Synthetic lubricant and additives.

Substance/mixture Mixture

| Ingredient name | CAS number | % |
|---|-------------|---------|
| Base oil - highly refined | Varies | ≥1 - <3 |
| Zinc dialkyl dithiophosphate | 68457-79-4 | ≥1 - <3 |
| Base oil - highly refined | Varies | ≥1 - <3 |
| Reaction product of ethoxylated fatty amine and ammonium compound | Proprietary | ≥1 - <3 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

| | |
|-----------------------------------|---|
| Eye contact | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention. |
| Skin contact | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention. |
| Inhalation | If inhaled, remove to fresh air. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention if symptoms occur. |
| Ingestion | Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention if adverse health effects persist or are severe. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

| | |
|----------------------------|---|
| Notes to physician | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Treatment should in general be symptomatic and directed to relieving any effects. |
| Specific treatments | No specific treatment. |

Section 5. Fire-fighting measures

Extinguishing media

| | |
|---------------------------------------|--|
| Suitable extinguishing media | In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray. |
| Unsuitable extinguishing media | Do not use water jet. |

Specific hazards arising from the chemical In a fire or if heated, a pressure increase will occur and the container may burst.

| | | |
|--|----------------------------------|--------------------------------------|
| Product name Optigear Synthetic A 320 | Product code 450763-US03 | Page: 2/10 |
| Version 3 | Date of issue 06/23/2015. | Format US |
| | (US) | Language ENGLISH (ENGLISH) |

Section 5. Fire-fighting measures

| | |
|---|---|
| Hazardous combustion products | Combustion products may include the following: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides phosphorus oxides metal oxide/oxides |
| Special protective actions for fire-fighters | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special protective equipment for fire-fighters | Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. |

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

| | |
|------------------------------------|--|
| For non-emergency personnel | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling. Contact emergency personnel. |
| For emergency responders | Entry into a confined space or poorly ventilated area contaminated with vapor, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel". |
| Environmental precautions | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |

Methods and materials for containment and cleaning up

| | |
|--------------------|--|
| Small spill | Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| Large spill | Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product. Dispose of via a licensed waste disposal contractor. |

Section 7. Handling and storage

Precautions for safe handling

| | |
|---|---|
| Protective measures | Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. |
| Advice on general occupational hygiene | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |

| | | | | |
|---------------------|----------------------------------|--------------------------|--------------------------------------|-------------------|
| Product name | Optigear Synthetic A 320 | Product code | 450763-US03 | Page: 3/10 |
| Version 3 | Date of issue 06/23/2015. | Format US (US) | Language ENGLISH (ENGLISH) | |

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Sulfur compounds in this material may decompose when heated to release hydrogen sulfide gas which may accumulate to potentially lethal concentrations in enclosed air spaces. Vapor concentrations of hydrogen sulfide above 50 ppm, or prolonged exposure at lower concentrations, may saturate human odor perceptions so that the smell of gas may not be apparent. Exposure to concentrations of hydrogen sulfide vapor above 500 ppm may cause rapid death. Do not rely on the sense of smell to detect hydrogen sulfide.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| Base oil - highly refined | ACGIH TLV (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 6/1993 |
| Zinc dialkyl dithiophosphate | None. |
| Base oil - highly refined | ACGIH TLV (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 11/2009 Form: Inhalable fraction OSHA PEL (United States). TWA: 5 mg/m ³ 8 hours. Issued/Revised: 6/1993 |
| Reaction product of ethoxylated fatty amine and ammonium compound | None. |

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

| | | |
|--|----------------------------------|--------------------------------------|
| Product name Optigear Synthetic A 320 | Product code 450763-US03 | Page: 4/10 |
| Version 3 | Date of issue 06/23/2015. | Format US |
| | (US) | Language ENGLISH (ENGLISH) |

Section 8. Exposure controls/personal protection

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

Body protection

Use of protective clothing is good industrial practice.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

Appearance

| | |
|--|---|
| Physical state | Liquid. |
| Color | Brown. [Dark] |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point | Not available. |
| Boiling point | Not available. |
| Flash point | Open cup: 205°C (401°F) [Cleveland.] |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. Based on - Physical state |
| Lower and upper explosive (flammable) limits | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Density | <1000 kg/m ³ (<1 g/cm ³) at 15.6°C |
| Solubility | insoluble in water. |

Product name Optigear Synthetic A 320

Product code 450763-US03

Page: 5/10

Version 3 Date of issue 06/23/2015.

Format US

Language ENGLISH

(US)

(ENGLISH)

Section 9. Physical and chemical properties

| | |
|--|---|
| Partition coefficient: n-octanol/water | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Kinematic: 320 mm ² /s (320 cSt) at 40°C |

Section 10. Stability and reactivity

| | |
|------------------------------------|---|
| Reactivity | No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information. |
| Chemical stability | The product is stable. |
| Possibility of hazardous reactions | Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur. |
| Conditions to avoid | No specific data. |
| Incompatible materials | <input checked="" type="checkbox"/> Reactive or incompatible with the following materials: oxidizing materials. |
| Hazardous decomposition products | Hydrogen Sulfide (H ₂ S) |

Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

| Name | Result |
|---------------------------|--------------------------------|
| Base oil - highly refined | ASPIRATION HAZARD - Category 1 |

Information on the likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

| | |
|--------------|--|
| Eye contact | No known significant effects or critical hazards. |
| Skin contact | May cause an allergic skin reaction. |
| Inhalation | Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. |
| Ingestion | No known significant effects or critical hazards. |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|--------------|---|
| Eye contact | No specific data. |
| Skin contact | Adverse symptoms may include the following: irritation redness dryness cracking |
| Inhalation | May be harmful by inhalation if exposure to vapor, mists or fumes resulting from thermal decomposition products occurs. |
| Ingestion | No specific data. |

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

| | |
|-----------------------------|----------------|
| Potential immediate effects | Not available. |
|-----------------------------|----------------|

| | | | | |
|--------------|--------------------------|---------------|-------------|----------------------------|
| Product name | Optigear Synthetic A 320 | Product code | 450763-US03 | Page: 6/10 |
| Version | 3 | Date of issue | 06/23/2015. | Format US (US) |
| | | | | Language ENGLISH (ENGLISH) |

Section 11. Toxicological information

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

No testing has been performed by the manufacturer.

Persistence and degradability

Not expected to be rapidly degradable.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Mobility Non-volatile. Liquid. insoluble in water.

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Product name Optigear Synthetic A 320

Product code 450763-US03

Page: 7/10

Version 3 **Date of issue** 06/23/2015.

Format US

Language ENGLISH

(US)

(ENGLISH)

Section 14. Transport information

| | DOT Classification | TDG Classification | IMDG | IATA |
|----------------------------|---|--------------------|----------------|----------------|
| UN number | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | | - | - | - |
| Transport hazard class(es) | - | - | - | - |
| Packing group | - | - | - | - |
| Environmental hazards | No. | No. | No. | No. |
| Additional information | Special provisions Petroleum oil, not regulated in containers less than 3500 gallons. | - | - | - |

Special precautions for user Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

Section 15. Regulatory information

U.S. Federal regulations

United States inventory (TSCA 8b) All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification Immediate (acute) health hazard

SARA 313

| | Product name | CAS number | Concentration |
|--|--|------------|---------------|
| Form R - Reporting requirements | <input checked="" type="checkbox"/> Zinc dialkyl dithiophosphate | 68457-79-4 | 1.3918 |
| Supplier notification | <input checked="" type="checkbox"/> Zinc dialkyl dithiophosphate | 68457-79-4 | 1.3918 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts None of the components are listed.

New Jersey The following components are listed: ZINC compounds

Pennsylvania The following components are listed: ZINC COMPOUNDS

| | | |
|--|----------------------------------|-------------------------|
| Product name Optigear Synthetic A 320 | Product code 450763-US03 | Page: 8/10 |
| Version 3 | Date of issue 06/23/2015. | Format US |
| | (US) | Language ENGLISH |
| | | (ENGLISH) |

Section 15. Regulatory information

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.
Ethyl acrylate; arsenic

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Toluene

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Cadmium (Non-pyrophoric); lead

Other regulations

Australia inventory (AICS)

All components are listed or exempted.

Canada inventory

At least one component is not listed.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (ENCS)

At least one component is not listed.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory (PICCS)

At least one component is not listed.

Taiwan inventory (CSNN)

All components are listed or exempted.

REACH Status

For the REACH status of this product please consult your company contact, as identified in Section 1.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

| | |
|---------------------|---|
| Health | 2 |
| Flammability | 1 |
| Physical hazards | 0 |
| Personal protection | X |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.)



History

Date of issue/Date of revision 06/23/2015.

Date of previous issue 10/07/2014.

Key to abbreviations

ACGIH = American Conference of Industrial Hygienists
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS Number = Chemical Abstracts Service Registry Number
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

Product name Optigear Synthetic A 320

Product code 450763-US03

Page: 9/10

Version 3 Date of issue 06/23/2015.

Format US
(US)

Language ENGLISH
(ENGLISH)

Section 16. Other information

OEL = Occupational Exposure Limit

SDS = Safety Data Sheet

STEL = Short term exposure limit

TWA = Time weighted average

UN = United Nations

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

✔ Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

| | | | | | |
|---------------------|--------------------------|----------------------|-------------|-----------------|-----------|
| Product name | Optigear Synthetic A 320 | Product code | 450763-US03 | Page: | 10/10 |
| Version | 3 | Date of issue | 06/23/2015. | Format | US |
| | | | | | (US) |
| | | | | Language | ENGLISH |
| | | | | | (ENGLISH) |