Doosan Infracore
Portable Power

Material Safety Data Sheet

Doosan Infracore Portable Power
1293 Glenway Drive
Statesville, NC 28625

Doosan Rock Drill Oil 460

Product Description: Heavy Rock Drill Oil
Part Number: 36134708

Transportation Emergency Response

CHEMTREC: (800) 424-9300 or
Doosan Portable Power: (800) 633-5206

SECTION 1 COMPOSITION

COMPONENTS	CAS NUMBER	AMOUNT (%)
Residual oils, petroleum, solvent-refined	64742-01-4	80-100
Distillates, petroleum, solvent-refined heavy paraffinic	64741-88-4	1-5
Proprietary Ingredients	Proprietary Mixture	1-5
Distillates, petroleum, hydrotreated light paraffinic	64742-55-8	0-3
Distillates, petroleum, solvent-refined light paraffinic	64741-89-5	0-3

SECTION 2 HAZARDS IDENTIFICATION

Major Route(s) of Entry: Skin Contact

SIGNS AND SYMPTOMS OF ACUTE EXPOSURE:
Inhalation: At elevated temperatures or in enclosed spaces, product mist or vapors may irritate the mucous membranes of the nose, the throat bronchi, and lungs.
Eye Contact: The product can cause transient mild eye irritation with short-term contact with liquid sprays or mists.
Skin Contact: This material can cause mild skin irritation from prolonged or repeated skin contact. Injection under the skin can cause inflammation and swelling. Injection of pressurized hydrocarbons can cause severe, immediate medical attention.
Ingestion: If swallowed, large volumes of material can cause generalized depression, headache, drowsiness, nausea, vomiting and diarrhea. Smaller doses can cause a laxative effect.
Chronic Health Effect Summary: This product contains a petroleum-based mineral oil. Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, (dermatitis) or oil acne. Repeated or prolonged inhalation or petroleum-based mineral oil mists at concentrations above applicable workplace exposure levels can cause respiratory irritation or other pulmonary effects.
Conditions Aggravated by Exposure: Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin.
Target Organs: This material may cause damage to the following organs: Skin.
Carcinogenic Potential: This product is not known to contain any components at concentrations above 0.1% which are considered carcinogenic by OSHA, IARC or NTP.

OSHA Hazard Classification is identified by an "x" in the box adjacent to the hazard title. If no "x" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).				
OHSA Health Hazard Classification		**OSHA Physical Hazard Classification**		
Irritant ☐	**Sensitizer** ☐	**Combustible** ☐	**Explosive** ☐	**Pyrophoric** ☐
Toxic ☐	**Highly Toxic** ☐	**Flammable** ☐	**Oxidizer** ☐	**Water-Reactive** ☐
Corrosive ☐	**Carcinogenic** ☐	**Compressed Gas** ☐	**Organic Peroxide** ☐	**Unstable** ☐

SECTION 3 FIRST AID MEASURES

Inhalation: Vaporization is not expected at ambient temperatures. This material is not expected to cause inhalation-related disorders under anticipated conditions of use. In case of over exposure, move the person to fresh air.
Eye Contact: Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness or pain persists.
Skin Contact: If burned by hot material, cool skin by quenching with large amounts of cool water. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods. If material is injected under the skin, seek medical attention immediately.
Ingestion: Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed by a physician. Never give anything by mouth to a person who is not fully conscious. If significant amounts are swallowed or irritation or discomfort occurs, seek medical attention immediately.
Notes to Physician:
Ingestion: The viscosity range of the product(s) represented by this MSDS is greater than 100 SUS at 100°F. There is a low risk of aspiration upon ingestion. Careful gastric lavage or emesis may be considered to evacuate large quantities or material.

SECTION 4 FIRE FIGHTING MEASURES

NFPA Flammability Classification: NFPA Class-IIIB combustible material.		
Flash Point:	Closed Cup: 200°C (392°F) (Pensky- Martens)	Open Cup: 250°C (482°F) (Cleveland).
Lower Flammable Limit: No data		
Upper Flammable Limit: No data		
Autoignition Temperature: Not available		
Hazardous Combustion Products: Carbon dioxide, carbon monoxide, smoke fumes, unburned hydrocarbons and trace oxides of sulfur and or nitrogen.		
Special Properties: This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, vapors can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.		
Extinguishing Media: Use dry chemical, foam, Carbon Dioxide or water fog.		
Protection of Fire Fighters: Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.		

SECTION 5 ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety attempting spill control or clean-up.
Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek clean up advice from specialists to minimize physical habit damage. This material will float on water. Absorbent pads and similar materials can be used. Comply with all laws and regulations.

SECTION 6 HANDLING AND STORAGE

Handling: Avoid contamination and extreme temperatures to minimize product degradation. Empty containers may contain product residues that can ignite with explosive force. DO not pressurize, cut, weld, braze solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.
Storage: Keep container closed. Do not store with strong oxidizing agents, Do not store at elevated temperatures. Avoid storing product in direct sunlight for extended periods of time. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 7 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended limits (see below). An eye wash station and safety shower should be located near the work-station.
Personal Protective Equipment: Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Eye Protection: Safety glasses equipped with side shields are recommended as a minimum protection in industrial settings. Wear goggles and/or face shield if splashing or spraying is anticipated. Wear goggles and face shield if material is heated above 125°F (51°C). have suitable eye wash available.
Hand Protection: Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected. Use heat-protective gloves when handling product at elevated temperatures.
Body Protection: Use clean and impervious protective clothing (e.g. neoprene or Teyvek®) if splashing or spraying conditions are present. Protective clothing may include long-sleeve outer garment, apron, or lab coat. If significant contact occurs, remove oil-contaminated clothing as soon as possible and promptly shower. Launder contaminated before reuse or discard. Wear heat protective boots and protective clothing when handling material at elevated temperatures.
Respiratory Protection: If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NOSIH-approved organic vapor respirator equipped with a dust/mist prefilter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments: Use good personal hygiene practices. Wash hands and other exposed skin areas with

plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abraisives as skin cleaners. Since specific exposure standards/control limits have not been established for this product, the "Oil Mist, Mineral" exposure limits shown below are suggested as minimum control guidelines.

Occupational Exposure Guidelines:

Substance	**Applicable Workplace Exposure Levels ACGIH (United States)**
Oil Mist, Mineral	TWA: 5 mg/m³ 8 hour(s) STEL: 10 mg/m³ 15 minutes **OSHA (United States)** TWA: 5 mg/m³ 8 hour(s)

SECTION 8 PHYSICALAND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid	**Color**	**Amber or dark amber**	Odor	Mild petroleum odor
Specific Gravity	0.9 (Water =1)	**pH**	**Not Applicable**	Vapor Density	> 1 (Air = 1)
Boiling Point	Not Available		**Melting/Freezing Point**	Not Available	
Vapor Pressure	<0.001 kPa (0.01 mmHg) (at 20°C)		**Volatility**	Negligible volatility	
Solubility in Water	Insoluble in cold water		**Viscosity (cSt @ 40°C)**	469	
Additional Properties	Gravity, °API (ASTM D287) = 26.2 @ 60°F Density = 7.47 lbs/gal. Viscosity (ASTM D2161) = AP 2500 SUS @ 100°F				

SECTION 9 STABILITY AND REACTIVITY

Chemical Stability: Stable
Hazardous Polymerization: Not expected to occur
Conditions to Avoid: Keep away from extreme heat, sparks, open flame, and strongly oxidizing conditions
Materials Incompatibility: Oxidizing materials
Hazardous Decomposition Products: No additional hazardous decomposition products were identified other than the combustion products identified in Section 4 of this MSDS.

SECTION 10 TOXICOLOGICAL INFORMATION

Toxicity Data:
Distillates, petroleum, solvent-refined heavy paraffinic:
ORAL (LD50): Acute: >5000 mg/kg [Rat]
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit]
Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested. Analyses conducted by method IP 346 indicate that the concentration of DMSO extractables in this mineral oil is below 3.0 weight percent.

Residual oils, petroleum, solvent-refined:
ORAL (LD50): Acute: >5000 mg/kg [Rat]
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit]
Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies(up to two years) no carcinogenic effects have been reported in any animal species tested.
Distillates, petroleum, hydrotreated light paraffinic:
ORAL (LD50): Acute: >5000 mg/kg [Rat]
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit]
Mineral oils derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists will above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.
Distillates, petroleum, hydrotreated light paraffinic:
ORAL (LD50): Acute: >5000 mg/kg [Rat]
DERMAL (LD50): Acute: >2000 mg/kg [Rabbit]
Mineral oils derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists will above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects. In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested. Analyses conducted by method IP 346 indicate that the concentration of DMSO extractables in this mineral oil is below 3.0 weight percent.

SECTION 11 ECOLOGICAL INFORMATION

Ecotoxicity: Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal an aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.
Environmental Fate: An environmental fate analysis has not been conducted on this specific product. Plants and animals may experience harmful or fatal effects when coated with petroleum-based products. Petroleum-based (mineral) lube oils will normally float on water. In stagnant or slow-flowing waterways, an oil layer can cover a large surface area. As a result, this oil layer might limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway may be sufficient to cause a fish kill or create an anaerobic environment.

SECTION 12 DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition. Conditions of use may cause this material to become a “hazardous waste”, as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a “hazardous waste” at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional US EPA office for guidance concerning case specific disposal issues. Empty drums and pails retain residue. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose this product’s empty container to heat, flame, or

other ignition sources. DO NOT attempt to clean it. Empty drums and pails should be drained completely, properly bunged or sealed, and promptly sent to a reconditioner.

SECTION 13 TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status:	Not regulated by the U.S. Department of Transportation as a hazardous material.
Proper Shipping Name:	Not regulated
Hazard Class:	Not regulated
Packing Group(s):	Not applicable
UN/NA Number:	Not regulated
Reportable Quantity:	A Reportable Quantity (RQ) has not been established for this material
Placard(s):	None
Emergency Response Guide No:	Not applicable
HAZMAT STCC No.:	2911415
AMRPOL III Status:	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 14 REGULATORY INFORMATION

TSCA Inventory: this product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification: the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQ's) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification: the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: No SARA 311/312 hazard categories identified.
SARA 313 Toxic Chemical Notification and Release Reporting: This product contains the following components in concentrations above the minimum levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 f SARA: No components were identified.
CERCLA: The Comprehensive Environmental Response. Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. This product or refinery stream is not known to contain chemical substances subject to this statute. However, it is recommended that you contact state an local authorities to determine if there are any other reporting requirements in the event of a spill.
Clean Water Act (CWA): This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Petroleum Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, there adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65: This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm , and may be subject to the requirements of California Proposition 65 (CA Health and Safety Code Section 25249.5):Toluene: 0.0007%, and Ethyl acrylate: 0.0008%.
New Jersey Right-to-Know Label: Petroleum Oil
Additional Regulatory Remarks: No additional regulatory remarks

SECTION 15 OTHER INFORMATION

Revision Information
Abbreviations
AP: Approx. EQ: Equal >: Greater Than <: Less Than NA: Not Applicable ND: No Data NE:Not Established
ACGIH: American Conference of Governmental Industrial Hygienists
IARC: International Agency for Research on Cancer
NIOSH: National Institute of Occupational Safety and Health
NPCA: National Paint and Coating Manufacturers Association
NFPA: National Fire Protection Association
AIHA: American Industrial Hygiene Association
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
HMIS: Hazardous Materials Information System
EPA: US Environmental Protection Agency

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.