MATERIAL SAFETY DATA SHEET

Date Issued: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Paradene AW Hydraulics Oil
22 AW, 32 AW, 46 AW, 68 AW, 100 AW, 150 AW, 220 AW, 320 AW, and 460 AW

Part Number: 4011, 4021, 4031, 4041, 4051
4061, 4071, 4091, 4101

Chemical Family: Petroleum Oil (Hydraulic Oil)
Product Appearance & Odor: Clear Light Amber Color
Mild Petroleum Hydrocarbon Odor

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)
Health - 1 Flammability - 1 Reactivity - 0
Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Lubricating Oil Base Stock	64742-6500	Greater than 85%
Proprietary Additives	Mixture	Less than 15%

Exposure Limit for Total Product: 5mg/m^3 oil mist for an 8-hour workday. Basis: OSHA Reg. 29 CFR 1910.1000
CERLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity** (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting**, EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable.

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined
Specific Gravity (H_2O=1): .8500/.8900
Pour Point: -32°C/-7°C
Viscosity: 100°C cSt 4.4/32.0
Solubility in Water: Negligible, less than 0.1%

Percent Volatile by Volume: NEGLIGIBLE
Vapor Pressure: NEGLIGIBLE
Vapor Density: GREATER THAN AIR
Evaporation Rate: NEGLIGIBLE

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
205 (401) / 260 (500)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0
Basis: Recommended by Castrol Heavy Duty Lubricants Inc.
Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

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Date Issued: 12/27/02

SECTION A - IDENTIFICATION & EMERGENCY INFORMATION

Manufacturer's Name: Castrol Heavy Duty Lubricants Inc.
Emergency Telephone Number: 410-574-5000
800-777-1466

Address: 9300 Pulaski Highway
Baltimore, MD 21220

PRODUCT NAME: Castrol EP Gear Lubricant
Grades 68(2EP), 100(3EP), 150(4EP), 220(5EP), 320(6EP)
460(7EP), and 680(8EP)
Chemical Family: Petroleum Oil (Gear Oil)
Product Appearance & Odor: Clear, Dark Brown Liquid
Mild, Bland Odor

Part Number: 3023, 3033, 3043, 3053, 3063, 3073, and 3083

CAS Number (For Finished Product):
COMPLEX MIXTURE
CAS Number Not Applicable

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)
Health - 1 Flammability - 1 Reactivity - 0
Hazard Rating: Least-0 Slight-1 Moderate-2 High-3 Extreme-4

SECTION B - COMPONENTS & HAZARD INFORMATION

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Lubricating Oil Base Stock	64741-88-4 64742-54-7	Greater than 80%
Proprietary Additives	Mixture	Less than 20%

Exposure Limit for Total Product: 5mg/m^3 oil mist for an 8-hour workday. Basis: OOHS Reg. 29 CFR 1910.1000
CERLA Hazardous Substances: None known. If this product is accidentally spilled, it is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We recommend you contact local authorities to determine if there may be other local reporting requirements. **US TSCA Inventory:** All components of this material are on the US TSCA Inventory. **Threshold Planning Quantity** (TPQ), EPA Regulation 40 CFR 355 Extremely Hazardous Substances (SARA Sections 301-304): None. **Toxic Chemical Release Reporting,** EPA Regulation 40 CFR 372 (SARA Section 313): Not Applicable.

SECTION C - PHYSICAL DATA (THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES.)

Boiling Range: Not Determined
Specific Gravity (H_2O=1): .8844/.9194
Pour Point: -27°C/-12°C
Viscosity: 100°C cSt 8.7/36.4
Solubility in Water: Negligible, less than 0.1%

Percent Volatile by Volume: NEGLIGIBLE
Vapor Pressure: NEGLIGIBLE
Vapor Density: GREATER THAN AIR
Evaporation Rate: NEGLIGIBLE

SECTION D - FIRE PROTECTION INFORMATION

FLASH POINT & METHOD: Min. ASTM D-92 C.O.C. °C, (°F.)
215 (420) / 229 (445)

AUTO IGNITION TEMPERATURE:
Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)-Hazard Identification
Health - 1
Flammability - 1
Reactivity - 0
Basis: Recommended by Castrol Heavy Duty Lubricants Inc.
Hazard Rating (NFPA):
4-Extreme 3-High 2-Moderate
1-Slight 0-Insignificant

UNUSUAL FIRE & EXPLOSION HAZARDS:

None

Flammability Limits (% by volume in air):
Lower: Not determined Upper: Not determined

SECTION D - FIRE PROTECTION INFORMATION (Continued)

HANDLING PRECAUTIONS: Use product with caution around heat, sparks, pilot lights, static electricity and open flame.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, carbon monoxide, sulfur oxides, and other decomposition products, in the case of incomplete combustion.

EXTINGUISHING MEDIA & FIRE FIGHTING PROCEDURES: Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on the size or potential size of fire and circumstances related to the situation. Plant fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Associations' *Fire Protection Guide on Hazardous Materials.* Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

EMPTY CONTAINER WARNING: "Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION E - PROTECTION & PRECAUTIONS

VENTILATION: Use local exhaust to capture vapor, mists or fumes, if necessary. Provide ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. No smoking, flame or other ignition sources.

RESPIRATORY PROTECTION: Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES: Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION: Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT: Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS: Keep containers closed when not is use. Do not store near heat, sparks, flame or strong oxidants. In order to prevent fire or explosion hazards, use appropriate equipment.

PERSONAL HYGIENE: Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing: launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed skin by waterless hand cleaners followed by washing thoroughly with soap and water.

VARIABILITY AMONG INDIVIDUALS: Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks, which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

SECTION F - SPILL OR LEAK PROCEDURE

ENVIRONMENTAL IMPACT: Report spills as required to the appropriate authorities. US Coast Guard Regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to the Coast Guard toll free number 800-424-8802.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED: Recover free product. Add sand, earth, or other suitable absorbent material to the spill area. Minimize breathing vapors. Minimize skin contact. Keep product out of sewers and watercourses by dicing or impounding. Advise authorities if the product has entered or may enter sewers, watercourses, or extensive land areas. **ASSURE CONFORMITY WITH ALL APPLICABLE REGULATIONS.**

WASTE DISPOSAL: Dispose of in an environmentally safe manner and in accordance with all government regulations to include Federal, State, and local requirements.

SECTION G - REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS & MATERIALS TO AVOID: Avoid heat, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION H - EMERGENCY & FIRST AID PROCEDURES AND PRIMARY ROUTES OF ENTRY

EYE CONTACT: If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritations persist, call a physician. **SKIN CONTACT:** In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INGESTION: If ingested, DO NOT induce vomiting; call a physician immediately.

INHALATION: Vapor pressure is very low. Vapor inhalation under ambient temperature conditions is not normally a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. Administer oxygen, if available. If over-exposed to oil mist, remove from further exposure until excessive mist oil condition subsides.

SECTION I - EFFECTS OF OVEREXPOSURE

SKIN: Prolonged or repeated skin contact may cause skin irritation. **EYE:** May cause eye irritation. **INGESTION:** Relatively nontoxic.

SECTION J - TRANSPORTATION INFORMATION

DEPARTMENT OF TRANSPORTATION (DOT) - DOT Identification Number: Not Regulated.

THE PRECISE COMPOSITION OF THIS MIXTURE IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN OR NURSE IN THE EVENT OF A MEDICAL EMERGENCY.