Tech Data

PETRO-CANADA LUBRICANTS

ARDEE™ Rock Drill Oils

Introduction

Petro-Canada Ardee Oils are specially formulated to lubricate and cool the mechanisms of air-operated rock drills. Ardee Oils are blended from ultra pure Petro-Canada HT Severely Hydrocracked base oils and a carefully balanced set of lubricant additives to give the best possible performance in tough rock drill applications.

Features and Benefits

- **High film strength and lubricity**
  - Reduces scoring failures during sudden high pressure sliding
  - Minimizes wear due to repeated heavy loading
  - EP protection prevents welding or scoring under constant shock loading
- **Long-term rust and corrosion protection**
  - Protects iron parts from rusting during constant exposure to moisture
  - Reduces chemical attack on bronze or brass components
- **Good emulsifying characteristics**
  - Maintains a continuous lubricant film on metal surfaces
  - Reduces water from displacing the lubricant and wetting the metal surface
- **Excellent adhesive properties**
  - Oil sticks firmly to cylinder walls and other drill parts under the most adverse conditions
  - Constant oil film minimizes wear to cylinders and other drill parts
- **Low misting tendency**
  - Reduces undesirable misting
  - Lowers oil consumption
- **Resists forming carbon at high temperatures**
  - Lowers tendency of drills to diesel (to combust) during severe operations

Applications

Petro-Canada Ardee Oils are designed for use in pneumatic percussion equipment operated at high cubic feet per minute (CFM) air flow rates. They can also be used in all types of equipment lubricated with in-line oilers.

Ardee Oils meet or surpass the following equipment manufacturers' rock-drill oil specifications for specific viscosity grades: Ingersoll-Rand, Joy and Worthington. Applications include the lubrication of pneumatic equipment used for mining and tunnelling, jack-hammers, riveters, pavement breakers, tampers and other construction equipment.

Both Ardee 32 and 100 have been used successfully in water injection plunger pumps. They work well because of the presence of a tackifier and rust and corrosion inhibitors in the formulation.

Grade Selection

Ardee Oils come in five viscosity grades to satisfy ambient temperature requirements from -35ºC/-31ºF to +45ºC/113ºF.

- Ardee 32 is designed for low temperature conditions and is a Manufacturers' Grade 10 oil. It is highly effective as an air-line oil for general industrial plant lubrication, as well.
- Ardee 46 is specially formulated for all-season operation
- Ardee 68, 100 and 150 are used in underground mining operations and are classified as Manufacturers' Grade 20, 30 and 40 oils respectively. Ardee 150 is recommended for Secan drills and in mining operations trying to reduce oil consumption and misting.
- Ardee 220 is a Manufacturers' Grade 50 and is normally used in the summer in large bore drills (greater than 10 cm/ 4 inch), operating in open pit mines.

What is the HT difference?

Petro-Canada Lubricants starts with the HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.

Typical Performance Data

PROPERTY	TEST METHOD	ARDEE					
		32	46	68	100	150	220
Viscosity cSt @ 40ºC/SUV @ 100ºF cSt @ 100ºC/SUV @ 210ºF	D445	 31.8/163 6.0/46	 45/230 7.4/51	 71.7/369 9.9/60	 96.4/500 11.5/66	 148.6/778 15.0/80	 270/1089 19.0/97
Viscosity Index	D2270	137	129	119	107	101	103
Flash Point, ºC / ºF	D92	180/356	207/405	231/448	233/451	243/469	281/538
Pour Point, ºC / ºF	D5950	-48/-54	-42/-44	-42/-44	-33/-27	-30/-22	-24/-11
Total Acid Number (TAN)	D664	0.5	0.7	0.7	0.5	0.6	0.8
Steam Emulsion Number, sec	D1935*	1200+	1200+	1200+	1200+	1200+	1200+
Copper Corrosion, 3h@ 100ºC	D130	1b	1b	1b	1b	1b	1b
Foam Characteristics, ml Sequence 1 Sequence 2 Sequence 3	D892	 20/0 20/0 5/0	 30/0 20/0 20/0	 10/0 35/0 10/0	 10/0 20/0 0/0	 30/0 50/0 25/0	 5/0 15/0 0/0
Rust Proc. A, 24 hrs	D665	Pass	Pass	Pass	Pass	Pass	Pass
Timken OK Load, kg / lb	D2782	20/9	30/14	30/14	30/14	30/14	30/14
Four-Ball Weld Load, kg	D2783	200	200	200	200	250	250
Four-Ball Wear, scar diam., mm	USS DM57	0.46	0.36	0.38	0.41	0.42	0.31
Falex EP, Proc A, lb, ft	D3233	7389/1660	-	7520/1690	7670/1725	7560/1700	7430/1670
Ramsbottom Carbon Residue, %	D524	 0.26	 0.32	 0.31	 0.41	 0.46	 0.34

The values quoted above are typical of normal production. They do not constitute a specification.

* Discontinued Test Method

To order product or to learn more about how Petro-Canada Lubricants can help your business visit: **lubricants.petro-canada.com** or contact us at: **lubecsr@petrocanadalsp.com**

CERTIFIED
ISO 9001
ISO 14001
ISO/TS 16949

IM-7817E (2013.12)

Beyond today's standards.™

PETRO-CANADA™ LUBRICANTS