

# DIRGHAYU

**Green - Bio Based Specialty Gear Oils**  
**Grades 68, 150, 180, 220, 320 & 460**



## 'PRODUCT INFORMATION'

'Dirghayu' gear oils are using chemically modified veg. oils as a base & select additives produce premium quality, extreme lubrication performance & excellent environment friendly properties for disposal.

Being bio-based, they have **Very high lubricity** (0.4 to 0.44 mm scar diameter on four ball test). This results in excellent efficiency of gear boxes & related energy saving upto unbelievable 15% depending on gear box construction. Moreover, there is almost 40% reduction in rise in temp. of gear box on load. Hence instead of 65 to 70°C temp. of gear box with mineral or synthetic lubricants, the temp. reaches to 52 to 55°C, with Dirghayu gear oil. Thus Dirghayu gear oils are superior to mineral or synthetic gear oils.

The **polar nature** of the oil results in adhesion with the substrate & hence avoids any dry metal to metal contact & excellent boundary layer lubricating properties. There are no spill offs even on sudden loads. Mineral oil based or synthetic lack this polar property.

These gear oils have **high viscosity index** of about 200. (Petro 95, and synthetic 140). Hence Dirghayu gear oils of 150/180 viscosity are equivalent in viscosity upto 320 of petro or synthetic gear oils, when viscosity at working temp. is compared. The lower viscosity @ 40°C or ambient helps Dirghayu to reach in all nooks & corners of gear box & will also help in improving the energy efficiency. Moreover, the viscosity remains almost constant in working temp. range. With high flash point of >245°C. & low evaporation rate, these gear oils are suited to work in extreme temp. & load conditions. Pour point is -5%.

Chemically modified vegetable oils base improves thermal & oxidative stability, which is further augmented with lower working temp. To cap-up, added to these exclusive properties, 'Dirghayu', Green gear oils are fully biodegradable and non toxic. The spent lubricants are not hazardous waste. They can be composted or burnt with fuel. ETP is not required.

Dirghayu specialty gear oils are available in six viscosity ranges. The 68, 150, 180, 220, 320 and 460 grade with selection between IPp/EC 4 & IPp/100 M/EC 4 All of them have superior lubricity and suitability for heavy and arduous duties.



**Worm Worm  
Gear**



**Spur Gear**



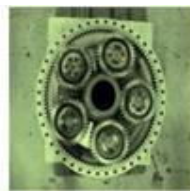
**Helical Gear**



**Bevel Gear**



**Spiral Bevel Gear**



**Planetary Gear**

## TYPICAL CHARACTERISTICS OF DIRGHAYU GEAR OILS

Sr. No.	Property	Test Method	Unit	Gear Oil- Ipp/EC 4/GO		
				Grade 68	Grade 150	Grade 180
1	Appearance	Visual		Yellow-Red	Yellow-Red	Yellow-Red
2	ISO Grade	ISO 3448		68	150	180
3	Density @ 15°C	Hydrometer	Kg/m <sup>3</sup>	880-900	880-900	880-900
4	pH	pH Meter		7-7.5	7-7.5	7-7.5
5	Viscosity @ 40°C	ASTM D 445	cSt	61.2-74.8	135-165	162-198
6	Viscosity @ 100°C	ASTM D 445	cSt	11.9-14.1	22.4-26.3	25.9-30.3
7	Viscosity Index	ASTM D 2270		≥195	≥195	≥195
8	Flash Point	ASTM D 92	°C	≥ 220	≥ 220	≥ 220
9	Acid Value	AOCS Te 1a-64	mg KOH/ gm	≤ 1	≤ 1	≤ 1
10	Copper Corrosion Test	ASTM D 130		1a	1a	1a
11	Four Ball Scar	ASTM D 4172	mm	0.4	0.41	0.41
12	Four Ball Weld Load	ASTM D 2783	Kg	240	240	240
13	Pour Point	ASTM D 97	°C	≥ -3	≥ -3	≥ -3
14	Antifoam Test	In House Method		Pass	Pass	Pass
15	Energy Reading	In House Method	Watts	1070	1098	1113
16	Oxidation Stability	ASTM D 2272	minutes	55	55	55

Sr. No.	Property	Test Method	Unit	Ipp/100 M/EC 4/GO		
				Grade 220	Grade 320	Grade 460
1	Appearance	Visual		Yellow-Red	Yellow-Red	Yellow-Red
2	ISO Grade	ISO 3448		220	320	460
3	Density @ 15°C	Hydrometer	Kg/m <sup>3</sup>	880-900	880-900	880-900
4	pH	pH Meter		7-7.5	7-7.5	7-7.5
5	Viscosity @ 40°C	ASTM D 445	cSt	198-242	288-352	414-506
6	Viscosity @ 100°C	ASTM D 445	cSt	29.6-34.6	39.5-46	52-60.3
7	Viscosity Index	ASTM D 2270		≥190	≥190	≥190
8	Flash Point	ASTM D 92	°C	≥ 220	≥ 220	≥ 220
9	Acid Value	AOCS Te 1a-64	mg KOH/ gm	≤ 1	≤ 1	≤ 1
10	Copper Corrosion Test	ASTM D 130		1a	1a	1a
11	Four Ball Scar	ASTM D 4172	mm	0.43	0.43	0.44
12	Four Ball Weld Load	ASTM D 2783	Kg	220	220	240
13	Pour Point	ASTM D 97	°C	≥ -10	≥ -10	≥ -10
14	Antifoam Test	In House Method		Pass	Pass	Pass
15	Energy Reading	In House Method	Watts	1145	1190	1228
16	Oxidation Stability	ASTM D 2272	minutes	55	55	55

### Manufactured by

M/s. Intech Energy Systems Pvt. Ltd., S. NO. 1073 / 1, 2, 3, Mutha Road,  
Pirangoot, Pune- 412 111 (India).  
Tel: .020-22922350-53 Fax: 020-22922180.  
Website -www.intechenergy.com. Email: hosales@intechEnergy.com

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