

BNO Turbine Oil ROI Series

Products Description:

BNO Turbine Oil ROI Series consists of high-performance rust and oxidation inhibited petroleum oils specifically formulated to meet severe operating demands of industrial type turbines and a wide variety of equipment requiring high quality circulating oils.

These are formulated with highly refined paraffinic base stocks and Zinc free additives to use primarily as high-quality turbine, hydraulic and compressor oils. High quality turbine oils must be capable of lubricating and cooling the bearings while protecting the system against rust, corrosion and harmful deposits. Since turbine equipment is normally used in key applications, the reliability of the rotating machinery and its lubricant is critical.

BNO Turbine Oil ROI series have demonstrated superior service in all types of industrial turbines, such as steam, gas and hydro-turbines. BNO Turbine Oils contain high performance rust and oxidation inhibitors which provide excellent system rust protection and long oxidation life under severe operating conditions and provide NAS/ISO Standard Cleanliness.

Applications & Benefits:

- ☐ Extended oxidation life
- ☐ Excellent rust protections
- ☐ Excellent Cleanliness, NAS 1-3
- ☐ Good water Separability and anti-foaming characteristics

Performance Standards:

- ☐ AGMA 9005-F16 R&O
- ☐ ASTM D-4304 TYPE I
- ☐ ISO 6743-5 L-TSA
- ☐ ISO 6743-5 L-TGA
- ☐ ISO 8068
- ☐ DIN 51515 PART 1
- ☐ DIN 51524 PART 1
- ☐ Fives Cincinnati P38, P54, P55, P57
- ☐ GEK 27070
- ☐ GEK 28143 B Type I
- ☐ GEK 46506E
- ☐ GEK 32568J
- ☐ GEK 32568H
- ☐ Siemens TLV 9013 04
- ☐ ALSTOM HTGD 90117
- ☐ Solar Turbines ES 9-224
- ☐ ISO 11158 HL
- ☐ Morgoil® Lubricant

Typical Characteristics:

Test Description	Method	Typical Results				
		BNO Turbine Oil ROI-22	BNO Turbine Oil ROI-32	BNO Turbine Oil ROI-46	BNO Turbine Oil ROI-68	BNO Turbine Oil ROI-100
ISO VG	ISO 3448	22	32	46	68	100
ASTM Color	ASTM D1500	<1.0	<1.0	<1.5	<2.0	<2.0
Density at 15 ^o C, g/cm ³	ASTM D7042	0.855	0.868	0.878	0.884	0.889
Kinematic Viscosity at 40 ^o C, cSt	ASTM D7042	22	32	46	68	100
Kinematic Viscosity at 100 ^o C, cSt	ASTM D7042	4.0	5.9	7.6	8.9	11.2
Viscosity Index	ASTM D7042	115	111	108	107	96
Pour Point, ^o C	ASTM D97	- 33	- 33	- 27	- 24	- 18
COC Flash Point, ^o C	ASTM D92	210	224	228	230	240
Water Seperability (Minute)	ASTM D1401	8	8	10	15	15
Foam Seq I, Seq II, Seq III, Tendency/Stability, ml/ml	ASTM D892	10/0 10/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0	10/0 10/0 10/0
Turbine Oil Oxidation Test (Hours)	ASTM D943	≥10000	≥10000	≥10000	≥10000	≥10000
Copper Corrosion, 3 Hours, 100 ^o C	ASTM D130	1b	1b	1b	1b	1b
Acid Number, mg KOH/gm	ASTM D664	≤0.2	≤0.2	≤0.2	≤0.2	≤0.2
Air Release (Minutes)	ASTM D3427	≤5	≤5	≤5	≤5	≤5
Water Content, ppm	ASTM D6304	<100	<100	<100	<100	<100
Zinc Content, ppm	ASTM D5185	≤5	≤5	≤5	≤5	≤5
Rust prevention,	ASTM D665					
Distilled Water		Pass	Pass	Pass	Pass	Pass
Synthetic Sea Water		Pass	Pass	Pass	Pass	Pass
Oxidation stability, RPVOT (min)	ASTM D2272	1750	1450	1450	1450	1400
Elastomer NBR1, 100 ^o C 168hrs Δ Shore A Hardness, pts. Δ Volume Change, %	ISO 6072	-1 +5	-1 +5	-1 +5	-1 +5	-1 +5
Particle Count, ISO (Before Filtration) Off-line	ISO 4406	18/16/13- 19/17/14	18/16/13- 19/17/14	18/16/13- 19/17/14	18/16/13- 19/17/14	18/16/13- 19/17/14
Particle Count, ISO (After Filtration) On-line	ISO 4406	12/10/7- 14/12/9	12/10/7- 14/12/9	12/10/7- 14/12/9	12/10/7- 14/12/9	12/10/7- 14/12/9

Health, Safety and Environment:

Based on available data collected from MSDS of ingredients used in the product, this product is not health hazardous. However, proper precautions should be taken to avoid long-term skin contact, exposure or accidental effect. Since it is a non-biodegradable product the used or waste oil should be recycled or disposed off in conformity to local disposal regulations to avoid environmental pollution.

(The information and figures given here are typical of current one which conforms to the specifications. Minor variations which do not affect product performance may occur during manufacturing).