



A Subsidiary of PETRONAS Chemicals Group

PRODUCT DATA SHEET

Petrolad[®] 336

Cost-Effective, Multi-Purpose Gear Oil
Additive Package

BRB Lube oil Additives & Chemicals

P.O. Box 3552 NL - 6017 ZH Thorn

Office: Voltaweg 26, 6101 XK, Echt, the Netherlands

T: +(31) 475 560 300

www.brb-international.com/lac

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Product Description

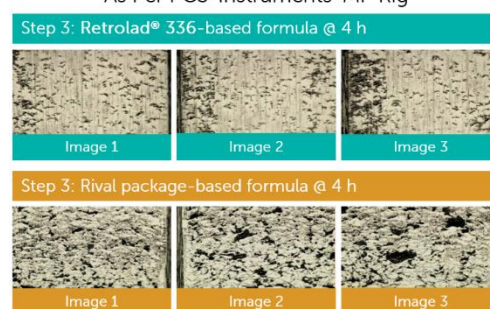


Petrolad® 336 is a cost-effective additive package, designed for the formulation of low-odour automotive and industrial gear oils. It is soluble in various mineral and some synthetic base stocks. On the automotive front, it meets GL-5 at a 4,00 % w/w maximum dosage, among other key specifications (below). In addition, Petrolad® 336 demonstrates a coverage of various sought-after industrial specs, e.g., ISO 12925-1 (L-CKC) and DIN 51517-3.

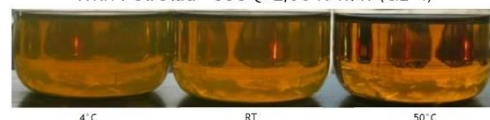
Benefits

- A cost-effective package due to its competitive dosage, flexible nature & outstanding long-life performance.
- Excellent friction coefficient & micro-pitting test results.
- Strong water demulsibility/separability, key for industrial.
- Clear pass for the former CRC L-60/-42/-37, among others.
- Great anti-oxidation properties & seal test outcome (as per DIN 51517-3).
- Unique sulphur/phosphorus-based technology, resulting in clear, low-odour gear oils.
- The full visual results (right) & explanations can be found in Petrolad® 336's supporting files.

Micro-Pitting Results (Visual),
As Per PCS-Instruments' MP Rig



80W-90 Formulation Results >6 Weeks (Visual),
With Petrolad® 336 @ 2,00 % w/w (GL-4)

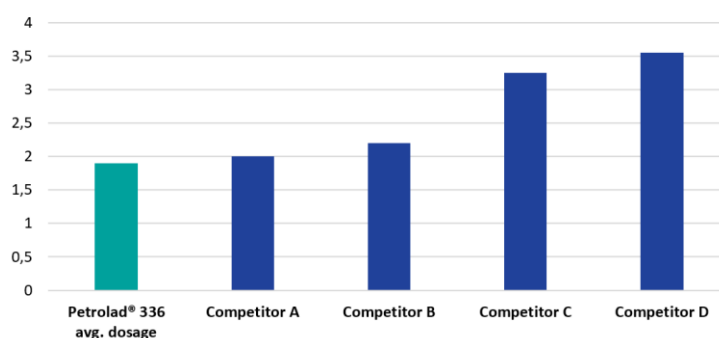


Performance

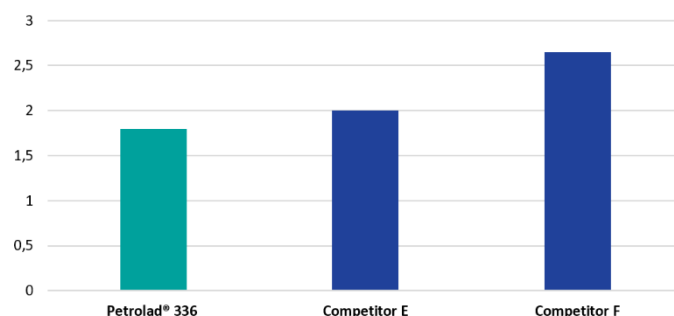
Automotive Specification	Dosage* (% w/w)
GL-4	1,80–2,00
MT-1	3,00
GL-5	3,80–4,00
SAE J2360	4,50
MACK GO-J	4,50–5,00
Ford WSD-M2C200-C	5,00
MACK GO-J plus	6,00
Scania STO 1:0	6,00
MAN 342 M1, M2, M3	7,00
MAN 342 S1, S2	8,00
Industrial Specification	Dosage (% w/w)
AIST 224	1,80
DIN 51517-3	1,80
AGMA 9005-E02	2,00
ISO 12925-1 (L-CKC, enclosed gears)	2,00
ISO 6743-6 (L-CKC)	2,00

*Some dosages (% w/w) may vary, depending on the viscosity grade.
**Various customers indicated to BRB that using our product in their formulations has led to achieving limited-slip (LS) performance.

Automotive Superiority (% w/w)
@ GL-4 Specification



Industrial Superiority (% w/w)
@ DIN 51517-3 Specification



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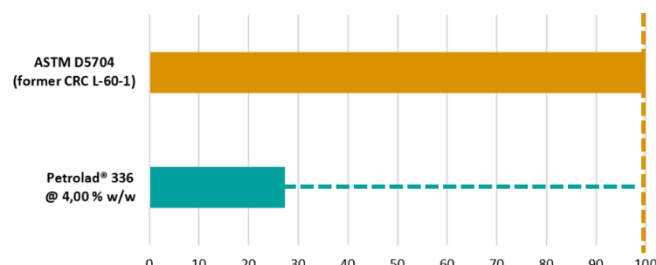


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KV Increase @ 100 °C (%),
Oxidation Stability Test @ DIN 51517-3 Specification,
VG 220 (500N + Bright Stock) Oil Formulation



KV Increase @ 100 °C (%) @ 50 h,
Thermal Oxidation Stability Test @ GL-5 Specification,
SAE 90 (500 SN + Bright Stock) Oil Formulation



Typical Data

Parameter	Unit	Method	Typical
Appearance	-	Visual	Clear orange liquid
Density @ 15 °C	g/cm ³	ASTM D4052	0,944
Kinematic viscosity @ 40 °C	cSt	ASTM D445	38
Flash point	°C	ASTM D92	100
Sulphur content	% w/w	IH TM	17,0
Phosphorus content	% w/w	IH TM	0,6

Handling & Storage

Minimum loading/unloading/pumping temperature	20 °C
Maximum loading/unloading/pumping temperature	50 °C
Maximum blending temperature	50 °C
Maximum storage temperature	25 °C
Maximum long term* storage temperature	25 °C

*Longer than 2 months.

The abovementioned properties are typical and should not be used as quality control parameters to accept or reject the product. Its MSDS, specific blending guidelines, technical data and formulas are available upon request. Details on Petrolad® 336's extreme-pressure version, Petrolad® 336 EP, can also be provided.

FOR MORE INFORMATION

Please contact

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IMPORTANT NOTICE

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