SAN 4033

Viscosity Index Improver

Shear Stable Solid For Engine Oil Applications

SAN 4033 additive use as a Viscosity Index Improver for engine oils.

SAN 4033 additive imparts shear stability and low temperature properties to passenger car motor oils and heavy duty engine oils.

Typical Characteristic

Properties	
Appearance :	White Pellet
Density at 15°C	0.87

Properties of 1% wt.SAN 4030 dissolved in 500N:

Colour:	2
Density at 15°C:	0.87
Flash point, °C:	232
Kinematic Viscosity 100°C	21.87
SSI	33

- **Excellent low temperature properties**
- **Pellet form,easy to dissolve in base oils**
- **Applicable in a wide range of base oils**

Handling Information

Dissolving Temp.:100-150

Packing :25Kg bag's or 11 Kg bucket's

COMPONENTS

HiTEC® 5748

Olefin Copolymer VI Improver

Provides Excellent Shear Stability in Crankcase Lubricants

Afton CHEMICAL
Passion for Solutions™

HiTEC® 5748 Olefin Copolymer VI Improver

Provides Excellent Shear Stability in Crankcase Lubricants

Application

HiTEC® 5748 olefin copolymer viscosity index improver is recommended for use in industrial, gasoline and diesel crankcase lubricants, particularly when excellent shear stability is desired, or as in motorcycle applications. It is based on 23 SSI polymer. Multigrade crankcase oils containing HiTEC® 5748 typically lose no more than 0.5 centistokes (approximately two Saybolt seconds) at 100°C in typical over-the-road service.

Key Performance Benefits

- Excellent shear stability requirements
- Field tested
- Exceeds Bosch stay-in-grade shear stability requirements
- Surpasses Sequence VIII stay-in-grade requirements
- Robust low-temperature properties

Recommended Dosage

Dosages of HiTEC® 5748 generally necessary to make multigrade crankcase oils which meet the 10 hour L-38 stay-in-grade requirements are given below, with CMCC (DIN 51382) stay-in-grade recommendations in parentheses:

SAE Grade	5W30	10W30	10W40	15W40	20W50
HiTEC® 5748 (vol.)	8.0% (8.0%)	5.7% (5.8%)	11.6% (11.8%)	5.4% (5.5%)	5.4% (5.5%)

Please contact your Afton Chemical representative for specific recommendations.

Typical Characteristics

Appearance	Clear to hazy viscous liquid
Density, lbs/gal.	7.21
Specific Gravity @ 15.6/15.6°C	0.865
Flash Point, °C (PMCC)	155 min.
Viscosity @ 40°C, cSt	15000
Viscosity @ 100°C, cSt	1140
Color, ASTM D1500	5.0 max.

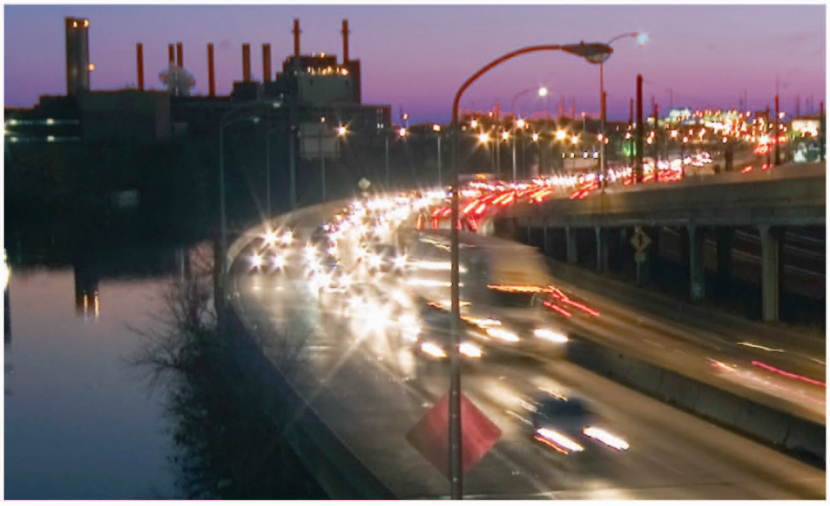
Handling Information

Max Handling Temp: 250°F (120°C)
Shelf Life: 36 months @ ambient temperature

ENGINE OILS

HiTEC® 5825A

OCP Viscosity Index Improver



Shear Stable Solid OCP For Engine Oil Applications

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HiTEC® 5825A OCP Viscosity Index Improver

Shear Stable Solid OCP For Engine Oil Applications

Key Performance Benefits

HiTEC® 5825A additive is a solid amorphorus olefin copolymer designed for use as a Viscosity Index Improver for engine oils. HiTEC® 5825A additive imparts excellent shear stability and low temperature properties to passenger car motor oils and heavy duty engine oils.

HiTEC® 5825A additive benefits include:

- Excellent low temperature properties
- Solid form, easy to dissolve in base oils
- Applicable in a wide range of base oils
- Covers key Approvals (ACEA, Daimler, Volvo...) when used with the appropriate package

Recommended Dosage

HiTEC® 5825A may be dissolved in a wide range of base oils at 12.0% wt. to produce a liquid HiTEC® 5825A Viscosity Index Improver. The following chart includes typical treat-rates for HiTEC® 5825A additive:

SAE J 300 Viscosity Grade	Liquid HiTEC® 5825A Treat, % wt.
10W-40	10.5 - 11.5
15W-40	8.5 - 9.5
20W-40	8.0 - 9.0

Typical Characteristics

Properties of HiTEC® 5825A:

Appearance:	Clear to grey greenish solid
Density at 15°C, g/ml:	0.875
Melt Flow Index, g/10:	10.4 max.
Propylene Content, % wt:	50 max.

Properties of 12.0% wt. HiTEC® 5825A dissolved in ExxonMobil 150N AP/E:

Colour, ASTM D1500:	1.1
Density at 15°C, g/ml:	0.87
Flash Point, °C (PMCC):	236
Kinematic Viscosity at 100°C, mm^2/s:	1,092
Kinematic Viscosity at 40°C, mm^2/s:	13,710
SSI [1] (Bosch) ASTM D6278, % TP Loss:	23.6
Thickening Power [1] at 100°C, cSt:	6.44

Handling Information

Max Dissolving Temp: 150 °C with nitrogen blanketing
Shelf Life: 36 months

Formulation Demonstrations

SAE 20W-50 Demonstration Oil

Composition	Function	% wt.
Liquid HiTEC® 5825A	VI Improver	8.1
HiTEC® 9325G	DI Package	6.8
ExxonMobil 150N	Base Oil	14.8
ExxonMobil 600N	Base Oil	70.2
HiTEC® 672	PPD	0.1
Properties	**J300 Specification**	
Kinematic Viscosity at 100°C	16.3-21.9	19.35
CCS at -15°C	9,500 max	9374
MRV TP-1 at -20°C, cP	60,000 max	33,641
Yield Stress, gms	–	0
HSV at 150°C & 10^6 s-1, cP	3.7 min.	5.13

SAE 15W-40 Demonstration Oil

Composition	Function	% wt.
Liquid HiTEC® 5825A	VI Improver	9.1
HiTEC® 9325G	DI Package	6.8
ExxonMobil 150N	Base Oil	59.0
ExxonMobil 600N	Base Oil	25.0
HiTEC® 672	PPD	0.1
Properties	**J300 Specification**	
Kinematic Viscosity at 100°C	12.5-16.3	14.32
CCS at -20°C	7,000 max	6490
MRV TP-1 at -20°C, cP	60,000 max	25,076
Yield Stress, gms	–	0
HSV at 150°C & 10^6 s-1, cP	3.7 min.	3.99

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[1] Measured at 11.5 wt% liquid VI Improver in RO-2001 reference oil (KV100C = 4.95 cSt)

ENGINE OILS

HiTEC® 8744X

HDDO Additive Package

Designed for The API CH-4 Specification to Meet a Key Global Market Need

Afton CHEMICAL
Passion for Solutions℠

HiTEC® 8744X HDDO Additive Package

Designed for the API CH-4 Specification to meet a Key Global Market Need

Key Performance Benefits

HiTEC® 8744X has been designed to address the needs of the modern heavy duty diesel fleets, in the world's key lubricant growth markets, including India, China, Southeast Asia, and the Middle East.

API CH4 is a significant market segment, and growing. HiTEC® 8744X provides a number of customer benefits:

- Cost-optimised API CH-4 solution in Group II base stocks
- VII flexibility allowing the use of 25SSI or 35SSI OCP
- Superior performance in key areas like protection against wear
- Field proven technology in severe conditions over 40,000km
- Easily boosted to meet API CI-4 and key OEM requirements

Recommended Dosage

API CI-4 + OEM Offer
11.1% HiTEC® 8744X
+2.0% HiTEC® 5777

SAE 15W-40
API CI-4, ACEA E7-12
Volvo VDS3, MB 228.3p,
Cummins 20077
TBN~10

Booster

API CH-4 Offer
10.5% HiTEC® 8744X

SAE 15W-40
API CH-4 only
TBN~9.5

Please speak to your Afton Chemical representative for information on specific base oils and viscosity index improvers.

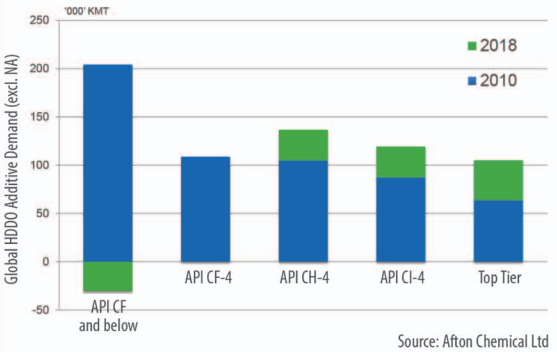
Typical Characteristics

Appearance:	Dark brown viscous liquid
Specific Gravity at 15.6/15.6°C:	0.985
Flash Point, °C (PMCC):	135 min
TBN, mg KOH/g:	89
Viscosity at 100°C, cSt:	140

Handling Information

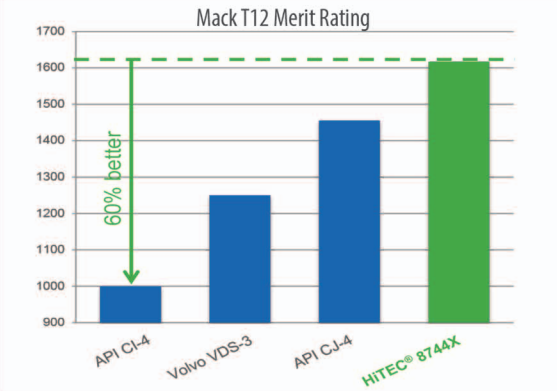
Max Handling Temp: 70 °C
Shelf Life: 24 months at ambient temperature

API CH-4 and API CI4 will be the Largest HDDO Growth Segments



Source: Afton Chemical Ltd

HiTEC® 8744X Offers Excellent Protection Against Wear and Corrosion



ENGINE OILS

HDDO Package

HiTEC® 8788B

It's got both!

Whenever We Need Performance, Coffee Provides a Simple and Instant Answer.

In many ways it's the same with HiTEC® 8788B additive, the only heavy-duty diesel technology whose formulation is beautifully simple and has performance that goes beyond key industry specifications... It's got both!

Afton CHEMICAL
Passion for Solutions™

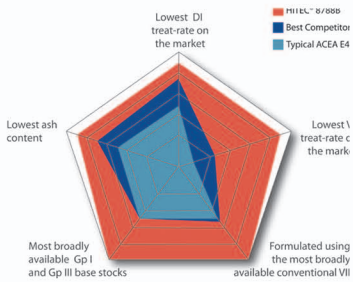
HiTEC® 8788B

It's got both!

Simple Formulation....

- HiTEC® 8788B additive uses a very simplistic formulation, using conventional VII (OCP) and a mix of Group I and Group III base stocks, and has the lowest VII and DI treat-rates in the market.
- HiTEC® 8788B additive is formulated with a lower ash content which reduces the stress on the emissions control system, it also maximises detergency without detriment to the formulation cost.

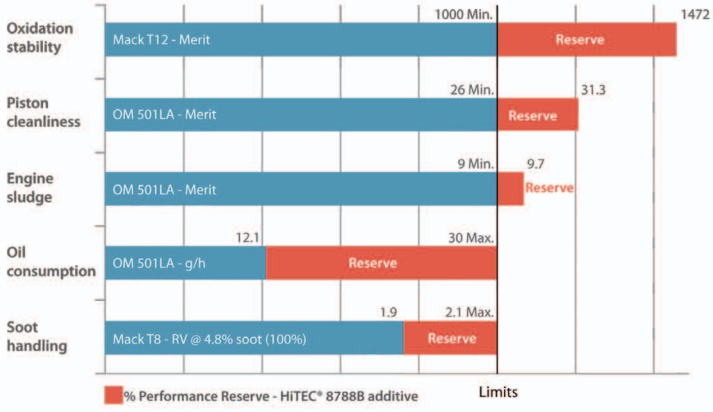
This beautiful formulation style brings simplicity at the plant and delivers both inventory and logistical cost savings.



With Performance Reserve

- HiTEC® 8788B additive is designed to deliver performance reserve in demanding industry and OEM specifications covering long drain applications, and has the most global OEM profile available.
- HiTEC® 8788B additive is formulated to exceed the performance of the ACEA E4-12 specification, and demonstrates excellent performance in a severe biodiesel environment.

Our unique technology ensures durability under severe operations and helps reduce maintenance costs.



Profile

- API CI-4
- ACEA E4/E7-12
- MB 228.5
- MAN 3277
- MAN 3377
- Volvo VDS-3
- Renault RXD/RLD-2
- MTU III
- Deutz IV-10
- Mack EO-M+
- Cummins 20078
- Global DHD-1
- Detroit Diesel 93K215

Typical Characteristics:

Density at 15°C, g/ml:	0.958
KV 100, mm^2/s:	145
Flash point, PMC, °C:	135
Sulphated ash, wt%:	7.6
TBN, mg KOH/g:	71

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ENGINE OILS

HiTEC® 8799B

HDDO Additive Package

A Versatile Cascade Package Designed to Cover Mainstream and Economic HDDO Requirements

Afton CHEMICAL
Passion for Solutions™

HiTEC® 8799B HDDO Additive Package

A Versatile Cascade Package Designed to Cover Mainstream and Economic HDDO Requirements

Key Performance Benefits

HiTEC® 8799B HDDO additive package, used in combination with HiTEC® 8757B additive, is the most versatile HDDO technology in the market. HiTEC® 8799B additive delivers logistics and operational savings, by allowing oil blenders to manufacture a wide range of finished fluids with a limited number of booster packages.

Versatility

- Covers the broadest range of industry specifications in a wide range of Group I base oil sources including ExxonMobil, Orlen, Total, Lukoil, Repsol[1]
- Data set in main HDDO viscosity grades including SAE 10W-40[2]
- High TBN option available at each performance level by using HiTEC® 8758B booster package
- Suitable for both on and off road applications

Performance

- Optimized treat-rates and Viscosity Index Improver (VII) credit
- Meets the latest European OEMs requirements (ACEA 2008/)
- Incorporates HiDOG™ technology for optimum soot handling and wear control

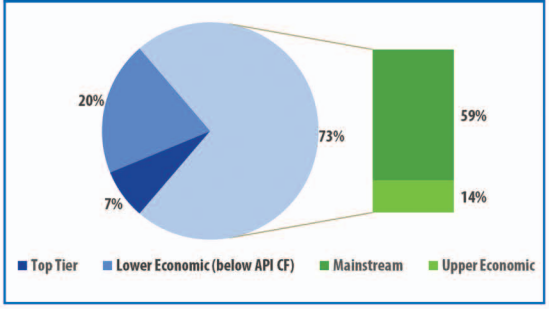
Typical Characteristics

	HiTEC® 8799B	HiTEC® 8757B	HiTEC® 8758B
Density at 15°C, g/ml	0.956	1.087	1.095
Flash Point, °C (PMCC)	135 min.	120 min.	130 min.
Kinematic Viscosity at 100°c, mm²/s	152	12	15
Total Base Number, mg KOH/g	66	155	220

Handling Information

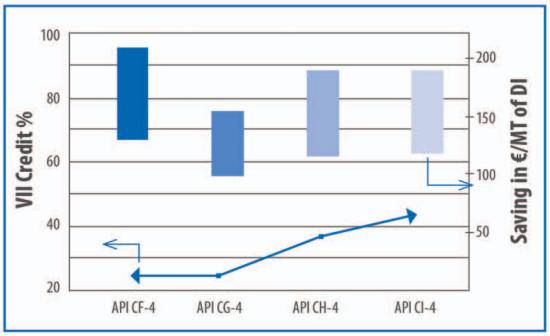
	HiTEC® 8799B	HiTEC® 8757B	HiTEC® 8758B
Max Handling Temp	70°C	40°C	40°C
Shelf Life at ambient temperature	12 months	36 months	36 months

HiTEC® 8799B Targets 73% of the EMEAI HDDO Market



VII Credit

HiTEC® 8799B additive contains Afton's unique dispersant OCP technology allowing oil blenders to reduce the amount of VII used in their formulations. The VII credit ranges from 20-45% OCP treat-rate reduction.



Recommended Dosage

HiTEC® 8799B	HiTEC® 8757B	API CI-4	API CH-4	API CG-4	API CF-4	API CF	API SL	API SJ	ACEA E7	ACEA E3	ACEA A3	ACEA B3	ACEA B4	MB228.3 (φ)	MB228.0/1 (φ)	MB229.1	MAN3275	MAN270/271	Volvo VDS-3	Volvo VDS-2	Volvo VDS	MTU 2.0	MTU 1.0	MACK EO-M Plus	CUMMINS CES-20076	CUMMINS CES-20077	CUMMINS CES-20078	Caterpillar ECF-1a	Renault RXLD-2	Renault RD-2	Renault RD	Renault RGD	Detroit Diesel 93K215	DeuZ DQC III-05	DeuZ DQC III-05	DeuZ DQC I-05	Global DHD-1	
		Approvals																																				
16.2%	-	●	●	●	●	●	●	●	●		●		●	●		●	●		●			●		●	●	●	●	●	●				●	●			●	HiTEC® 8755B @ 16.2%
12.3%	0.9%		●	●	●	●	●	●	●		●		●	●			●			●		●		●	●	●		●		●					●			HiTEC® 8744B @ 13.1%
9.6%	1.1%			●	●	●	●	●		●	●	●		●		●	●				●	●									●	●			●			HiTEC® 8733B @ 10.6%
6.3%	1.8%				●	●		●							●			●				●		●												●		HiTEC® 8722B @ 7.8%
5.55%	1.6%				●	●		●																														HiTEC® 8711B @ 7.15%
4.3%	1.2%					●																																HiTEC® 8711B @ 5.5%

(1) Afton recommends the use of HiTEC® 8799B+ for low saturate base oils
(2) Data available in ExxonMobil and Total base oil only

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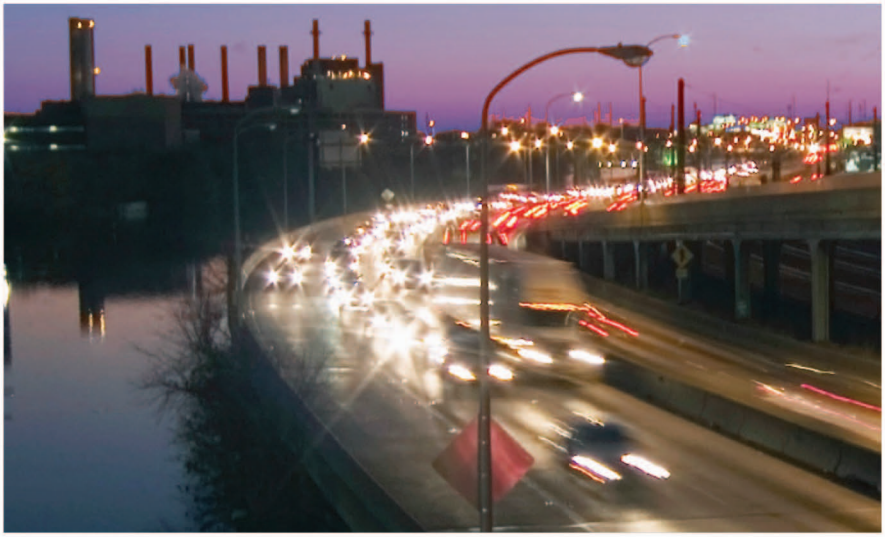
ENGINE OILS

HiTEC® 9300C Series

Engine Oil Additive Packages



Versatile Additive Family to Cover a Wide Range of Passenger Car and Heavy-duty Requirements

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HiTEC® 9300C Series Engine Oil Additive Packages

Versatile Additive Family to Cover a Wide Range of Passenger Car and Heavy-duty Requirements

Key Performance Benefits

In many markets around the world, API performance is the only reference used by oil marketers to indicate the performance of engine oils.

HiTEC® 9300C Series has been designed to provide robust performance and treat efficiency against both passenger car and heavy duty API core requirements.

Performance....

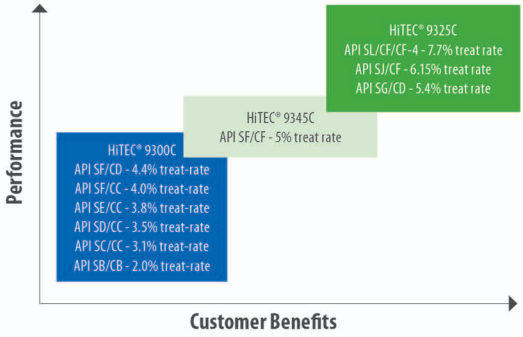
- Broad specification coverage from API SB/CB to API SL/CF
- Demonstration in a broad range of viscosity grade
- Excellent balance between gasoline and diesel requirements
- Proven performance in a wide range of base oils
- Provides excellent protection against sludge and deposits

Logistics....

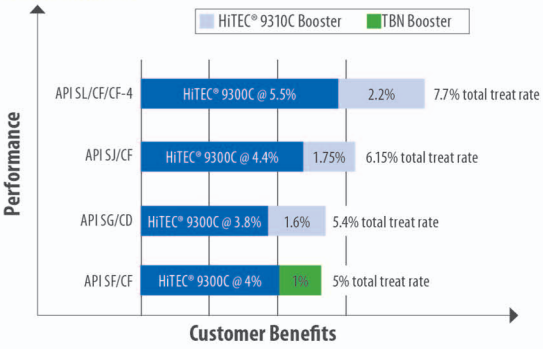
- 2 core packages or 1 core package plus HiTEC® 9310C booster approaches to maximise logistic options
- HiTEC® 9345C or booster available for optimized API CF
- Boosters available to cover JASO 4T clutch friction performance requirements

Recommended Dosage

Core Package Approach



Booster Approach



Typical Characteristics

	HiTEC® 9300C	HiTEC® 9310C	HiTEC® 9325C	HiTEC® 9345C
Appearance	Dark brown oily liquid	Dark brown viscous liquid	Dark brown hazy viscous liquid	Brown hazy oily liquid
Density @ 15°C, g/ml	1.015	0.932	0.991	1.035
Flash Point, °C (PMCC)	130 min.	125 min.	150 min.	130 min.
Kinematic Viscosity @ 100°C, mm^2/s	65	150	85	57
Total Base Number, mg KOH/g	123	41	99	158

Handling Information

	HiTEC® 9300C	HiTEC® 9310C	HiTEC® 9325C	HiTEC® 9345C
Max Handling Temp	70°C	70°C	70°C	70°C
Shelf Life @ ambient temperature (10-40°C)	36 months	24 months	24 months	24 months

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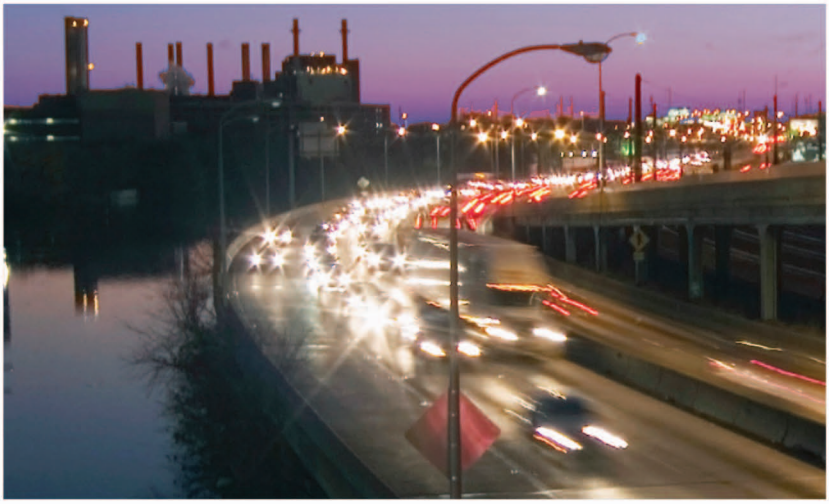
ENGINE OILS

HiTEC® 9300G Series

Engine Oil Additive Packages



Versatile Additive Family to Cover a Wide Range of Passenger Car and Heavy-duty Requirements

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HiTEC® 9300G Series Engine Oil Additive Packages

Versatile Additive Family to Cover a Wide Range of Passenger Car and Heavy-duty Requirements

Key Performance Benefits

In many markets around the world, API performance is the only reference used by oil marketers to indicate the performance of engine oils.

HiTEC® 9300G Series has been designed to deliver excellent performance in both passenger car and heavy duty API core requirements and broaden the spectrum of performance and logistics.

Performance

- Broad specification coverage from API SB/CB to API SL/CF-4
- Broadest viscosity grade coverage including the most severe SAE 10W-40
- Proven performance in a wide range of base oils
- Excellent balance between gasoline and diesel requirements
- All data demonstrated by engine testing allowing licensed API claims

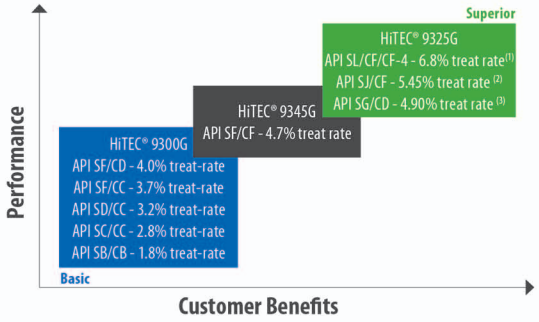
Logistics

- 2 core packages or 1 core package plus HiTEC® 9310G booster approaches to maximise logistic options
- HiTEC® 9345G or TBN booster available for optimised API CF performance
- Boosters available to cover JASO 4T clutch friction performance requirements

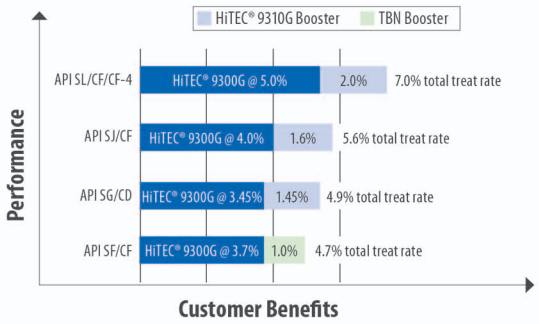
HiTEC® 9300G Series
Broaden the Spectrum

Recommended Dosage

Core Package Approach



Booster Approach



(1) Covers JASO MA (without booster) or MB with the addition of HiTEC® 4716 additive at 0.8%
(2) Covers JASO MA (without booster) or MB with the addition of HiTEC® 4716 additive at 0.65%
(3) Covers JASO MA with the addition of HiTEC® 1656 additive at 0.1%

Typical Characteristics

	HiTEC® 9300G	HiTEC® 9310G	HiTEC® 9325G	HiTEC® 9345G
Appearance	Dark brown hazy oily liquid	Dark brown oily liquid	Dark brown oily liquid	Brown hazy oily liquid
Density at 15°C, g/ml	1.033	0.936	0.998	1.044
Flash Point, °C (PMCC)	130 min.	130 min.	150 min.	130
Kinematic Viscosity at 100°C, mm^2/s	80	190	125	90
Total Base Number, mg KOH/g	135	43	112	170

Handling Information

	HiTEC® 9300G	HiTEC® 9310G	HiTEC® 9325G	HiTEC® 9345G
Max Handling Temp	70°C	70°C	70°C	70°C
Shelf Life at ambient temperature (10-40°C)	36 months	36 months	24 months	24 months

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ENGINE OILS

HiTEC® 9490

Passenger Car Engine Oil Additive Package

Premium Tier, for ACEA 2012 Normal SAPS Requirements
The Right Move to **Quality and Efficiency**

Afton CHEMICAL
Passion for Solutions™

HiTEC® 9490 Passenger Car Engine Oil Additive Package

Premium Tier, for ACEA 2012 Normal SAPS Requirements
The Right Move to **Quality and Efficiency**

Key Performance Benefits

HiTEC® 9490 engine oil additive is the right move if you want to deliver efficiency and performance in your Normal SAPS Passenger Car lubricant portfolio. This product covers two key areas:

- Provides a cost-effective solution for the growing SAE 5W-XX market
- Addresses the significant, yet changing SAE 10W-40 market and is now most relevant for the majority of today's older vehicles

HiTEC® 9490 offers you the only simple cascadeable formulation in the market. It fulfills the requirements of the latest engine test regimes and is ACEA 2012 compliant.

Core Finished Lubricant application areas:

- Gasoline and Diesel (no DPF) 3 to 8 years old, Independent Workshops
- Some OEM Workshop application for **MB, Porsche, Renault and VW (Standard Drain)**

Profile:

Viscosity Grade, SAE	5W-40[1]	5W-30[1]	5W-20[1]	10W-40[2]
ACEA A3/B3 & A3/B4	●	●		●
ACEA A5/B5		●	●	
ACEA A1/B1		●	●	
API SN/CF	●	●[4]	●[4]	●
API SL/CF		●	●	
MB 229.3 (v2012.2)	●	●		●
MB 229.5 (v2012.2)	●	●		
VW 502.00/505.00	●	●		●
Renault RN 0710	●	●		
Renault RN 0700	●	●		●
Porsche A40	●			
Opel GM-LL-A/B-025 (Demo[3])	●	●		
JASO MA2 (T903-2011)	●	●[5]	●[5]	●

Viscosity Grade: SAE 10W-40, 5W-40, 5W-30, 5W-20

Typical Characteristics

Appearance:	Dark Brown Hazy Liquid
Density at 15°C, g/ml:	0.974
Flash Point, °C (PMCC):	135 min.
Kinematic Viscosity at 100°C, mm2/s:	166.9
Total Base Number, mg KOH/g:	81

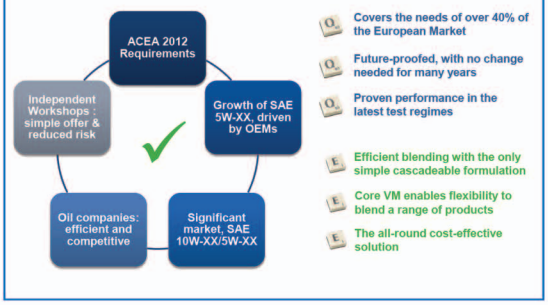
Quality

- Covers the needs of over 40% of the European PC market – and more!
- Future-proofed, with no change needed for many years
- Proven performance in the latest test regimes

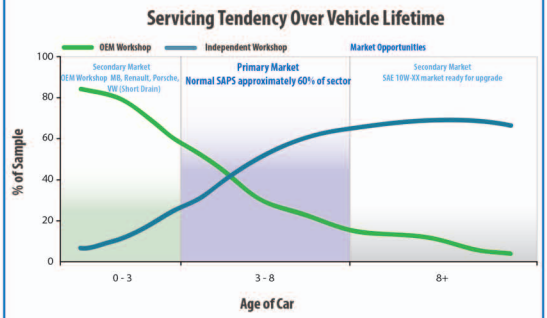
Efficiency

- Efficient blending with the only simple cascadeable formulation
- Core VI enables flexibility to blend a range of products
- The all-round cost-effective solution

Market Needs



Market Opportunity



HiTEC® 9490 is targeted at out-of-warranty vehicles in either Independent or OEM workshops

Recommended Dosage

The recommended treat-rate for HiTEC® 9490 is 12.6% wt.

HiTEC® 9490
Wins the game

[1] Approved with either Yubase or Nexbase base oils. [2] Approved with Chevron Group II and Yubase or Nexbase base oils. [3] GM Specifications no longer current. [4] API SN quality only; non-licensable due to P limit. [5] Only available on certain formulations

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Technical Data Sheet

www. polimerieuropa.com
info.elastomers@polimerieuropa.com

DUTRAL®
EP(D)M

OCP 2530 PL
Ethylene - Propylene Copolymer

Dutral® OCP 2530 PL is an Ethylene - Propylene polymer produced by suspension polymerisation using a Ziegler-Natta Catalyst.
A non-staining antioxidant is added during the production process.

Main Properties	Unit	Typical Value
MFI (230 °C / 2,16 Kg)	g/10 mins	8.5
Volatiles content	% wt	0.2 max
Ash content	% wt	0.4 max
Propylene content	% wt	34
SSI	%	24 (1)
KV (100 °C)	cSt	10.7 (1)

(1) 1% wt in Agip SN150

Key Features

Dutral® elastomers are characterized by excellent resistance to ageing and weathering, good resistance to both high and low temperatures, low permanent set values, good resistance to a large number of chemicals.
Dutral® OCP 2530 PL is a very low molecular weight copolymer designed as a viscosity index improver for lubricating oils.
It shows an excellent balance between thickening power and shear stability, combined with a very good low temperature behaviour. Its physical form facilitates a fast dissolution in oil.

Main Applications

Oil viscosity modifier.

Physical Form

Not free-flowing pellets in a polyethylene valve bag; typical bag weight: 20 kg.

Packaging

Cardboard packaging of 800 kg containing 40 bags (1000 x 1200 x h2090 mm).

Storage Conditions

Store in vented, dry area at temperatures between 20°C and 30°C; no direct sunlight.
Shelf life : 9 months.

Please consult the relevant safety data sheet for more detailed information.
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Ethylene-Propylene Rubber (EP(D)M)

Grades	Propylene content % wt	Mooney viscosity ML (1+4) 125°C	Oil content % wt	Physical form (2)
Copolymers				
Dutral CO 034	28	44 (1)	–	B, PL
Dutral CO 038	28	60	–	B, FB, PL
Dutral CO 043	45	33 (1)	–	B
Dutral CO 054	41	44 (1)	–	B
Dutral CO 058	48	80 (1)	–	B
Dutral CO 059	41	79	–	B

Grades	Propylene content % wt	Mooney viscosity ML (1+4) 125°C	Oil content % wt	Physical form (2)
Terpolymers *				
Dutral TER 4033	25	30 (1)	–	FB
Dutral TER 4038 EP	27	60	–	EP, FB, PL
Dutral TER 4039	27	77	–	FB
Dutral TER 4044	35	44 (1)	–	B
Dutral TER 4047	40	55	–	B
Dutral TER 4049	40	76	–	B
Dutral TER 4334	27 (4)	28	30	B
Dutral TER 4436	28 (4)	43	40	B
Dutral TER 4437	32 (4)	57	40	B
Dutral TER 4437 WO	32 (4)	57	40 (3)	B
Dutral TER 4535	32 (4)	32	50	B
Dutral TER 6148	40 (4)	65	15	B
Dutral TER 6235	32 (4)	33	23	B
Dutral TER 6537	32 (4)	43	50	B
Dutral TER WO65	32 (4)	43	50 (3)	B
Dutral TER 9046	31	67 (1)	–	B

* Diene termonomer ENB

EP(D)M

Grades	MFI (230°C-2.16Kg) g/10 min	MFI (230°C-5Kg) g/10 min	Volatiles wt max %	Physical form (2)
Polyolefin Modifiers				
Dutral PM 06 PLE	–	1.8	0.2	PL
Dutral PM 8273	–	2.4	0.2	PL

Grades	Propylene content % wt	Mooney viscosity ML (1+4) 100°C	MFI (230°C-2.16Kg) g/10 min	Ash wt max %
Oil Modifiers				
Dutral OCP 2530 PL	34	–	8.5	0.4
Dutral OCP 5050	48	60	–	0.3

(1) ML (1+4) 100°C

(2) B = bales; EP = friable easy processing bales; PL = pellets; FB = friable bales; PL** = non-free flowing pellets

(3) Pure paraffinic oil

(4) Referred to polymer matrix

Storage conditions: store in vented, dry area at temperatures between 20°C and 30°C; no direct sunlight.

Unsaturation level	Main applications
–	Cables, appliances, polymer modification, oil viscosity modifier
–	Automotive, cables, appliances, polymer modification, oil viscosity modifier
–	Automotive, cables, appliances, polymer modification, oil viscosity modifier, bitumen modification
–	Automotive, cables, mechanical goods, building, bitumen modification, polymer modification, appliances
–	Appliances, polymer modification, oil viscosity modifier
–	Polymer modification, mechanical goods, building

Unsaturation level	Main applications
5	Automotive, cables, mechanical goods, high hardness profiles
4.4	Automotive, cables, mechanical goods, building, appliances, polymer modification
4.4	Automotive, cables, mechanical goods, building, appliances, polymer modification
4	Automotive, cables, mechanical goods, building, appliances
4.5	Automotive, mechanical goods, building
4.5	Automotive, cables, mechanical goods, building, appliances
4.7 (4)	Automotive, cables, mechanical goods, building, appliances
5.5 (4)	Automotive, mechanical goods, appliances, TPV
4.5 (4)	Automotive, mechanical goods, appliances, TPV
4.5 (4)	Automotive, mechanical goods, appliances, TPV, building
3.4 (4)	Automotive, mechanical goods, building, appliances, cables
7 (4)	Automotive, mechanical goods, building, appliances
7.4 (4)	Automotive,mechanical goods, building, appliances, cables
8 (4)	Automotive, mechanical goods, appliances, TPV, building
8 (4)	Automotive, mechanical goods, appliances, TPV, building
8.9	Automotive, mechanical goods, appliances, building

Pellet/size g/30 pellets	Main applications
0.45	Polymer modification
0.45	

Volatiles wt max %	Physical form (2)	Main applications
0.2	PL **	Oil viscosity modifier
0.9	B	

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info.elastomers@versalis.eni.com

DUTRAL®

EP(D)M

CO 043

Ethylene - Propylene Copolymer

Dutral® CO 043 is an Ethylene - Propylene polymer produced by suspension polymerisation using a Ziegler-Natta Catalyst at the Ferrara production facility in Italy.
A non-staining antioxidant is added during the production process.

Main Properties	Unit	Typical Value
Mooney Viscosity ML 1+4(100 °C)	MU	33
Volatiles content	% wt	0.7 max
Ash content	% wt	0.3 max
Propylene content	% wt	45

Key Features

Dutral® elastomers are characterized by excellent resistance to ageing and weathering, good resistance to both high and low temperatures, low permanent set values, good resistance to a large number of chemicals.
Dutral® CO 043 is an amorphous, low molecular weight copolymer.
It may be used in applications that require superior low temperature behaviour.

Main Applications

Automotive, cables, appliances, polymer modification, oil viscosity modifier, bitumen modification.

Physical Form

Bales wrapped with low melting point, oil dissolvable ethylene vinyl acetate copolymer film, typical bale weight: 25 kg.

Packaging

Cardboard box of 500 kg containing 20 bales wrapped with polyethylene film (1070 x 1270 x h1050 mm).
Cardboard box of 500 kg containing 20 bales without polyethylene film (1070 x 1270 x h1050 mm).

Storage Conditions

Store in vented, dry area at temperatures between 20°C and 30°C; no direct sunlight.
Shelf life : 36 months.

Please consult the relevant safety data sheet for more detailed information.
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info.elastomers@versalis.eni.com

DUTRAL®

EP(D)M

CO 058

Ethylene - Propylene Copolymer

Dutral® CO 058 is an Ethylene - Propylene polymer produced by suspension polymerisation using a Ziegler-Natta Catalyst at the Ferrara production facility in Italy.
A non-staining antioxidant is added during the production process.

Main Properties	Unit	Typical Value
Mooney Viscosity ML 1+4(100 °C)	MU	80
Volatiles content	% wt	0.5 max
Ash content	% wt	0.3 max
Propylene content	% wt	48

Key Features

Dutral® elastomers are characterized by excellent resistance to ageing and weathering, good resistance to both high and low temperatures, low permanent set values, good resistance to a large number of chemicals.
Dutral® CO 058 is an amorphous copolymer of medium-high molecular weight.
Articles based on Dutral® CO 058 are characterized by superior cold flexibility.

Main Applications

Appliances, polymer modification, oil viscosity modifier.

Physical Form

Bales wrapped with low melting point, oil dissolvable ethylene vinyl acetate copolymer film, typical bale weight: 25 kg.

Packaging

Cardboard box of 625 kg containing 25 bales wrapped with polyethylene film (1070 x 1270 x h1050 mm).

Storage Conditions

Store in vented, dry area at temperatures between 20°C and 30°C; no direct sunlight.
Shelf life : 36 months.

Please consult the relevant safety data sheet for more detailed information.
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DUTRAL®

EP(D)M

CO 059

Ethylene - Propylene Copolymer

Dutral® CO 059 is an Ethylene - Propylene polymer produced by suspension polymerisation using a Ziegler-Natta Catalyst at the Ferrara production facility in Italy.
A non-staining antioxidant is added during the production process.

Main Properties	Unit	Typical Value
Mooney Viscosity ML 1+4(125 °C)	MU	79
Volatiles content	% wt	0.5 max
Ash content	% wt	0.3 max
Propylene content	% wt	41

Key Features

Dutral® elastomers are characterized by excellent resistance to ageing and weathering, good resistance to both high and low temperatures, low permanent set values, good resistance to a large number of chemicals.
Dutral® CO 059 is an amorphous, high molecular weight copolymer.
It can accept high level of filler maintaining good low temperature properties.

Main Applications

Polymer modification, mechanical goods, building.

Physical Form

Bales wrapped with natural polyethylene film; typical bale weight: 25 kg.

Packaging

Cardboard box of 750 kg containing 30 bales (1050 x 1250 x h1050 mm).

Storage Conditions

Store in vented, dry area at temperatures between 20°C and 30°C; no direct sunlight.
Shelf life : 36 months.

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EVONIK INDUSTRIES

VISCOPLEX® 3-700

A Non Dispersant Viscosity Index Improver

A RohMax Product

RohMax OIL ADDITIVES

VISCOPLEX® Series 3 Engine Oil Viscosity Index Improvers

Function
VISCOPLEX® 3-700 is a viscosity index improver with pour point depressant properties for multigrade engine oils.

Performance
VISCOPLEX® 3-700 offers effective thickening and VI improvement at a moderate shear stability level. VISCOPLEX® 3-700 provides an excellent combination of high and low temperature viscometric properties.

Composition
VISCOPLEX® 3-700 is a solution of polyalkyl methacrylate (PAMA) in highly refined mineral oil.

Physical Data
Table 1 lists representative physical properties. (These do not constitute specifications.)

Blending Efficiency
The contribution to the kinematic viscosity at 100 °C of VISCOPLEX® 3-700 in straight mineral base oils is shown in Table 2.

Table 1 Typical Physical Properties of VISCOPLEX® 3-700

Visual Appearance	Viscous, clear of sediment
Color (ASTM D1500)	2
Viscosity at 100 °C, mm²/s (ASTM D445)	1,800
Density at 15 °C, g/cm³ (ASTM D4052)	0.90
Flash Point, °C (ASTM D3278)	180
Shear Stability Index (P-SSI) (ASTM D6278)	55

Table 2 Thickening Effect of VISCOPLEX® 3-700 at 100 °C

	100 N			150 N			200 N			350 N		
VISCOPLEX® 3-700, % wt	0	5	10	0	5	10	0	5	10	0	5	10
Viscosity at 100 °C, mm²/s	4.1	7.6	12.8	5.1	9.5	15.9	6.2	11.3	18.7	8.9	15.5	24.8

Density
The typical density of VISCOPLEX® 3-700, as a function of temperature, is given in Figure 1.

Bulk Viscosity
The typical bulk viscosity of VISCOPLEX® 3-700, as a function of temperature, is given in Figure 2.

Additional Information
For additional information on product availability, performance data and Material Safety Data Sheets, please contact your RohMax account manager or Customer Service Representative.

For an overview of our entire VISCOPLEX® and VISCOBASE® product range and complete information on handling and storage, please visit the Products & Applications section on our website www.rohmax.com.

Figure 1 Density vs. Temperature

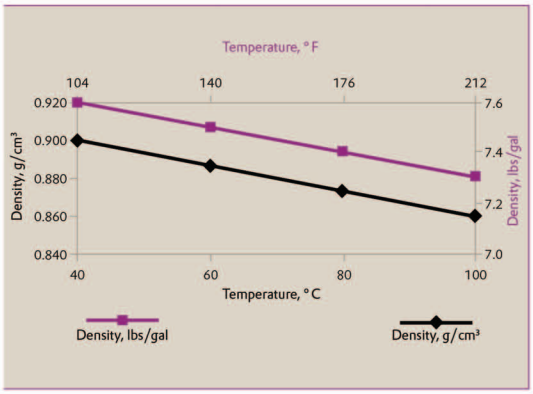
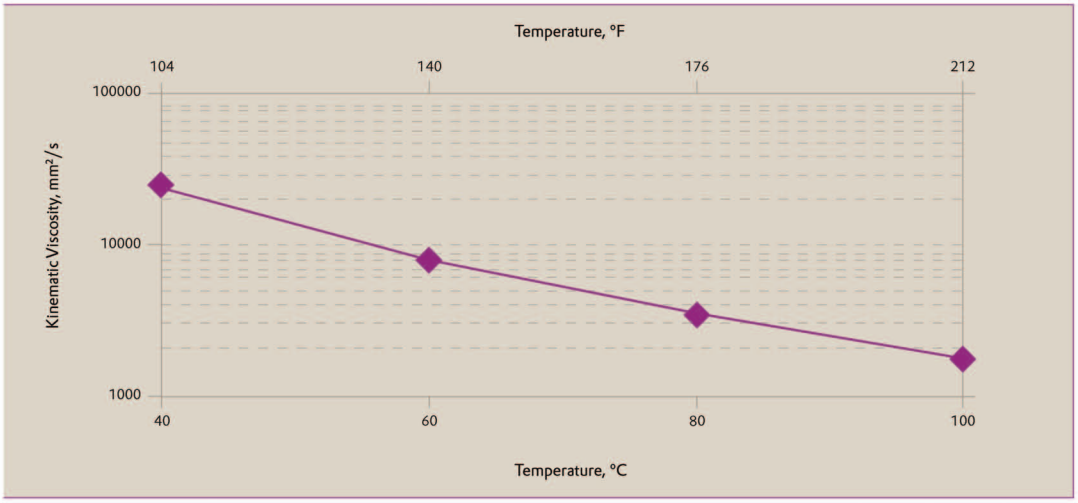


Figure 2 Kinematic Viscosity vs. Temperature



Europe, Africa, Mideast:
Evonik RohMax Additives GmbH • Kirschenallee • 64293 Darmstadt • Germany • TEL: +49 6151 1809
Americas:
Evonik RohMax USA, Inc. • 723 Electronic Drive • Horsham, Pennsylvania 19044-2228 • TEL: +1 215 706 5800 • TOLL-FREE: 1 888 876 4629
Asia Pacific:
Evonik RohMax Asia Pacific Pte. Ltd. • 3 International Business Park 07-18 Nordic European Centre • Singapore 609927 • TEL: +65 6899 0080

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EVONIK INDUSTRIES

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VISCOPLEX® 6-054

An Exceptionally Shear-Stable Dispersant VI Improver

A RohMax Product

RohMax OIL ADDITIVES

VISCOPLEX® Series 6 Engine Oil Viscosity Index Improvers

Function

VISCOPLEX® 6-054 is a multifunctional dispersant polyalkyl methacrylate (PAMA) combining the functions of viscosity index improver (VII), pour point depressant (PPD), and low-temperature soot dispersant.

Performance

This product is used in both gasoline and diesel engine oils. It is particularly useful in the formulation of multi-grade diesel engine oils, where it provides an excellent combination of high- and low-temperature viscometric properties and soot dispersancy. VISCOPLEX® 6-054 makes a substantial contribution to soot control and viscosity increase, particularly in long-drain-interval, heavy-duty diesel oils (HDDO).

Composition

VISCOPLEX® 6-054 is a solution of dispersant polyalkyl methacrylate (PAMA) in highly refined mineral oil.

Physical Data

Table 1 lists representative physical properties. (These do not constitute specifications.)

Blending Efficiency

The contribution to the kinematic viscosity at 100 °C of VISCOPLEX® 6-054 in straight mineral base oils is shown in Table 2.

Table 1 Typical Physical Properties of VISCOPLEX® 6-054

Visual Appearance	Viscous, clear to slightly hazy
Color (ASTM D1500)	1
Viscosity at 100 °C, mm²/s (ASTM D445)	500
Density at 15 °C, g/cm³ (ASTM D4052)	0.91
Flash Point, °C (ASTM D3278)	120
Shear Stability Index (PSSI) (ASTM D6278)	5

Table 2 Thickening Effect of VISCOPLEX® 6-054 at 100 °C

	100 N			150 N			200 N			350 N		
VISCOPLEX® 6-054, % wt	0	5	10	0	5	10	0	5	10	0	5	10
Viscosity at 100 °C, mm²/s	4.0	5.5	7.9	5.1	7.7	10.9	6.2	9.0	12.6	8.9	12.8	17.4

Density
The typical density of VISCOPLEX® 6-054, as a function of temperature, is given in Figure 1.

Bulk Viscosity
The typical bulk viscosity of VISCOPLEX® 6-054, as a function of temperature, is given in Figure 2.

Additional Information
For additional information on product availability, performance data and Material Safety Data Sheets, please contact your RohMax account manager or Customer Service Representative.

For an overview of our entire VISCOPLEX® and VISCOBASE® product range and complete information on handling and storage, please visit the Products & Applications section on our website www.rohmax.com.

Figure 1 Density vs. Temperature

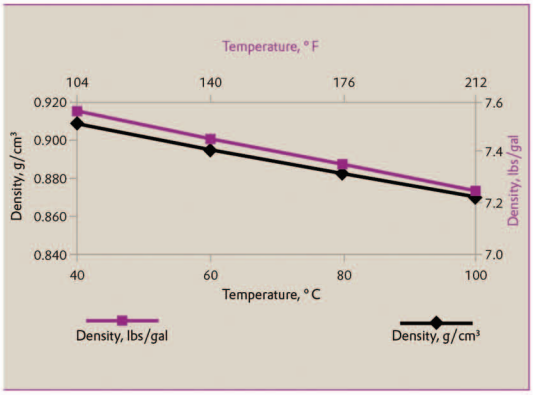
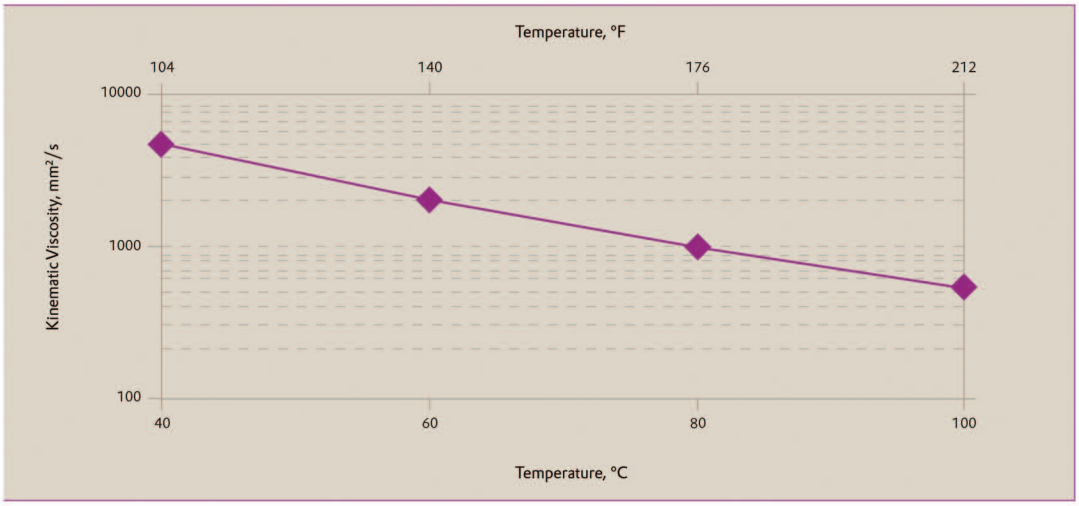


Figure 2 Kinematic Viscosity vs. Temperature



Europe, Africa, Mideast:
Evonik RohMax Additives GmbH • Kirschenallee • 64293 Darmstadt • Germany • TEL: +49 6151 1809
Americas:
Evonik RohMax USA, Inc. • 723 Electronic Drive • Horsham, Pennsylvania 19044-2228 • TEL: +1 215 706 5800 • TOLL-FREE: 1 888 876 4629
Asia Pacific:
Evonik RohMax Asia Pacific Pte. Ltd. • 3 International Business Park 07-18 Nordic European Centre • Singapore 609927 • TEL: +65 6899 0080

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EVONIK INDUSTRIES

VISCOPLEX® 8-450

An Efficient VI Improver for Hydraulic Lubricants

A RohMax Product

RohMax OIL ADDITIVES

Function
Viscosity index improver and pour point depressant for hydraulic fluids.

Performance
VISCOPLEX® 8-450 provides economic VI improvement, as well as good shear stability.
VISCOPLEX® 8-450 effectively controls paraffin crystallization and enables blending to achieve hydraulic fluids with superior low-temperature viscosities and pour points. VISCOPLEX® 8-450 is designed for use in formulations containing paraffinic or blends of paraffinic and naphthenic base oils. VISCOPLEX® 8-450 is manufactured for demanding filterability and demulsification requirements. Typical addition rate: 5.8% wt for ISO VG 46, VI 175.

Composition
VISCOPLEX® 8-450 is a solution of polyalkyl methacrylate (PAMA) in highly refined mineral oil.

Physical Data
Table 1 lists representative physical properties. (These do not constitute specifications.)

Blending Efficiency
The contribution to the kinematic viscosity at 100 °C of VISCOPLEX® 8-450 in straight mineral base oils is shown in Table 2.

VISCOPLEX® Series 8 Hydraulic Fluid Viscosity Index Improvers

Table 1 Typical Physical Properties of VISCOPLEX® 8-450

Visual Appearance	Clear, free of sediment
Color (ASTM D1500)	0.5
Viscosity at 100 °C, mm²/s (ASTM D445)	1,520
Density at 15 °C, g/cm³ (ASTM D4052)	0.93
Flash Point, °C (ASTM D3278)	140
Shear Stability Index (P-SSI)	
(DIN 51382) 30 Passes	14
(DIN 51382) 250 Passes	21
(ASTM D5621) Sonic Test (P-SSI/wt %)	51/4.9
(CEC L-45-A-99) KRL 20h (P-SSI/wt %)	62/4.9

Table 2 Thickening Effect of VISCOPLEX® 8-450 at 100 °C

	100 N			150 N			200 N			350 N		
VISCOPLEX® 8-450, % wt	0	5	10	0	5	10	0	5	10	0	5	10
Viscosity at 100 °C, mm²/s	4.0	6.7	10.5	5.1	8.4	13.0	6.2	10.1	15.4	8.9	14.0	20.7

Density
The typical density of VISCOPLEX® 8-450, as a function of temperature, is given in Figure 1.

Bulk Viscosity
The typical bulk viscosity of VISCOPLEX® 8-450, as a function of temperature, is given in Figure 2.

Additional Information
For additional information on product availability, performance data and Material Safety Data Sheets, please contact your RohMax account manager or Customer Service Representative.

For an overview of our entire VISCOPLEX® and VISCOBASE® product range and complete information on handling and storage, please visit the Products & Applications section on our website www.rohmax.com.

Figure 1 Density vs. Temperature

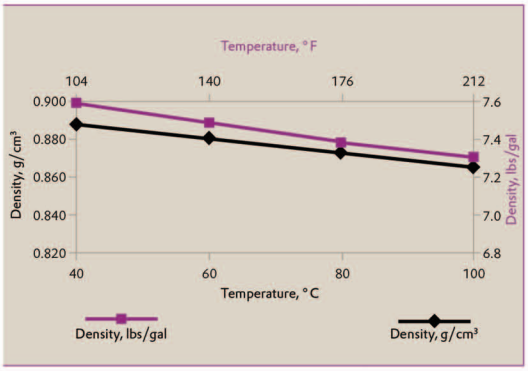
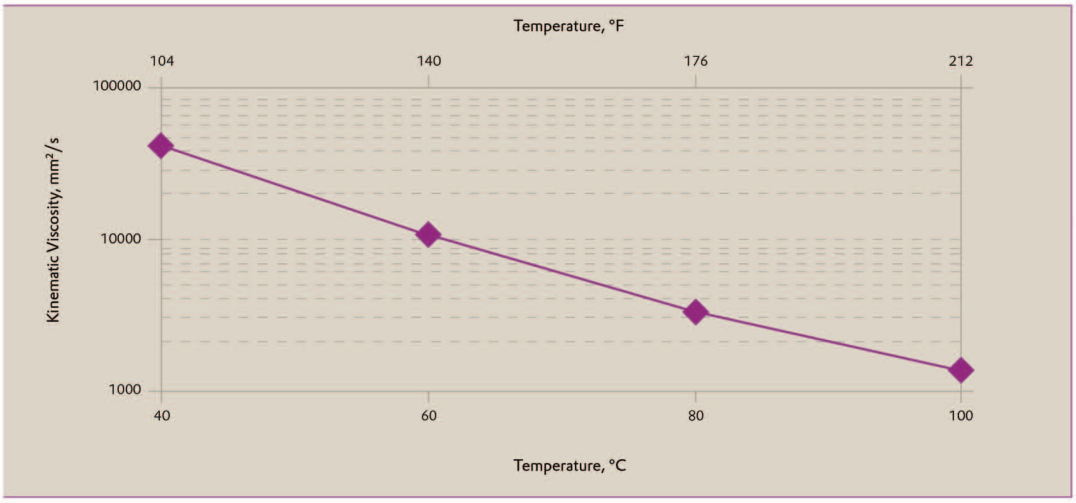


Figure 2 Kinematic Viscosity vs. Temperature



Europe, Africa, Mideast:
Evonik RohMax Additives GmbH • Kirschenallee • 64293 Darmstadt • Germany • TEL: +49 6151 1809

Americas:
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Asia Pacific:
Evonik RohMax Asia Pacific Pte. Ltd. • 3 International Business Park 07-18 Nordic European Centre • Singapore 609927 • TEL: +65 6899 0080

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EVONIK INDUSTRIES

Infineum D1212

Description

Infineum D1212 is a DI package optimised to formulate API CF1 with high TBN2 for mono-grade and multi-grade lubricants using appropriate Group I basestocks. Infineum D1212 can be rationalised to API CD, CC, CB and CA performance levels and combines with Infineum D1222 to provide a cascade system offering mixed gasoline and diesel performance levels, from API CF1/SF to API SB/CA. Guidelines are given below.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:	TBN, nominal:
API CF	15W-40, 20W-40, 20W-50, 10W, 20W, 30, 40, 50	5.0	11.0
API CF Allison C4	20W, 30, 40, 50	4.73	-
API CF Allison C4	20W, 30, 40, 50	5.0	-
API CD	15W-40, 20W-40, 20W-50, 20W, 10W, 30, 40, 50	4.0	8.8
API CC	20W, 30, 40, 50	2.8	6.0
API CB	20W, 30, 40, 50	2.3	5.0
API CA	20W, 30, 40, 50	2.1	5.0
API SF/CF MB-Approval 227.1 ACEA E1-96 Allison C4	15W-40, 20W-40, 25W-50	2.5 + Infineum D1222 at 4.2 %	-
API SF/CF MB-Approval 227.0 ACEA E1-96 Allison C4	20W, 10W, 30, 40, 50	2.5 + Infineum D1222 at 4.2 %	-
API SF/CF	15W-40, 20W-40, 20W-50, 20W, 10W, 30, 40, 50	2.4 + Infineum D1222 at 3.4 %	-
API SF/SE/CD MAN 270	15W-40, 20W-40, 20W-50, 10W, 20W, 30, 40, 50	1.3 + Infineum D1222 at 3.4 %	-
API SF/SE/CC	10W-30, 10W	0.0 + Infineum D1222 at 4.9 %	-
API SF/SE/CC	15W-40, 20W-40, 20W-50, 20W, 30, 40, 50	0.0 + Infineum D1222 at 4.1 %	-
API SD/CC	20W, 30, 40, 50	0.8 + Infineum D1222 at 2.2 %	-
API SC/CC	15W-40, 20W-40, 20W-50	1.1 + Infineum D1222 at 1.7 %	-
API SC/CC	20W, 30, 40, 50	1.2 + Infineum D1222 at 1.5 %	-
API SB/CB	20W, 30, 40, 50	0.6 + Infineum D1222 at 1.1 %	-
API SB/CA	20W, 30, 40, 50	0.0 + Infineum D1222 at 1.3 %	-

1) API CF data is fully licensable in selected Group I stocks.
2) TBN can be raised to 13 mg KOH/g via uptreats or using Infineum C9340 as TBN booster.

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	Brown Viscous Liquid		Visual inspection
Base Number	221	mg KOH/g	ASTM D2896
Boron	0.05	%(m)	ASTM D5185
Density @ 15 C, kg/m3	1030	kg/m3	ASTM D4052

Version: 4 March 2013 (2.0)

Flash Point Deg C	110 Minimum	℃	ASTM D93
Kinematic Viscosity @ 100 C	73	cSt	ASTM D445
Kinematic Viscosity @ 40 C	1122	cSt	ASTM D445
Magnesium	4.83	%(m)	ASTM D5185
Mineral Oil	47	%(m)	Calculated
Nitrogen	0.42	%(m)	ASTM D5291
Phosphorus	1.15	%(m)	ASTM D4927
Sulfated Ash	26.0	%(m)	Calculated
Zinc	1.26	%(m)	ASTM D4927

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

It is strongly recommended that for long term storage the temperature should not exceed 50℃.

Min Load/Unload Temp:	40 ℃ (104 °F)
Max Load/Unload Temp:	50 ℃ (122 °F)
Vis @ Min Load/Unload Temp:	1,120 cSt
Vis @ Max Load/Unload Temp:	620 cSt
Maximum Storage Temperature:	45 ℃ (113 °F)
Do not reheat above:	50 ℃ (122 °F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 4 March 2013 (2.0)

Infineum D1222

Description

Infineum D1222 is a DI package optimised to formulate API SF/CC in mono-grade and ،multi-grade. Infineum D1222 can also be treated to formulate SF/CD to SB/CA. When used in conjunction with Infineum C9340, the package can be used to formulate oils meeting API SF/CF. A booster can also be provided for SG/CF-4/CD quality.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
API SG/CF-4/CD	10W-30, 15W-40, 20W-50	6.5 + Infineum D1225 at 1.9 %
API SG/CD	10W-30, 15W-40, 20W-50	6.3 + Infineum D1225 at 1.9 %
API SF/CF MB-Approval 227.1 ACEA E1-96 Allison C4	15W-40, 20W-50, 20W-40	4.2 + Infineum D1212 at 2.5 %
API CF	10W	4.2 + Infineum D1212 at 2.5 %
API SF MB-Approval 227.0 ACEA E1-96 Allison C4	30, 40, 50	4.2 + Infineum D1212 at 2.5 %
API CF	10W	4.7 + Infineum C9340 at 0.92 %
API SF	15W-40, 20W-40, 20W-50, 20W, 30, 40, 50	4.7 + Infineum C9340 at 0.92 %
API CD	10W	4.1 + Infineum C9340 at 0.51 %
API SF MAN 270	15W-40, 20W-40, 20W-50, 20W, 30, 40, 50	4.1 + Infineum C9340 at 0.51 %
API SF/SE/CC	10W-30, 10W	4.9
API SF/SE/CC	15W-40, 20W-40, 20W-50, 20W, 30, 40, 50	4.1
API SD/CC	20W, 30, 40, 50	2.5 + Infineum C9340 at 0.35 %
API SD/CC	20W, 30, 40, 50	3.6
API SC/CC	15W-40, 20W-40, 20W-50	2.2 + Infineum C9340 at 0.45 %
API SC/CC	15W-40, 20W-40, 20W-50	3.4
API SC/CC	20W, 30, 40, 50	2.0 + Infineum C9340 at 0.49 %
API SC/CC	20W, 30, 40, 50	3.3
API SB/CB	20W, 30, 40, 50	1.3 + Infineum C9340 at 0.25 %
API SB/CB	20W, 30, 40, 50	2.0
API SB	20W, 30, 40, 50	1.3

CF data is fully licensable in selected Group I stocks. SG/CD and SG/CF-4/CD is quality level.

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	Brown viscous liquid		ITM 50-022
Base Number	111	mg KOH/g	ASTM D2896
Boron	0.11	%(m)	ASTM D5185
Density @ 15 C, kg/m3	1001	kg/m3	ASTM D4052
Flash Point Deg C	110 Minimum	℃	ASTM D93

Version: 4 March 2013 (2.0)

Kinematic Viscosity @ 100 C	156	cSt	ASTM D445
Kinematic Viscosity @ 40 C	3504	cSt	ASTM D445
Magnesium	2.23	%(m)	ASTM D5185
Mineral Oil	40	%(m)	Calculated
Nitrogen	0.54	%(m)	ASTM D5291
Phosphorus	1.96	%(m)	ASTM D4927
Sulfated Ash	12.0	%(m)	Calculated
Water	0.3	%(m)	ASTM D95
Zinc	2.15	%(m)	ASTM D4927

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

It is strongly recommended that for long term storage the temperature should not exceed 50°C.

Min Load/Unload Temp:	55 °C (131 °F)
Max Load/Unload Temp:	65 °C (149 °F)
Vis @ Min Load/Unload Temp:	1,330 cSt
Vis @ Max Load/Unload Temp:	760 cSt
Maximum Storage Temperature:	60 °C (140 °F)
Do not reheat above:	65 °C (149 °F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 4 March 2013 (2.0)

Infineum D1240

Description

Infineum D1240 is a minimum treat rate, cost-effective package designed to cover API performance categories for SJ/CF-4 to SB/CB. The performance is supported with engine testing at key specification levels. The claims are licensable at API SJ, CF/ CF-2 and Detroit Diesel and passing data is available for key engine tests demonstrating performance at CF-4, SG, SF and CD categories. Where necessary the cascade is supported by either boosters or alternative packages expanding the logistics possibilities for customers.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:	TBN, nominal:
API SB/CB	MONO, MULTI	2.0	-
API SC/CC	MONO	2.0	-
API SC/CC	MULTI	2.3	-
API SD/CC	MONO	2.5	-
API SD/CC	MULTI	2.8	-
API SE/CC	MONO	3.0	-
API SE/CC	MULTI	3.5	-
API SF/CD/CC	MULTI, MONO	4.0	-
Allison C3 Caterpillar TO-2	MONO	4.0	-
API SF/CF-2/CF DD 7SE270 Type 1/2/3		4.0 + Booster at 1.3 %	-
API SG/CF/CD DC p227		4.0 + Infineum D1243 at 1.55 %	-
API SG/CF/CD DC p227		4.0 + Infineum D1246 at 5.55 %	-
API SJ/CF/CD		4.6 + Infineum D1243 at 2.42 %	-
API SJ/CF/CD		4.6 + Infineum D1247 at 6.75 %	-
API SF/CF-2/CF		4.0 + Booster at 2.0 %	10.0
API SF/CF-2/CF		4.0 + Booster at 7.3 %	10.0
API SG/CF-4		4.0 + Booster at 3.45 %	-
API SG/CF-4		4.0 + Booster at 9.05 %	-
API SG/CF-4		4.0 + Booster at 3.9 %	10.0
API SG/CF-4		4.0 + Booster at 11.35 %	10.0
API SJ/CF-4		4.0 + Booster at 4.15 %	-
API SJ/CF-4		4.95 + Booster at 4.15 %	10.0

Main visc. Grades covered are: Multigrade: 15W-40, 20W-40, 20W-50; Monograde: SAE 10W, 20W, 30, 40, 50 but coverage may vary depending on actual claim
* Licensable quality
# CF quality claim in Mono grade only
Booster @ 2.0 % is Infineum D1243 @ 0.35 % + Infineum D1241 @ 0.95% + Infineum C9340 @ 0.7 %
Booster @ 7.3 % is Infineum D1243 @ 0.35 % + Infineum D1241 @ 0.95% + Infineum D1250 @ 6.0 %
Booster @ 3.45 % is Infineum D1243 @ 1.85 % + Infineum D1241 @ 1.6%
Booster @ 9.05 % is Infineum D1243 @ 1.85 % + Infineum D1968 @ 7.2 %
Booster @ 3.9 % is Infineum D1243 @ 1.85% + Infineum D1241 @ 1.6 % + Infineum C9340 @ 0.45 %
Booster @ 11.35 % is Infineum D1243 @ 1.85% + Infineum D1241 @ 1.6 % + Infineum D1251 @ 7.9%
Booster @ 4.15 % is Infineum D1243 @ 2.55 % + Infineum D1241 @ 1.6 %

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:

Version: 4 March 2013 (2.0)

Base Number	143	mg KOH/g	ASTM D2896
Flash Point Deg C	184	℃	ASTM D93
Kinematic Viscosity @ 100 C	46	cSt	ASTM D445
Magnesium	2.96	%(m)	ASTM D4951
Phosphorus	2.6	%(m)	ASTM D4951
Zinc	2.9	%(m)	ASTM D4951

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

If product is held at cold temperatures (less than 5 Deg. C/40 Deg. F) for extended periods of time (>1 month), phase separation may occur. Product should be warmed to handling temperature and mixed before use.

Min Load/Unload Temp:	35 ℃ (95 ° F)
Max Load/Unload Temp:	50 ℃ (122 ° F)
Vis @ Min Load/Unload Temp:	994 cSt
Vis @ Max Load/Unload Temp:	390 cSt
Maximum Storage Temperature:	50 ℃ (122 ° F)
Do not reheat above:	50 ℃ (122 ° F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 4 March 2013 (2.0)

Infineum D3323

Description

Infineum D3324 is a part-additive package which is used at 14.35% treat rate and when used in conjunction with Infineum D3323 (7.15%), Infineum SV151, Infineum V351 and Yubase base stocks for a 10W-40 or PAO base stocks for a 5W-30, can be formulated to meet a number of top-tier HDD and mid-SAPS levels performance claims.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
MB-Approval 228.51/235.27 ACEA E7-08 Issue 2/E6-08 Issue 2/E4-08 Issue 2 API CI-4 JASO DH-2 MAN M 3271-1/3477 MTU 3.1 Volvo VDS-3 RVI RLD/RLD-2/RXD Scania Low Ash Deutz DQC III-05	10W-40	7.15 + Infineum D3324 at 14.35 %
MB-Approval 228.51/235.28 ACEA E7-08 Issue 2/E6-08 Issue 2/E4-08 Issue 2 MAN M 3271-1/3477 MTU 3.1 Volvo VDS-3 RVI RLD/RLD-2/RXD Deutz DQC IV-10 LA	5W-30	7.15 + Infineum D3324 at 14.35 %

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	Brown viscous liquid		AM-S 77-074
Base Number	68	mg KOH/g	ASTM D2896
Calcium	2.43	%(m)	ASTM D4951
Density @ 15 C, kg/m3	933	kg/m3	ASTM D4052
Density @ 60 F	7.79	lb/USG	ASTM D4052
Flash Point Deg C	194	℃	ASTM D93
Kinematic Viscosity @ 100 C	36	cSt	ASTM D445
Sulfur	0.16	%(m)	ASTM D4951

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

Version: 4 March 2013 (3.0)

It is strongly recommended that for long term storage the temperature should not exceed 50 ℃.

Min Load/Unload Temp:	30 ℃ (86 ° F)
Max Load/Unload Temp:	65 ℃ (149 ° F)
Vis @ Min Load/Unload Temp:	900 cSt
Vis @ Max Load/Unload Temp:	130 cSt
Maximum Storage Temperature:	60 ℃ (140 ° F)
Do not reheat above:	65 ℃ (149 ° F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 4 March 2013 (3.0)

Infineum D3424

Infineum

Description

Infineum D3424 is a performance additive package for formulating premium and super premium quality diesel engine oils. It has been developed to meet critical North America and European OEM specifications as well as API CI-4, ACEA E3/E5/E7 and Global DHD-1 specifications. Lubricants formulated with Infineum D3424 can also be used in passenger car engines requiring API SL or ACEA A3/B3/B4 category products. Development of Infineum D3424 was conducted according to the principles of the ACC and ATC Codes of Practice. Claims are base stock and viscosity grade specific - for more information contact your local Infineum representative.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
API SL/CI-4/CH-4/CG-4/CF-4/CF	10W-30, 15W-40	14.4
API SL/CF-2/CF	30, 40	14.4
API CF-2/CF	30, 40	10.6
ACEA E7-08	15W-40	14.4
ACEA A3/B4-04	10W-30, 15W-40	14.4
ACEA A3/B4-08	15W-40	14.4
Global DHD-1	15W-40	14.4
MB-Approval 228.3	15W-40	14.4
MAN M 3275	15W-40	14.4
MTU Oil Category 2	15W-40, 30, 40	14.4
Volvo VDS-2	10W-30, 15W-40	14.4
Volvo VDS-3	15W-40	14.4
VW 501 01/505 00	15W-40	14.4
Allison C4	15W-40, 30, 40	14.4
Cummins CES 20071/20076	10W-30, 15W-40	14.4
Cummins CES 20072/20077	15W-40	14.4
Mack EO-M/EO-M PLUS	10W-30, 15W-40	14.4

(1) Also more limited claims in SAE 10W, 20W, 20W-40 and 20W-50

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	brown viscous liquid		AM-S 77-074
Base Number	69	mg KOH/g	ASTM D2896
Calcium	1.66	%(m)	ASTM D5185
Density @ 15 C, kg/m3	960	kg/m3	ASTM D4052
Density @ 60 F, lb/gal	8.00	lb/USG	ASTM D4052
Flash Point Deg C	190	℃	ASTM D93
Kinematic Viscosity @ 100 C	203	cSt	ASTM D445
Kinematic Viscosity @ 40 C	4240	cSt	ASTM D445
Magnesium	0.19	%(m)	ASTM D5185
Mineral Oil	49	%(m)	Calculated
Nitrogen	0.69	%(m)	ASTM D5291
Phosphorus	0.89	%(m)	ASTM D5185
Sulfated Ash	8.3	%(m)	ASTM D874

Version: 26 October 2012 (1.0)

Zinc	0.98	%(m)	ASTM D5185

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

It is strongly recommended that for long term storage the temperature should not exceed 50 °C.

Min Load/Unload Temp:	60 °C (140 °F)
Max Load/Unload Temp:	70 °C (158 °F)
Vis @ Min Load/Unload Temp:	1,200 cSt
Vis @ Max Load/Unload Temp:	740 cSt
Maximum Storage Temperature:	60 °C (140 °F)
Do not reheat above:	70 °C (158 °F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 26 October 2012 (1.0)

Infineum D3451

Description

Infineum D3451 is a performance additive package for formulating premium quality diesel engine oils. Used at the recommended treat rate in combination with approved base stocks and viscosity modifier, Infineum D3451 provides engine oils meeting the API performance category CI-4, among others. It has been developed to meet the most important North American, European OEM and Industry specifications. Lubricants formulated with Infineum D3451 can also be used in gasoline engines requiring API SL category products. Claims are base stock and viscosity grade specific – for more information; contact your local Infineum Representative.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
API SL/CI-4/CH-4	15W-40	11.9
ACEA E7-08		

~ 11.0 Volume %.

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	Clear		ITM 50-022
Base Number	77	mg KOH/g	ASTM D2896
Calcium	0.89	%(m)	ASTM D5185
Density @ 15 C, kg/m3	960	kg/m3	ASTM D4052
Density @ 60 F, lb/gal	7.99	lb/USG	ASTM D4052
Flash Point Deg C	182	℃	ASTM D93
Kinematic Viscosity @ 100 C	146	cSt	ASTM D445
Kinematic Viscosity @ 40 C	2985	cSt	ASTM D445
Magnesium	0.84	%(m)	ASTM D5185
Nitrogen	0.70	%(m)	ASTM D5291
Phosphorus	1.08	%(m)	ASTM D5185
Sulfated Ash	8.6	%(m)	ASTM D874
Sulfur	2.65	%(m)	ASTM D4294
Zinc	1.18	%(m)	ASTM D5185

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

Min Load/Unload Temp:	55 ℃ (131 ° F)
Max Load/Unload Temp:	65 ℃ (149 ° F)
Vis @ Min Load/Unload Temp:	1,150 cSt
Vis @ Max Load/Unload Temp:	670 cSt
Maximum Storage Temperature:	60 ℃ (140 ° F)
Do not reheat above:	70 ℃ (158 ° F)

For detailed data please refer to the relevant MSDS.

Version: 5 November 2012 (1.0)

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 5 November 2012 (1.0)

Infineum P5096

Description

Infineum P5096 is a performance additive package developed for mainstream gasoline engine lubricants, covering both current and obsolete API performance levels. It is designed to be used with appropriate boosters and Infineum viscosity modifiers in appropriate Group I and Group II base stocks at various viscosity grades.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
API SL/SJ	10W-30, 10W-40, 15W-40, 20W-50, 30, 40	6.4
API SL/SJ	15W-40, 20W-40, 30, 40	6.4 + Infineum C9330 at 0.25 %
API SG/CF-4	10W-30, 15W-40, 20W-50	7.3 + Infineum C9330 at 0.3 %
API CF-2	10W-30, 10W-40, 15W-40, 15W-50, 20W-40, 20W-50	3.8 + Infineum C9330 at 0.7 %
API CF-2	30, 40, 50	3.8 + Infineum C9330 at 0.4 %
API SH/SG/CD	10W-30, 15W-40, 20W-40, 20W-50, 30, 40, 50	5.0 + Infineum C9330 at 0.2 %
API SF/CF	10W-30, 15W-40, 20W-40, 20W-50	4.5 + Infineum C9330 at 0.85 %
API SF/CF	20W, 30, 40, 50	4.5 + Infineum C9330 at 0.5 %
API CF	15W-40, 20W-40, 20W-50	3.1 + Infineum C9330 at 1.3 %
API CF	20W, 30, 40, 50	3.1 + Infineum C9330 at 0.9 %
API SF/SE/CD	10W-30, 15W-40, 20W-40, 20W-50	4.5 + Infineum C9330 at 0.4 %
API SD/SC/CC	10W-30, 15W-40, 20W-40, 20W-50	2.3 + Infineum C9330 at 0.5 %
API SB/CB	20W, 30, 40, 50	2.0 + Infineum C9330 at 0.2 %

Licensible claims for SL/SJ is only valid in approved Gp I and Gp II basestocks
Quality claims are valid when blended in all quality Gp I and Gp II basestocks. ~ 5.7 vol % approx
API CF quality claims at 6.4%m valid in specific basestocks, viscosity modifiers and viscosity grades only. Consult your Infineum technical representative for more information.

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Appearance	Brown viscous liquid		ITM 50-022
Base Number	90.3	mg KOH/g	ASTM D2896
Calcium	2.75	%(m)	ASTM D5185
Density @ 15 C, kg/m3	990	kg/m3	ASTM D4052
Density @ 60 F, lb/gal	8.25	lb/USG	ASTM D4052
Flash Point Deg C	184	°C	ASTM D93
Kinematic Viscosity @ 100 C	165	cSt	ASTM D445
Kinematic Viscosity @ 40 C	3700	cSt	ASTM D445
Molybdenum	0.04	%(m)	ASTM D5185
Nitrogen	0.66	%(m)	ASTM D5291
Phosphorus	1.56	%(m)	ASTM D5185
Sulfated Ash	12.5	%(m)	ASTM D874
Sulfur	3.7	%(m)	ASTM D4294
Zinc	1.72	%(m)	ASTM D5185

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Version: 6 November 2012 (1.0)

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading/unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

Min Load/Unload Temp:	55 °C (131 °F)
Max Load/Unload Temp:	65 °C (149 °F)
Vis @ Min Load/Unload Temp:	1,390 cSt
Vis @ Max Load/Unload Temp:	790 cSt
Maximum Storage Temperature:	60 °C (140 °F)
Do not reheat above:	65 °C (149 °F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 6 November 2012 (1.0)

Infineum P6003

Description

Infineum P6003 has been developed for the formulation of premium quality “Mid SAPS” passenger car lubricants at 0.08% phosphorus and 0.8% sulphated ash to meet MB-Approval 229.31and MB-Approval 229.51 limits. It meets both industry and OEM specification when blended at 12.3% mass (~10.9% volume) with appropriate Group III base stocks and appropriate Infineum SV viscosity modifiers. Formulations and performance claims maybe viscosity and viscosity grade specific.

Performance

Performance Level:	SAE Viscosity Grade:	Mass %:
ACEA A1/B1-12 API SN Ford WSS-M2C948-A Ford WSS-M2C948-B	5W-20	12.3 + Infineum C9455B at 0.18 %
ACEA C3-12 API SN/CF MB-Aprroval 229.52 MB-Approval 229.31/229.51 BMW Longlife - 04 GM dexos 2 Renault RN0700/RN0710	5W-30	12.3 + Infineum C9455B at 0.1 %
ACEA C2-12 ACEA A5/B5-12 ACEA A1/B1-12 API SN/SM/SL/CF PSA B71 2290 Renault RN0700	5W-30	12.3
ACEA C3-12 API SN/SM/SL/CF MB-Approval 229.31/229.51 VW 502 00/505 01 BMW Longlife - 04 GM dexos 2 Porsche A40 Renault RN0700/RN0710 MB-Approval 226.5	5W-30, 5W-40	12.3

The Infineum C9455B boosted formulations are only available in NEXBASE basestocks.
Porsche A40 applies only to SAE 5W-40 viscosity grade.

Typical Inspections

Property:	Value[(a)]:	Unit:	Method[(b)]:
Base Number	65	mg KOH/g	ASTM D2896
Boron	570	ppm	ASTM D4951
Calcium	1.49	%(m)	ASTM D5185
Density @ 15 C, kg/m3	949	kg/m3	ASTM D4052
Density @ 60 F	7.9	lb/USG	ASTM D4052

Version: 19 November 2014 (12.0)

Kinematic Viscosity @ 100 C	146	cSt	ASTM D445
Kinematic Viscosity @ 40 C	2865	cSt	ASTM D445
Mineral Oil	45	%(m)	Calculated
Nitrogen	0.77	%(m)	ASTM D5291
Phosphorus	0.65	%(m)	ASTM D5185
Sulfated Ash	6.5	%(m)	Calculated
Sulfur	1.48	%(m)	ASTM D6443
Zinc	0.72	%(m)	ASTM D5185

(a)Not a specification, (b)Methods typically used by Infineum manufacturing plants

Handling / Precautions

Follow precautions normally taken for handling lube oil stocks. This product is temperature sensitive. Do not heat over the maximum loading / unloading temperature to avoid possible release of extremely odorous alkyl mercaptans and/or toxic hydrogen sulfide.

Localized high temperatures should be avoided during heating, especially when product cannot be agitated. Electrical, steam or hot oil heating systems with a self limiting maximum temperature not exceeding 120 Deg. C/250 Deg. F (e.g. low pressure steam at 2 bar(g) or 30 psig) are recommended.

Min Load/Unload Temp:	55 °C (131 ° F)
Max Load/Unload Temp:	65 °C (149 ° F)
Vis @ Min Load/Unload Temp:	1,130 cSt
Vis @ Max Load/Unload Temp:	650 cSt
Maximum Storage Temperature:	60 °C (140 ° F)
Do not reheat above:	65 °C (149 ° F)

For detailed data please refer to the relevant MSDS.

Further Information

For further information please contact your local Infineum affiliate or representative.

Version: 19 November 2014 (12.0)

Keltan®

EP(D)M

Welcome to the 'Great Grades™' of Keltan

Overview of Keltan EPDM types with typical characteristics and application areas.

DSM Elastomers is a leading global manufacturer of high quality EPDM under the brand name of Keltan®.

Keltan® is used in a wide variety of applications in numerous industries, including the Automotive sector, Building & Construction, Water Systems, Wire & Cable, Electrics & Electronics and Household Appliances.

The Keltan® portfolio consists of a broad range of 'Great Grades™' with a diversity of properties that offers freedom in recipe formulations, product design and processing windows. This allows the rubber industry to optimize the aimed ratio between product performance and cost efficiency. The versatile Keltan portfolio currently features:

- Copolymers
- DCPD
- Narrow, Medium, Broad and Very Broad MWD
- Low to very high ENB levels
- Controlled Long Chain Branching (CLCB)
- Broad Mooney Range
- Oil extended grades
- Industry's highest molecular weight polymer.

For more detailed information, please consult Keltan's extensive documentation or contact DSM Elastomer' nearest representative.

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EP(D)M

Typical characteristics

Grade	Polymer Type	Content wt.% ENB/DCPD	Ethylene wt.%	Oil wt.%	MWD	ML (1+4) 125 °C
3200A	C		49	0	N	51**
740	C		64	0	M	63
520	D	4.5	58	0	B	46
720Z	D	4.5	58	0	VB	63
2630A	E	3.0	67	0	VB	20
512x50	E	4.1	56	33	B	48
312	E	4.3	49	0	M	33
4802	E	4.3	52	0	N	77
512	E	4.3	55	0	B	46
378Z	E	4.3	67	0	N	33
578Z	E	4.3	67	0	M	46
778Z	E	4.3	67	0	M	63
5531A△	E	4.5	63	50	N	52
5508	E	4.6	70	0	N	55
708x15Z	E	4.7	67	13	N	65
27	E	5.0	54	0	B	70
67F	E	5.0	71	0	M	65
8340A	E	5.5	55	0	CLCB	80
2340A	E	6.0	53	0	CLCB	25
21	E	6.3	60	0	VB	25
96	E	6.3	66	33	M	61
7341A△	E	7.5	53	17	CLCB	53*
314	E	8.0	52	0	B	33
514	E	8.0	52	0	B	46
509x100	E	8.7	64	50	M	48
4903(Z)	E	9.0	48	0	M	60*
4703(Z)	E	9.0	48	0	M	65

** ML (1+4) 100°C ** ML (1+8) 150°C N: narrow M: medium B: broad VB: very broad*
C: Copolymer D: DCPD grade E: ENB grade △contains paraffinic white oil
CLCB: Controlled Long Chain Branching

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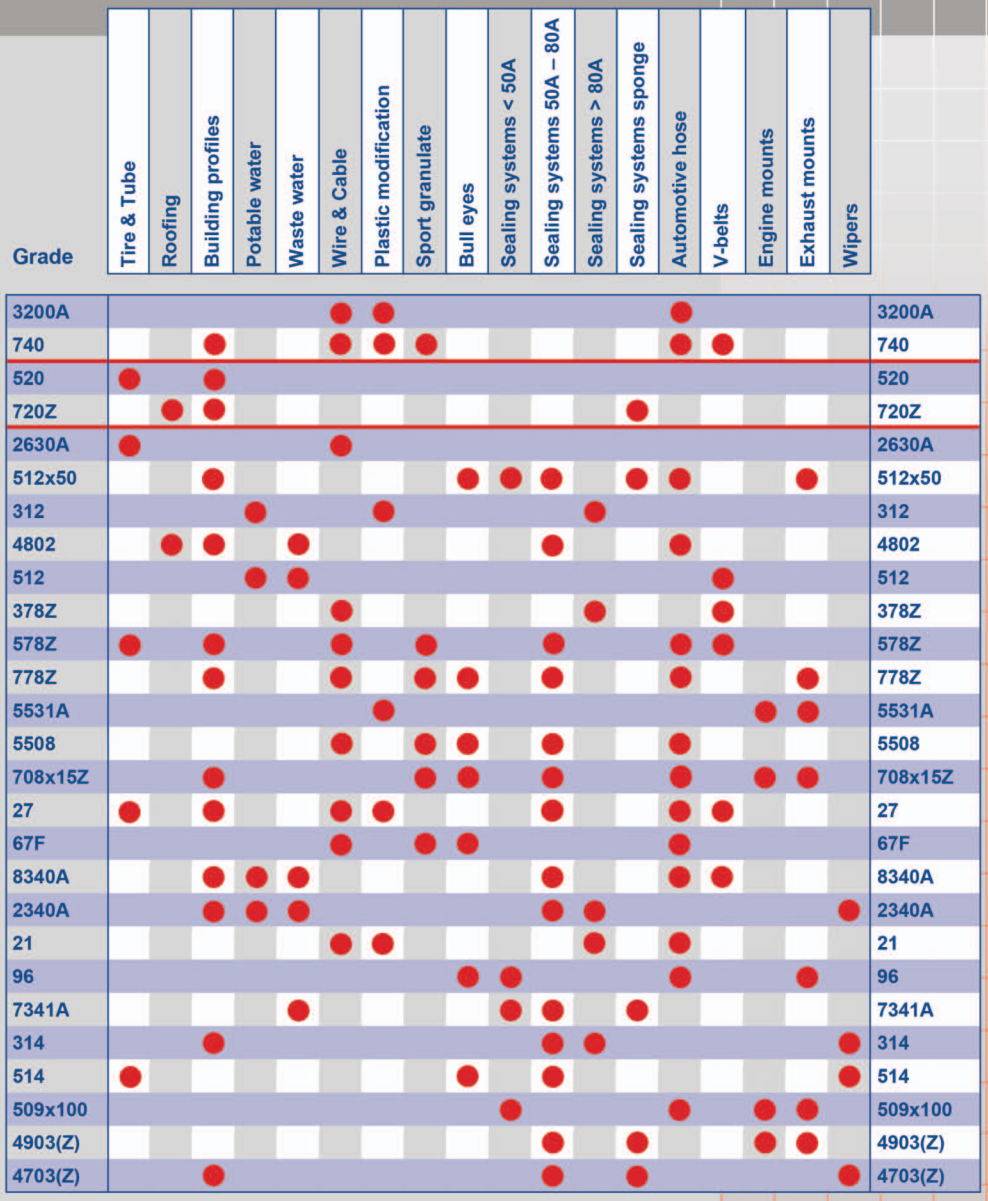
EP(D)M

Application areas



a DSM Product

DSM Elastomers

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Keltan®

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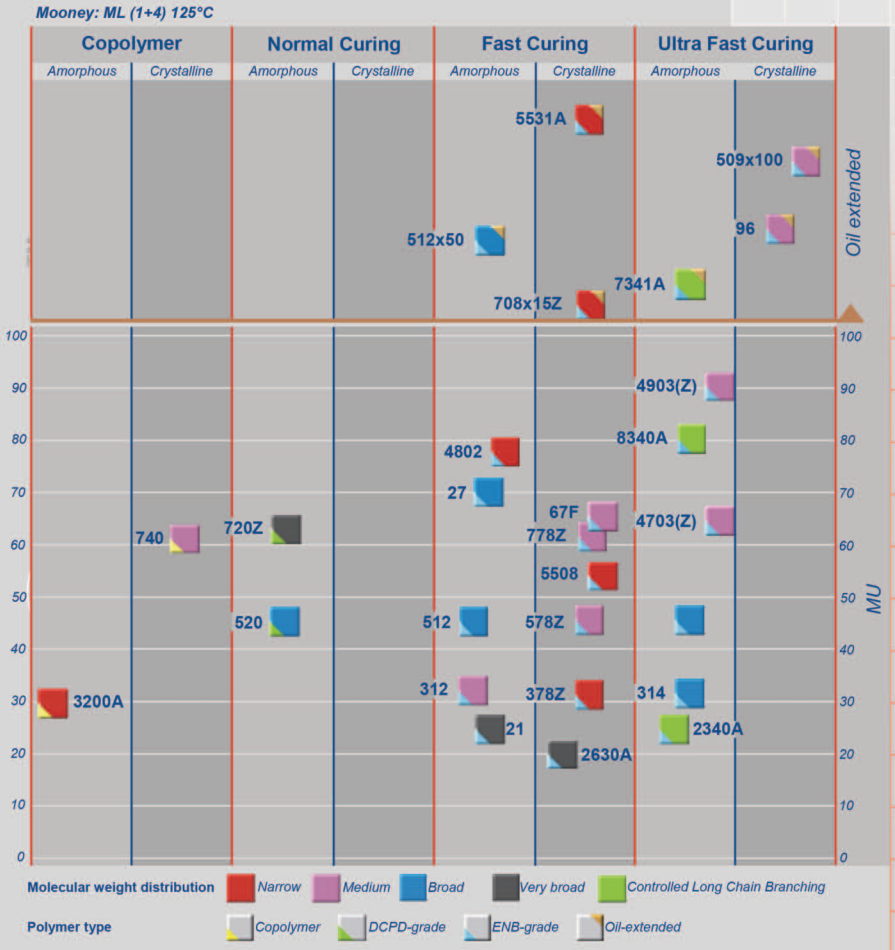
Relative positions Keltan grades



Keltan®

E(P)DM

The key values that are the cornerstones of DSM Elastomers' business, apply also to these Great Grades™:

- Very high level of product quality and consistency to provide optimal product properties and outstanding conditions for efficient processing
- Security of supply, creating a high-tech multi-plant production environment, which allows cost effective-operation and simultaneously offers the flexibility to meet market demands
- Customized technical support and extensive, easy to access information systems, to provide valuable data and share experience and know-how
- Active participation in the global low cost chain approach, by stimulating the continuous search for cost effective solutions throughout the production chain, from raw materials up to the final application and use of the end product.

DSM Elastomers is a Business Group of DSM N.V., an international chemical company with strong interests in life sciences, chemicals, nutritional products and performance materials (plastics, rubbers, resins and fibers).

Contact:

Europe:
DSM Elastomers B.V.
Sittard, The Netherlands
T. + 31 46 476 35 03
F. + 31 46 476 00 40

North America:
DSM Elastomers Americas
Baton Rouge, LA, United States
T. + 1 225 267 34 00
F. + 1 225 267 32 02

South America:
DSM Elastomers Brazil
Sao Paulo, SP, Brazil
T. + 55 11 3046 3350 / 3351
F. + 55 11 3046 3352

Asia:
DSM Elastomers Asia
Singapore
T. +65 6 393 61 11
F. +65 6 299 58 48

China:
DSM China
Beijing office
T. + 86 10 6588 5353
F. + 86 10 6588 6716
Shanghai office
T. + 86 21 6385 2255
F. + 86 21 6384 7074

www.keltan.com

Küttner Vistalon® ExxonMobil Chemical

EPM Copolymers
EPDM Bimodal Terpolymers
EPDM Terpolymers

Vistalon Copolymers

Typical Properties	Vistalon 404	Vistalon 703	Vistalon 706	Vistalon 722	Vistalon 785	Vistalon 805
Mooney Viscosity, ML (1+4) at 125°C	28	21	42	19	30	33
Ethylene Content, wt %	44.5	72,5	65	72	49.0	78.0
Molecular Weight Distrubution (MWD)	Very Broad	Narrow	Bimodal	Narrow	Narrow	Narrow
Product Form	Bale	Bale	Bale	Pellets	Bale	Crumbs
Weight, kg	34	34	34	25	34	25
Packaging	Cardboard Crate, 816kg	Wooden Crate, 1.020kg	Cardboard Crate, 510kg	Wooden Crate, 1.250kg	Wooden Crate, 1.020kg	Wooden Crate, 330kg

Vistalon Bimodal Terpolymers

Typical Properties	Vistalon 7500	Vistalon 7800 P	Vistalon 8600	Vistalon 8700	Vistalon 8800	Vistalon 9500
Mooney Viscosity, ML (1+4) at 125°C	91*	20	90*	78	73	72
MLRA (1.6-5s SR) at 125°C, Mu.s**	790	80	770	-	980	650
Ethylene Content, wt %	55.5	79.0	57.5	63	53.5	60.0
Diene Content, wt %	5.7	6.0	8.9	8.0	10.0	11.0
Oil Content, phr	-	-	-	-	15	-
Molecular Weight Distribution (MWD)	Bimodal	Bimodal	Bimodal	Bimodal	Bimodal	Bimodal
Product Form	Bale	Pellets	Bale	Bale	Bale	Bale
Weight, kg	30	28	30	30	30	30
Packaging	Wooden Crate, 900kg	Wooden Crate, 1.250kg	Wooden Crate, 900kg	Wooden Crate, 900kg	Wooden Crate, 900kg	Wooden Crate, 900kg

* Mooney viscosity based on correlation; please refer to product sales specification sheets.
Typical values for Mooney viscosity measured at ML (1+8) at 125°C: Vistalon 7500 = 82 and Vistalon 8600 = 81.
** Mooney relaxation area.

Vistalon Terpolymers

Typical Properties	Vistalon 1703 P	Vistalon 2504 N	Vistalon 3666	Vistalon 5601	Vistalon 6505	Vistalon 7001
Mooney Viscosity, ML (1+4) at 125°C	25	25	52	72	53	60
MLRA (1.6-5s SR) at 125°C, Mu.s**	-	110	600	-	210	-
Ethylene Content, wt %	76.8	55.5	64.0	68.5	56.5	73.0
Diene Content, wt %	0.9*	3.8	4.5	5.0	9.2	5.0
Oil Content, phr	-	-	75	-	-	-
Molecular Weight Distribution (MWD)	Very broad	Broad	Medium	Tailored	Medium	Tailored
Product Form	Pellets	Bale	Bale	Pellets	Bale	Pellets
Weight, kg	25	34	34	25	34	25
Packaging	Cardboard Crate, 454kg	Wooden Crate, 1.020kg	Wooden Crate, 1.020kg	Wooden Crate, 1.250kg	Wooden Crate, 1.020kg	Wooden Crate, 1.250kg

* VNB
** Mooney relaxation area.