CHEMPOL

ADDITIVES & CHEMICAL SPECIALITY

PRODUCT GUIDE

PRODUCT RANGE

Note: These characteristics & specification are typical,and variations in these may occur, conform to Chempol's.

GASOLINE ENGINE OIL ADDITIVE

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 61557

API SQ-ILSAC GF7 ADDITIVE PACKAGE

(Additive Technology for Low Viscosity, High Protection)

DESCRIPTION:

CHEMPOL 61557 is an advanced additive system developed to support next-generation lubricant formulations in alignment with **API SQ** and **ILSAC GF-7** performance categories. This chemistry is engineered to meet stringent efficiency, cleanliness, and durability requirements in both conventional and hybrid TGDI engine platforms, including those with ultra-low viscosity oil needs.

It is also compatible with emerging **JASO GLV** categories, enabling formulators to achieve high performance across a full spectrum of engine oil grades using a consistent additive and booster combination.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage
JASO GLV-1	SAE 0W-8, SAE 0W-12	6.8 + GLV BOOSTER*
JASO GLV-2	SAE 0W-16, SAE 0W-20	6.8 + GLV BOOSTER*
API SQ, ILSAC GF-7A	SAE 0W-20, SAE 0W-30, SAE 5W-20, SAE 5W-30, SAE 10W-30	6.8
API SQ, ILSAC GF-7B	SAE 0W-16	6.8
API SQ	SAE 5W-40, SAE 10W-40, SAE 15W-40, SAE 20W-50	6.8

KEY PERFORMANCE BENEFITS:

- Provides strong engine wear protection across high and low temperatures.
- Improves fuel economy while maintaining robust lubrication.
- Maintains engine cleanliness by reducing sludge, varnish, and deposit formation.
- Offers thermal and oxidative stability for extended oil life and longer drain intervals.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous liquid	Brown Viscous liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-150	128
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	≥140	200
TBN, mg KOH/g, ASTM D2896	100 - 116	106
Ca Content, m% , ASTM D5185	1.60-1.80	1.70
Zn Content, m% , ASTM D5185	1.10-1.30	1.21
P Content, m%, ASTM D5185	1.00-1.18	1.10
N Content, m%, ASTM D5291	1.00-1.20	1.10
Mg Content, m%, ASTM D5185	0.58-0.74	0.66
Mo Content, m%, ASTM D5185	0.08-0.12	0.10
B Content, m %, ASTM D5185	0.12-0.16	0.14
Sulphated Ash, m% , ASTM D874	10.2-12.2	11.2

SPECIFICATIONS:

- **DEXOS 1 GEN 3**
- **CHRYSLER MS6395**
- **FORD WSS-M2C961-A/**
- **WSS-M2C946-B1**
- **WSS-M2C962-A/WSS-M2C947-B**
- **WSS-M2C960-A/WSS-M2C945-B1**
- **BMW LL-22FE+**

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 61458

API SP-MIDD SAPS ADDITIVE PACKAGE

DESCRIPTION:

CHEMPOL 61458 is a MIDD-SAPS additive used for the formulation of energy-efficient passenger car engine oils. It complies with **API SP**, **SN Plus**, and **ACEA C-class** specifications. It is designed to support modern engine technologies, including those fitted with gasoline particulate filters (GPF) and three-way catalysts.
Built around a chemistry that balances fuel economy with robust engine cleanliness and durability, it helps mitigate LSPI, protects against high and low-temperature deposits, and ensures turbocharger reliability. Its compatibility with most of the base stocks provides formulators with flexibility in targeting regional or global specifications.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
API SP, SN Plus, ACEA C5/C6	**SAE 0W-20**	**8.0**
API SP, SN Plus, ACEA C2	**SAE 0W-30**	**7.8**
API SP, ACEA C2/C3	**SAE 5W-30, SAE 5W-40**	**7.6**

KEY PERFORMANCE BENEFITS:

- Low-speed pre-ignition (LSPI) control for TGDI applications
- Turbocharger deposit protection under high-temperature operating cycles.
- Detergency and sludge resistance, even in severe driving environments
- Friction reduction and fuel economy improvement across multiple grades.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous liquid	Brown Viscous liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	Report	122
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	>180	<200
TBN, mg KOH/g, ASTM D2896	106-118	111
B Content, m% , ASTM D5185	0.12-0-14	0.11
Ca Content, m%, ASTM D5185	1.28-1.40	1.30
Zn Content, m%, ASTM D5185	0.92-1.12	1.00
P Content, m%, ASTM D5185	0.89-1.02	0.90
N Content, m% , ASTM D5291	1.00-1.48	1.27
Mg Content, m%, ASTM D5185	0.69-0.76	0.72
Mo Content, m% , ASTM D5185	0.07-0.10	0.08
Sulphated Ash, m% , ASTM D874	8.9-9.5	9.0

SPECIFICATIONS:

- **MB 229.31, 229.51, 229.52, 229.61, 229.71**
- **BMW LL-04, LL-12FE**
- **RN 0700/0710**
- **STJLR 03.5006**
- **DEXOS D**
- **FORD WSS-M2C952-A1**
- **WSS-M2C950-A**
- **WSS-M2C917-A**
- **OPEL OV 040 1547**
- **FIAT 9.55535-DS1, 9.55535-GS1**
- **VW 505.00/505.01**

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 60801

VW 504.00/507.00-MIDD SAPS ADDITIVE PACKAGE

(Designed for High-End Passenger Car Engines with Emissions Systems)

DESCRIPTION:

CHEMPOL 60801 is a sophisticated additive solution formulated for MIDD SAPS (sulfated ash, phosphorus, sulfur) engine oils. Developed for use in premium gasoline and diesel engines, it meets the exacting demands of modern vehicles equipped with advanced exhaust after-treatment systems—including DPFs, SCR units, and three-way catalytic converters.
Blended at the recommended treat rate, **CHEMPOL 60801** enables the formulation of engine oils that comply with major global performance standards such as **API SN**, **ACEA C3**, and notably, the stringent **VW 504.00 / 507.00** specifications. It is especially effective in engines fitted with pump-injector technology, a core component in many European OEM platforms.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
API SN, ACEA C3	**SAE 0W-30, SAE 5W-30**	**8.5**

KEY PERFORMANCE BENEFITS:

- Tailored for advanced emissions-compliant engines
- Compatible with high-performance gasoline and diesel applications.
- Maintains catalyst performance for low emissions.
- Enables formulation of multigrade SAE 0W-30 and 5W-30 oils.

SPECIFICATIONS:

MB 229.31, 229.51,229.52, PORSCHE C30, VW 504/507, 502/505, BMW LL-04, GM-DEXOS 2

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown Viscous Liquid	Dark Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	120-200	160
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	≥140	<200
TBN, mg KOH/g, ASTM D2896	95-110	100
Ca Content, m% , ASTM D5185	1.80-2.00	1.86
Zn Content, m%, ASTM D5185	0.88-1.00	0.94
P Content, m%, ASTM D5185	0.82-0.94	0.86
N Content, m%, ASTM D5291	1.50-1.80	1.70
B Content, m% , ASTM D5185	0.50-0.60	0.52
Sulphated Ash, m% , ASTM D874	9.0-10.2	9.38

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 66000

API SN & MIDD SAPS ADDITIVE PACKAGE

DESCRIPTION:

CHEMPOL 66000 is a performance-driven additive package meticulously developed to produce MIDD SAPS passenger car motor oils. Designed to keep sulphated ash and phosphorus levels in check, this formulation supports extended engine life and emission system longevity in modern vehicles, especially those requiring **ACEA C3**, **C2**, and **C5** compliant lubricants.

This chemistry strikes the perfect balance between emission control compatibility and high-performance engine protection. Its phosphorus content is maintained at **0.08%**, and sulphated ash is limited to below **0.8%**, making it ideal for vehicles equipped with particulate filters and catalytic converters.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage
API SN, SN/CF, ACEA C5	**SAE 0W-20, SAE 5W-20**	**7.5**
API SN/CF, ACEA C2	**SAE 0W-30, SAE 5W-30**	**7.5**
API SN/CF, ACEA C3	**SAE 0W-30, SAE 5W-30, SAE 5W-40**	**7.5**

KEY PERFORMANCE BENEFITS:

- Ensures excellent wear protection and prolonged engine life in modern vehicles.
- Delivers high oxidation stability for performance under severe operating conditions.
- Maintains after-treatment system efficiency by controlling SAPS levels.
- Enhances fuel economy while providing robust lubrication across viscosity grades.

SPECIFICATIONS:

MB 229.31, 229.51, 229.52, 229.71, PORSCHE C40, VW 502/505, BMW LL-04, RN 0700/0710, 17FE, JLR 03.5004, JLR 03.5007, STJLR.51.5122, DEXOS 2, FORD WSS-M2C948-A, WSS-M2C948-B, PSA B71 2290, CHRYSLER MS-11106

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	180-240	200
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	>180	<200
TBN, mg KOH/g, ASTM D2896	100-112	106
B Content, m% , ASTM D5185	0.09-0.11	0.10
Ca Content, m%, ASTM D5185	2.30-2.50	2.40
Zn Content, m%, ASTM D5185	1.12-1.24	1.18
P Content, m%, ASTM D5185	0.95-1.05	1.00
N Content, m% , ASTM D5291	1.20-1.30	1.26
Mo Content, m% , ASTM D5185	0.05-0.07	0.06
Sulphated Ash, m% , ASTM D874	9.8-10.6	10.3

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 63011

API SN ADDITIVE PACKAGE

(Reliable, Cost-Effective Solution for Standard PCMO Performance)

DESCRIPTION:

CHEMPOL 63011 is a practical and efficient additive package designed for passenger car motor oils where compliance with **API SN**, **SM**, and **SL** classifications is required. Its formulation is optimized to deliver dependable engine protection without unnecessary complexity or cost. Developed with a focus on balance, **CHEMPOL 63011** offers consistent performance across a range of conventional and high-mileage vehicle applications. It is well-suited for lubricant manufacturers seeking to meet industry standards while optimizing additive usage and formulation economics.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
API SN	**7.6**
API SM	**7.28**
API SL	**7**

KEY PERFORMANCE BENEFITS:

- Wear protection across varying driving cycles.
- Resistance to oxidation and thermal breakdown.
- Fuel efficiency through friction-reducing chemistry.
- Emissions control support through balanced additive composition.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous liquid	Brown Viscous liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	90-150	105
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	≥140	<200
TBN, mg KOH/g, ASTM D2896	98-108	103
Ca Content, m% , ASTM D5185	2.67-2.97	2.82
Zn Content, m%, ASTM D5185	1.02-1.14	1.08
P Content, m%, ASTM D5185	0.90-1.00	0.95
N Content, m%, ASTM D5291	0.85-0.95	0.90
Mo Content, m% , ASTM D5185	0.14-0.18	0.16
Sulphated Ash, m% , ASTM D874	11.2-12.0	11.6

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 66025

API SL ENGINE OIL ADDITIVE PACKAGE

(4-Stroke Motorcycle Engine Oils Designed for API SL and JASO MA/MA2 Level Formulations)

DESCRIPTION:

CHEMPOL 66025 is a multifunctional additive package especially designed for formulating gasoline engine oils requiring **API SL** category and lubricants for four stroke motorcycles, where **JASO MA** or **MA-2** are indicated. Depending on the treat rate, performance corresponding to **API SJ**, **SG** & **SF** categories can be achieved. It is composed of various high-quality additive components and provides excellent high temperature detergency, low temperature dispersancy, strong oxidation resistance, superior anti-wear protection and stable frictional characteristics for wet clutch compatibility. It can be used to formulate motorcycle oils enabling lubrication of engine, clutch and transmission with different dosage in the suitable base oils.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
API SL	**5.0**
SJ	**4.6**
SG	**4.0**
SF	**3.8**

KEY PERFORMANCE BENEFITS:

- It is made to match API SL, SJ, SG, or SF levels simply by adjusting the treat rate.
- It maintains lubricity under high heat and heavy loads.
- It also provides excellent frictional balance for wet clutch engagement.
- Protects engine and gear components from long-term wear.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	80-150	125
Density (15°C), kg/m3 , ASTM D4052	960-1050	1010
Flash Point (COC),°C, ASTM D92	≥140	200
TBN, mg KOH/g, ASTM D2896	132-146	140
Ca Content, m%, ASTM D5185	3.85-4.15	3.95
Zn Content, m%, ASTM D5185	2.00-2.30	2.16
P Content, m%, ASTM D5185	1.80-2.10	1.95
N Content, m% , ASTM D5291	0.80-1.10	1.00
Mo Content, m% , ASTM D5185	0.18-0.22	0.20
Sulphated Ash, m% , ASTM D874	16.6-18.2	17.1

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 68800

API SN PLUS-VW 508.00/509.00

(High-Performance MIDD SAPS Additive Package)

DESCRIPTION:

CHEMPOL 68800 is an advanced additive system developed to meet the demanding specifications of **Volkswagen 508.00/509.00** and **API SN PLUS** performance levels. Designed for use in next-generation gasoline engines, this MIDD SAPS (Sulphated Ash, Phosphorus, Sulfur) package offers an ideal balance between emission control system protection and robust engine performance. **CHEMPOL 68800** enables the formulation of ultra-low-viscosity oils like **SAE 0W-20** that deliver fuel savings, reduced CO_2 output, and excellent thermal resistance. It's especially suited for engines built to tighter tolerances and equipped with emission-sensitive after-treatment systems.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
API SN Plus, ACEA C5	**SAE 0W-20**	**8.0**

KEY PERFORMANCE BENEFITS:

- Enhanced wear resistance under high-load operation
- Superior oxidation control to extend oil service life
- Improved cold-start performance
- Low volatility for minimal oil consumption

SPECIFICATIONS:

PORSCHE C20, VW 508.00/509.00

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	180-240	200
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	>180	<200
TBN, mg KOH/g, ASTM D2896	100-112	104
Ca Content, m%, ASTM D5185	2.20-2.40	2.32
Zn Content, m%, ASTM D5185	0.98-1.12	1.06
P Content, m%, ASTM D5185	0.92-1.04	0.98
N Content, m% , ASTM D5291	1.20-1.40	1.32
Sulphated Ash, m% , ASTM D874	9.0-10.0	9.4

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 60911

API SN-ACEA C4/C1 LOW SAPS ADDITIVE PACKAGE

(Engineered for Compatibility with Advanced Emission Systems)

DESCRIPTION:

CHEMPOL 60911 is a low SAPS additive package developed for the formulation of high-quality engine oils requiring compliance with **ACEA C4** and **C1** specifications. This additive is designed for use in modern gasoline and diesel engines equipped with sensitive after-treatment systems such as DPF (Diesel Particulate Filters) and SCR (Selective Catalytic Reduction) units. Due to its reduced levels of sulfur, phosphorus, and sulfated ash, **CHEMPOL 60911** minimizes the risk of catalyst poisoning or particulate filter clogging, thereby extending the service life of emission control systems.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
ACEA C4-21	**SAE 5W-30, SAE 5W-40**	**9.5**
ACEA C1-16	**SAE 5W-30**	**9.5**

KEY PERFORMANCE BENEFITS:

- Ensures long-term protection for after-treatment systems by reducing SAPS levels.
- Delivers oxidation and thermal stability for reliable performance in extreme conditions.
- Minimises valve train wear and protects against camshaft scuffing.
- Offers corrosion protection for both ferrous and non-ferrous metals.

SPECIFICATIONS:

MB 229.1, 226.51, RN 0720, STJLR 03.5005

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	130-200	170
Density (15°C), kg/m3 , ASTM D4052	880-950	915
Flash Point (COC),°C, ASTM D92	>180	<200
TBN, mg KOH/g, ASTM D2896	80-90	85
B Content, m%, ASTM D5185	0.04-0.06	0.05
Mg Content, m%, ASTM D5185	0.88-0.96	0.92
Zn Content, m%, ASTM D5185	0.50-0.56	0.54
P Content, m% , ASTM D5185	0.44-0.52	0.49
N Content, m% , ASTM D5291	1.30-1.55	1.43
Sulphated Ash ,m%, ASTM D874	4.9-5.3	5.2

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

HEAVY DUTY DIESEL ENGINE OIL ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8108L

API CK-4 & ACEA E11 DEO ADDITIVE PACKAGE

(Delivers Advanced Protection for Modern Diesel Engines)

DESCRIPTION:

CHEMPOL 8108L 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 modifiers, **CHEMPOL 8108L** provides engine oils meeting **API CK-4/SN & ACEA E11-24** and corresponding OEM Specifications.

CHEMPOL 8108L is designed for the production of diesel engine oils used in modern, high-powered diesel engines operating under heavy conditions with extended drain intervals. These engines are equipped with gas after treatment systems, such as **DPF**, **TWC**, **EGR** & **SCR** Systems for reducing NOx Emissions. **CHEMPOL 8108L** ensures high thermal oxidative stability and is recommended for Euro VI engines.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage, % (m/m)
CK-4/SN-ACEA E11, E9, E7	SAE 15W-40, SAE 10W-30, SAE 10W-40	9.5
CJ-4/SN- ACEA E11, E9, E7	SAE 15W-40, SAE 10W-30, SAE 10W-40	9.2

KEY PERFORMANCE BENEFITS:

- Meets API CK-4/SN and ACEA E11-24 specifications.
- Compatible with advanced emission systems (DPF, EGR, SCR, TWC)
- Recommended for extended oil drain intervals.
- Designed for use in Euro VI-compliant diesel engines.

SPECIFICATIONS:

Product/ingredient name

MB 228.31(DTFR 15C100), VOLVO VDS 4 & 4.5, CUMMINS 20086/87/81, DETROIT DIESEL DFS 93K222, MAN 3775/3275/3575 RENAULT RLD- 3, MTU TYPE 2.1, CAT ECF-3, DUETZ DQC III-18LA, MACK EOS-4.5, ALLISON TES-439, JASO DH-2, FORD WSS-M2C171-F1

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brownish red clear liquid	Brownish red clear liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	970
Flash point (COC), °C , ASTM D92	≥180	200
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-130	120
P Content, m%, ASTM D5185	1.10 - 1.26	1.18
B Content, m% , ASTM D5185		
Zn Content, m% , ASTM D5185	1.22 – 1.40	1.31
Ca Content, m% , ASTM D5185	2.00 - 2.30	2.10
	0.06 – 0.10	0.08
Mo Content, m%, ASTM D5185	0.08 – 0.12	0.10
N Content, m% , ASTM D5291	1.10-1.40	1.20
TBN, mg KOH/g, ASTM D2896	100 - 112	106
Sulphated Ash, m%, ASTM D874	8.8 – 10.2	9.8

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8110

API CK-4 & ACEA E8 DEO ADDITIVE PACKAGE

(High-Performance Low-SAPS Solution for Modern Diesel Engines)

DESCRIPTION:

CHEMPOL 8110 is a performance additive package for formulating premium quality diesel engine oils with minimal sulphur and phosphorus content. Used at the recommended treat rate in combination with approved base stocks and viscosity modifiers, **CHEMPOL 8110** provides engine oils meeting **API CK-4/SN** & **ACEA E8-24** and corresponding OEM Specifications.

CHEMPOL 8110 is designed for the production of diesel engine oils used in modern, high-powered diesel engines operating under heavy conditions with extended drain intervals. These engines are equipped with gas after-treatment systems, such as **DPF**, **TWC**, **EGR**, and **SCR** Systems for reducing NOx Emissions. **CHEMPOL 8110** ensures high thermal oxidative stability and is recommended for Euro VI engines.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage, % (m/m)
CK-4/SN-ACEA E8, E6, E9, E11	**SAE 5W-30, SAE 10W-30, SAE 10W-40**	**10.5**
CJ-4/SN- ACEA E8, E6, E9, E11	**SAE 5W-30, SAE 10W-30, SAE 10W-40**	**10**

KEY PERFORMANCE BENEFITS:

- Low-SAPS formulation safeguards emission control systems and prolongs their service life.
- Offers outstanding wear protection and deposit control for high-performance diesel engines.
- Supports extended oil drain intervals without compromising protection.
- Maintains engine cleanliness and efficiency, even in high-soot environments.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Red brownish clear liquid	Red brownish clear liquid
Density (15°C), kg/m3 ,ASTM D4052	920-990	950
Flash point (COC), °C , ASTM D92	≥180	210
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-150	120
P Content, m%, ASTM D5185	0.66 – 0.79	0.75
Zn Content, m%, ASTM D5185	0.76 – 0.90	0.84
Ca Content, m% , ASTM D5185	1.45 - 1.75	1.60
B Content, m% , ASTM D5185	0.04 – 0.08	0.06
Mo Content, m% , ASTM D5185	0.06 – 0.10	0.08
N Content, m% , ASTM D5291	1.20-1.50	1.40
TBN, mg KOH/g , ASTM D2896	88 – 106	96
Sulphated Ash, m% , ASTM D874	6.0 – 8.0	7.6

SPECIFICATIONS:

- **MB 228.31 (DTFR 15C100)**
- **MB 228.51(DTFR 15C110)**
- **MB 228.52(DTFR 15C120)**
- **VOLVO VDS 4 & 4.5**
- **CUMMINS 20086/87/81**
- **DETROIT DIESEL DFS 93K222**
- **DFS 93K218, MAN 3777/3477/3677**
- **RENAULT RLD- 3 & 4**
- **MTU TYPE 3.1**
- **CAT ECF-3**
- **DUETZ DQC IV-18LA**
- **MACK EOS-4.5**
- **JASO DH-2**

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8505

API CK-4 LOW SAP LONG DRAIN DEO ADDITIVE

(Advanced Low-SAPS Long-Drain Diesel Engine Oil Additive)

DESCRIPTION:

CHEMPOL 8505 is an advanced heavy-duty diesel engine oil additive package specifically formulated for the production of top-tier & Reduced SAPS (Sulphated Ash, Phosphorus, and Sulfur) lubricants. It is designed to meet the stringent performance and emission requirements of modern diesel engines equipped with after-treatment systems such as Diesel Particulate Filters (DPF) and Selective Catalytic Reduction (SCR).
When blended with carefully selected Group III base oils and appropriate viscosity modifiers, **CHEMPOL 8505** enables the formulation of low-emission. These long-drain interval lubricants deliver excellent performance across a wide range of operating conditions. **CHEMPOL 8505** is the ideal solution for manufacturers targeting high-performance, low SAPS formulations that support cleaner emissions, extended drain intervals, and enhanced engine protection in modern diesel engines.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (Wt%)
CK-4, ACEA E4, E8, E7, E11	SAE 5W-30, SAE 10W-40	14.5

KEY PERFORMANCE BENEFITS:

- Low-SAPS formulation helps protect sensitive after-treatment systems.
- Supports long-drain intervals without compromising engine durability.
- Maintains excellent oxidation stability for extended lubricant life.
- Ensures high cleanliness in pistons and engine components.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Red brownish clear liquid	Red brownish clear liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	990
Flash point (COC), °C , ASTM D92	≥180	200
Kinematic Viscosity (100°C) mm2/s, ASTM D4052	Report	250
P Content, m%, ASTM D5185	0.48-0.56	0.54
Zn Content, m%, ASTM D5185	0.54-0.62	0.60
Ca Content, m% , ASTM D5185	0.82-0.92	0.88
Mg Content, m% , ASTM D5185	0.54-0.62	0.60
Mo Content, m% , ASTM D5185	0.025-0.045	0.035
TBN, mg KOH/g, ASTM D2896	86-96	90
Sulphated Ash, m%, ASTM D874	6.20-7.00	6.80

SPECIFICATIONS:

- **MB 228.31,228.51,228.52**
- **VOLVO VDS 4.5**
- **RENAULT RLD-4, RLD-3**
- **MACK EOS 4.5**
- **MAN 3777/3677**
- **MTU TYPE 3.1, 2.1**
- **CUMMINS CES 20086, 20087, 20081**
- **DUETZ DQC IV-18 LA**
- **DETROIT DIESEL 93K222, 93K218**
- **CAT ECF-3**
- **SCANIA LDF-4**
- **JASO DH-2**

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8012

API CI-4/SL & ACEA E7 DIESEL ENGINE OIL ADDITIVE

(Premier Diesel Engine Oil Additive for High Performance)

DESCRIPTION:

CHEMPOL 8012 is a premium performance additive package specifically engineered for the formulation of high-quality diesel lubricants. Developed to deliver outstanding protection and performance under severe operating conditions.
CHEMPOL 8012 enables formulators to meet and exceed the requirements of leading industry specifications, including **API CI-4 PLUS**, **CI-4/SL**, **CH-4/SJ**, **CG-4**, **CF-4**, and **ACEA E7**.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (Wt%)
API CI-4 PLUS, ACEA E7	**SAE 15W-40**	**9.6**
API CI-4/SL, ACEA E7	**SAE 10W-30, SAE 10W-40, SAE 15W-40, SAE 20W-50**	**8.8**
API CH-4/SJ, ACEA E7	**SAE 10W-30, SAE 10W-40, SAE 15W-40, SAE 20W-50**	**8.4**
API CG-4	**SAE 15W-40, SAE 20W-50**	**7**
API CF-4	**SAE 15W-40, SAE 20W-50**	**6**

KEY PERFORMANCE BENEFITS:

- Excellent wear protection for prolonged engine life.
- Strong detergency and dispersancy to maintain engine cleanliness.
- Effective soot and deposit control under severe operating conditions.
- Compatible with a wide range of diesel engine designs and specifications.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Red brownish clear liquid	Red brownish clear liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	990
Flash point (COC), °C , ASTM D92	≥180	200
Kinematic Viscosity (100°C) mm2/s, ASTM D4052	100-150	140
Ca Content, m%, ASTM D5185	3.50-3.80	3.6
Zn Content, m% , ASTM D5185	1.41-1.58	1.55
P Content, m% , ASTM D5185	1.35-1.50	1.42
B Content, m% , ASTM D5185	0.09-0.100	0.10
Mo Content, m%, ASTM D5185	0.06-0.08	0.06
N Content, m% , ASTM D5291	0.70-1.00	0.90
TBN, mg KOH/g, ASTM D2896	115-125	122
Sulphated Ash, m%, ASTM D874	14.5-15.8	15.0

SPECIFICATIONS:

- **MB 228.3(DTFR 15B110)**
- **MAN 3275**
- **VOLVO VDS-3**
- **DUETZ DQC-II & DQC-III**
- **MTU 2.0, MACK EO-M+**
- **MACK EO-N**
- **CUMMINS CES 20078/20077/20076**
- **CAT ECF-2**
- **ECF-1a**
- **RENAULT RLD-2**
- **JASO DH-1**
- **GLOBAL DHD-1**
- **DDC 93K215**

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8014

API CI-4/SL & ACEA E4 DEO ADDITIVE

(High-Strength Diesel Engine Oil Additive)

DESCRIPTION:

CHEMPOL 8014 is a high-performance universal additive package developed for formulating heavy-duty diesel engine oils meeting the demanding **API CI-4** and **ACEA E4** specifications. This robust additive system is optimized to support extended oil drain intervals in modern diesel engines operating under severe conditions, particularly those not equipped with exhaust after-treatment systems such as diesel particulate filters (DPFs).
Recommended for use in **Euro III**, **IV**, and **V** compliant engines, as well as in legacy models from a wide range of global OEMs, **CHEMPOL 8014** helps ensure cleaner engines, lower maintenance costs, and extended equipment life even under extreme operating conditions.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (Wt%)
API CI-4/SL, ACEA E4, E7	**SAE 10W-30, SAE 10W-40,SAE 15W-40, SAE 20W-50**	**9.2**

KEY PERFORMANCE BENEFITS:

- Supports extended drain intervals for reduced maintenance downtime.
- Excellent high-temperature stability and oxidation resistance.
- Superior wear protection for longer component life.
- Optimized for engines operating under severe and continuous load.

SPECIFICATIONS:

MB 228.3(DTFR 15B110), MB 228.5(DTFR 15B120), MAN 3277/3275/3377, VOLVO VDS-3, SCANIA LDF-3, DUETZ DQC-IV & DQC-III, MTU TYPE 3.0 & 2.0, MACK EO-M+, MACK EO-N, CUMMINS CES 20078/20077/20076, CAT ECF-2, ECF-1a, RENAULT RLD-2, JASO DH-1, GLOBAL DHD-1, DDC 93K215/93K214

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Red brownish clear liquid	Red brownish clear liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	1020
Flash point (COC), °C , ASTM D92	≥180	210
Kinematic Viscosity (100°C) mm2/s, ASTM D4052	100-150	120
Ca Content, m%, ASTM D5185	4.10-4.30	4.20
Zn Content, m% , ASTM D5185	1.70-1.90	1.80
P Content, m% , ASTM D5185	1.60-1.80	1.65
B Content, m% , ASTM D5185	0.07-0.09	0.08
Mo Content, m%, ASTM D5185	0.03-0.05	0.04
N Content, m% , ASTM D5291	0.70-0.90	0.80
TBN, mg KOH/g, ASTM D2896	138-150	142
Sulphated Ash, m%, ASTM D874	16.8-18.2	17.4

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 7998A

API CF/SF DIESEL & GASOLINE ENGINE OIL ADDITIVE

DESCRIPTION:

CHEMPOL 7998A is a versatile additive package formulated for use in heavy-duty diesel engine oils, designed to meet the performance requirements of **API CF, CD**, and **CF/SF** categories. This robust formulation delivers a high Total Base Number (**TBN**) exceeding **8 mg KOH/g**, ensuring excellent acid neutralization and extended engine protection.
CHEMPOL 7998A provides reliable performance in a wide range of diesel engine applications, including older-generation engines and mixed fleet operations. It offers effective protection against wear, corrosion, and deposit formation, contributing to cleaner engine operation and prolonged oil life.Ideal for use in both on-road and off-road environments, **CHEMPOL 7998A** is suitable for formulating cost-effective yet high-performing lubricants where legacy API performance levels are required.

KEY PERFORMANCE BENEFITS:

- High TBN for superior acid neutralization and extended oil life.
- Reliable wear and corrosion protection for older and mixed fleet engines.
- Suitable for both diesel and gasoline applications.
- Proven performance in on-road, off-road, and stationary engine environments.

DOSAGE RECOMMENDED (WT%):

Performance level	% WT
API CF-4/CF	**4.20**
API SL/CF	**3.90**
API SG/CD	**3.50**
API SF/CF	**3.20**
API SF/CD	**2.55**
API SE/CC	**2.40**
API SD/CD	**2.30**
API SD/CC	**2.15**
API SC/CC	**2.10**
API SB/CB	**1.00**

PRODUCT CHARACTERISTICS:

ITEM	Test Method	Typical Value
Appearance	Visual	Dark Brown Clear Liquid
Calcium Content, % wt	ASTM D4951	6.68
Zinc Content, % wt	ASTM D4951	2.70
Specific Gravity @ 15.6°C	ASTM D1298	1.020
Phosphorus, % wt	ASTM D4951	2.50
Nitrogen Content, % wt	ASTM D5291	0.45
TBN, mg KOH/gm	ASTM D2896	190
KV @ 100°C, CST	ASTM D445	70–90
Sulphated Ash, % wt	ASTM D874	24

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8073

UTTO-OFF ROAD ADDITIVE PACKAGE

DESCRIPTION:

CHEMPOL 8073 is a high-performance multifunctional additive package specifically designed for the formulation of Universal Tractor Transmission Oils. Its primary application is in agricultural machinery such as farm tractors and combines, where it ensures smooth operation of transmissions, final drives, hydraulics, and wet brake systems.
Beyond agricultural use, **CHEMPOL 8073** is also suitable for a wide range of off-highway and industrial equipment, making it an ideal solution for manufacturers seeking to streamline lubricant inventories. It can be effectively used in Construction equipment such as bulldozers, road graders, and front-end loaders, Forestry machinery with hydraulic and Powershift systems, Mining equipment with hydraulic systems, Lift trucks equipped with wet brakes, Buses, and trucks utilizing Powershift transmissions.
Formulated to deliver excellent anti-wear protection, frictional performance for wet brakes, and hydraulic stability, **CHEMPOL 8073** supports reliable operation across a wide range of equipment and conditions, ensuring reduced maintenance and enhanced component life.

DOSAGE RECOMMENDED (WT%):

The recommended dosage of **CHEMPOL 8073** is **7.0%** by wt.

KEY PERFORMANCE BENEFITS:

- Superior friction control eliminates chatter in wet brakes for smoother operation.
- Optimized for excellent shift quality in Powershift transmissions.
- Advanced copper protection prevents corrosion in hydraulic pumps.
- Maintains hydraulic stability for consistent performance in all conditions.

SPECIFICATIONS:

UTTO, API GL-4, ALLISON C4, TES 439, CAT TO-4, TO-4M, TO-2, JOHN DEERE J20C, J20D, VICKERS/EATON M2950S, I-286-S, Ford M2C86B/C, Ford M2C134D, CNH MAT 3525, 3526, 3505, 3509, Massey Ferguson: M1135/1141/1143/1145, Volvo WB101, WB102, ZF TE-ML 03E/05F/06E/06F/06K/17E/21F, KUBOTA UDT FLUID, KOMATSU KES 07.868.1

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark color Viscous Liquid	Dark color Viscous Liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	1010
Flash point (COC), °C , ASTM D92	150	170
Kinematic Viscosity (100°C) mm2/s, ASTM D4052	50-150	80
Ca Content, m%, ASTM D5185	5.29-6.08	5.74
Zn Content, m% , ASTM D5185	2.48-2.68	2.64
P Content, m% , ASTM D5185	2.30-2.50	2.39
TBN, mg KOH/g, ASTM D2896	160-180	170

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 8601

STOU-TRACTOR OIL ADDITIVE

DESCRIPTION:

CHEMPOL 8601 is a high-performance additive package developed for the formulation of Super Tractor Oil Universal (STOU) lubricants, designed to meet the multifunctional lubrication needs of modern agricultural machinery. It enables the creation of a single oil suitable for use in engines, transmissions, hydraulics, and wet brake systems, simplifying maintenance and inventory for farm operators.

CHEMPOL 8601 is compatible with a wide range of tractor transmission and hydraulic systems, including Powershift transmissions, Hydraulic systems, Power steering systems, Hydrostatic transmissions, Oil-immersed (wet) brakes, and Conventional gear drives Formulated to deliver reliable protection under heavy loads and varying operating conditions, **CHEMPOL 8601** ensures excellent wear control, thermal stability, and friction performance. It supports year-round use in agricultural environments by offering balanced performance across engine, transmission, and hydraulic components.

DOSAGE RECOMMENDED (WT%):

The recommended dosage for **CHEMPOL 8601** additive is **9.0 wt%** to meet all of the latest tractor requirements. At **8.0 wt%**, CHEMPOL 8601 additive can be used to provide an economic STOUS meeting the basic needs of the market.

KEY PERFORMANCE BENEFITS:

- Excellent wear and friction control for all types of tractor transmissions, including Powershift.
- Supports diesel engine performance up to API CG-4 and CF-4 standards.
- Ensures stable performance in hydraulic and power steering systems.
- Delivers thermal stability for reliable year-round operation.

SPECIFICATIONS:

SUTO, API GL-4, API CG-4, CF-4, CF, CD/SF, TO-2, JOHN DEERE J27, VICKERS/EATON M2950S, I-286-S, Ford M2C159B/C, New Holland 82009201/2/3, Massey Ferguson: M1145, ZF TE-ML 06A/06B/06C/06Q/07B

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark color Viscous Liquid	Dark color Viscous Liquid
Density (15°C), kg/m3 ,ASTM D4052	950-1050	970
Flash point (COC), °C , ASTM D92	≥180	200
Kinematic Viscosity (100°C) mm2/s, ASTM D445	Report	110
Ca Content, m%, ASTM D5185	3.70-4.00	3.93
Zn Content, m% , ASTM D5185	1.55-1.70	1.65
P Content, m%, ASTM D5185	1.45-1.60	1.50
TBN, mg KOH/g, ASTM D2896	120-134	124

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

MOTORCYCLE OIL ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5288

4T MOTORCYCLE ENGINE OIL ADDITIVE PACKAGE

(High-Performance Technology for JASO MA/MA2 Specifications)

DESCRIPTION:

CHEMPOL 5288 is a high-efficiency additive package developed to meet the rigorous demands of modern 4-stroke motorcycle engines. It is specifically engineered to formulate lubricants that fulfill **JASO T903:2011 MA** and **MA2** categories, ensuring excellent clutch engagement and friction control in wet clutch systems.
This technology provides wide compatibility with various base stocks and supports API performance levels ranging from SN to SJ, allowing manufacturers to simplify product lines while delivering consistent performance. It performs exceptionally in both air and liquid-cooled motorcycle engines.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage
JASO MA/MA2 API SN	**SAE 10W-40, SAE 15W-40, SAE 20W-40, SAE 20W-50**	**10.1**
JASO MA/MA2 JASO Quality Category SN	**ALL**	**10.1**
JASO MA/MA2 JASO Quality Category SM	**ALL**	**8.75**

KEY PERFORMANCE BENEFITS:

- Compatible with a broad range of base oils.
- Covers multiple API categories (SN to SJ), allowing product line consolidation.
- Supports longer oil drain intervals with high TBN retention.
- Designed to meet JASO MA and MA2 friction performance for enhanced clutch response.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-130	115
Density (15°C), kg/m3 , ASTM D4052	950-990	970
Flash Point (COC),°C, ASTM D92	≥140	<200
TBN, mg KOH/g, ASTM D2896	78-88	83
Ca Content, m% , ASTM D5185	2.24-2.46	2.35
Zn Content, m%, ASTM D5185	1.00-1.10	1.05
P Content, m%, ASTM D5185	0.86-0.96	0.91
N Content, m%, ASTM D5291	0.64-0.72	0.68
Sulphated Ash , ASTM D874	9.3-10.3	9.8

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5025

2T ENGINE OIL ADDITIVE PACKAGE

(Reliable Low-Ash Solution for Two-Stroke Engine Protection)

DESCRIPTION:

CHEMPOL 5025 is a high-performance additive technology formulated for modern two-stroke engine oils. It is engineered to meet and exceed key industry standards such as **API TC**, **JASO FC**, **Global GD**, and **TISI**. It offers outstanding engine protection and long-term performance under a wide range of operating conditions when blended with suitable mineral base oils.

This low-ash additive helps prevent the formation of harmful carbon deposits, reduces engine wear, and supports cleaner combustion. Its advanced chemistry ensures smoother engine performance whether in urban stop-and-go traffic or during extended high-speed operation.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
API TC, JASO FC, GLOBAL GC AND T.I.S.I	5
GLOBAL GD	7.5

KEY PERFORMANCE BENEFITS:

- Meets API TC, JASO FC, Global GC, GD, and TISI requirements.
- Provides superior piston cleanliness and ring-sticking prevention.
- Low-ash formulation supports cleaner emissions.
- Compatible with a wide range of base stocks.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	125-155	140
Density (15°C), kg/m3 , ASTM D4052	950-990	950
Flash Point (COC),°C, ASTM D92	≥140	<200
TBN, mg KOH/g, ASTM D2896	40-46	43
Ca Content, m% , ASTM D5185	0.66-0.74	0.70
N Content, m%, ASTM D5291	1.10-1.20	1.15

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

TRANSMISSION OIL ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4155

ATF DEXRON-III ADDITIVE

DESCRIPTION:

CHEMPOL 4155 is a high-performance Automatic Transmission Fluid additive package specifically developed to meet the demanding requirements of General Motors **DEXRON-III G/H** and **Ford MERCON** specifications. It is suitable for use in a wide range of automatic transmissions, including those found in GM and Ford vehicles up to model year 2005, as well as Allison C4 applications and other systems where a DIIIG/H quality ATF is specified.

When blended at a treat rate of **8.2 wt%** with a suitable base oil, **CHEMPOL 4155** delivers excellent performance in friction durability, oxidation stability, wear protection, and low-temperature fluidity—ensuring smooth shifting and reliable operation across a wide range of driving conditions.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
DEXRON III G/H, ALLISON C4, MB 236.2, Ford ESP-M2C 166-H, 138-CJ, Cat TO-2, ZF TE-ML 04D/14A VOITH H55.6335, 6336, MAN 339 Type V1/Z1/L1	**8.2**

KEY PERFORMANCE BENEFITS:

- Compatible with GM and Ford ATF requirements (pre-2005 models)
- Meets performance needs for Allison C4 transmissions
- Delivers strong oxidation resistance for long fluid life
- Suitable for use in a broad range of automatic transmission systems

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown Viscous Liquid	Dark Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s,ASTM D445	220-300	270
Density (15°C), kg/m3 , ASTM D4052	900-950	912
Flash Point (COC),°C, ASTM D92	≥140	<180
B Content, ppm , ASTM D5185	630-700	670
N Content, m% , ASTM D5291	0.93-1.03	0.98
P Content, m%, ASTM D5185	0.16-0.20	0.18

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 195 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4373A

ATF DEXRON-VI ADDITIVE

DESCRIPTION:

CHEMPOL 4373A is a high-performance automatic transmission fluid (ATF) additive package, specifically engineered for the formulation of next-generation low-viscosity ATFs using Group III base stocks. It is designed to meet the stringent performance requirements of modern transmission systems, including applications calling for **DEXRON-VI**, **MERCON LV**, and **JASO 1A-LV** specifications.

CHEMPOL 4373A enables the formulation of advanced ATFs that deliver superior performance in clutch friction durability, thermal and oxidative stability and low- temperature fluidity. Its balanced additive chemistry ensures reliable performance in both passenger vehicles and light-duty commercial transmissions, making it suitable for a broad range of OEM applications.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
DEXRON-VI, MERCON LV, JASO 1A-LV, MB 236.14 / 236.15, Toyota Type WS, Nissan Matic S, Hyundai SP-IV, Mazda FZ, ZF Lifeguard Fluid6	**10**

KEY PERFORMANCE BENEFITS:

- Helps improve fuel economy.
- Provides consistent shift performance for the life of the vehicle.
- Reduces sludge and varnish build-up.
- Protects transmission gears and allows them to operate smoothly.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown Viscous Liquid	Dark Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s,ASTM D445	50-100	70
Density (15°C), kg/m3 , ASTM D4052	900-970	920
Flash Point (COC),°C, ASTM D92	≥140	<180
B Content, ppm , ASTM D5185	710-790	750
N Content, m% , ASTM D5291	1.25-1.45	1.38
P Content, m%, ASTM D5185	0.14-0.18	0.16
S Content, m% , ASTM D4294	1.48-1.78	1.68

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 195 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4373C

CONTINUOUSLY VARIABLE TRANSMISSION (CVT) FLUIDS ADDITIVE

DESCRIPTION:

CHEMPOL 4373C is a specially formulated Continuously Variable Transmission (CVT) fluid additive package, developed using extensive vehicle application knowledge and transmission system expertise. It is designed to meet the demanding performance requirements of a broad range of vehicles equipped with push-belt and chain-type CVT systems.

CHEMPOL 4373C enables the formulation of high-quality CVT fluids when blended with suitable Group III base stocks and PMA-based viscosity index improver **(CHEMPOL 5403)**, delivering the critical balance of frictional performance, anti-wear protection, and thermal stability required for smooth, efficient, and long-lasting transmission operation.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
TOYOTA CVTF TC, CVTF FE, NISSAN NS 1/2/3, HONDA Z-1, HCF-2, MITSUBISHI SP-III(CVT), CVTF-J1, GM-DEX CVT, BMW MINI COOPER, HUYNDAI/KIA CVT J-1, SP-III	**8**

KEY PERFORMANCE BENEFITS:

- Extended friction durability to provide superior anti-shudder performance and enhanced driving comfort
- A well-balanced, high level of both torque capacity and anti-shudder performance.
- Ensures smooth shifting, reduced belt slippage, and consistent performance.
- Offers excellent oxidation resistance and thermal stability for long drain intervals.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-160	130
Density (15°C), kg/m3 , ASTM D4052	900-950	925
Flash Point (COC),°C, ASTM D92	≥140	<180
B Content, ppm , ASTM D5185	1260-1550	1405
P Content, m% , ASTM D5185	0.32-0.38	0.35

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 195 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4690

DUAL CLUTCH TRANSMISSION (DCT) ADDITIVE

DESCRIPTION:

CHEMPOL 4690 is a high-performance Dual Clutch Transmission (DCT) fluid additive package engineered to meet the unique requirements of modern DCT systems, which combine the efficiency of manual transmissions with the convenience of automatics. DCT systems are characterized by the presence of two clutch sets, a hydraulic control system, and an additional shift control mechanism, making their lubrication needs more complex than traditional gearboxes.

CHEMPOL 4690 is specially formulated to deliver balanced frictional performance, gear wear protection, and hydraulic system compatibility. It ensures smooth gear engagement, optimal clutch operation, and efficient pressure transfer across both clutch sets and the hydraulic circuit, which is critical for the performance & and longevity of dual-clutch systems.

CHEMPOL 4690 enables the formulation of w-high quality DCT fluids when blended with suitable Group III base stocks and PMA-based viscosity index improver **(CHEMPOL 5403)**, delivering the critical balance of frictional performance, anti-wear protection, and thermal stability required for smooth, efficient, and long-lasting transmission operation.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
(VW, Audi, Seat, Skoda, Renault, Chrysler, Ford, Mitsubishi, Peugeot / Citroen, Volvo)-6 speed, Bugatti Veyron	**10.8**

KEY PERFORMANCE BENEFITS:

- Designed for wet DCT systems with dual-clutch modules and hydraulic control circuits
- Provides excellent anti-wear protection for gears and synchronizers
- Delivers superior oxidation stability, thermal resistance, and component cleanliness
- Excellent low-temperature fluidity and rubber sealing material adaptability.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	100-160	130
Density (15°C), kg/m3, ASTM D4052	900-970	925
Flash Point (COC),°C, ASTM D92	≥140	<180
B Content, ppm , ASTM D5185	1100-1450	1200
P Content, m% , ASTM D5185	0.22-0.30	0.26

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 195 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4200

API GL-5/LS MANUAL TRANSMISSION FLUID ADDITIVE

DESCRIPTION:

CHEMPOL 4200 is a high-performance gear oil additive package formulated for manual transmissions and axle lubricants requiring wide-span multigrade performance, including **SAE 75W-90** and **75W-80**. Designed for use in synthetic base stocks, it offers exceptional thermal stability, corrosion resistance, and seal compatibility. Its compatibility with synchromesh transmissions makes it suitable for both passenger and commercial vehicle applications.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
API GL-5, API GL-4, MT-1, DAF, MIL-PRF-2105E MAN 341 Type Z-2, E-3, M-3 MB 235.8, ZF TE-ML 02B, 05B, 12B, 17B, 21B, 16F, 19C	**SAE 75W-80, SAE 75W-90 SAE 75W-140 SAE 80W-90, SAE 85W-140**	**10 (GL-5) 8.5 (GL-4)**

KEY PERFORMANCE BENEFITS:

- Delivers API GL-5, GL-4, and MT-1 performance in synthetic gear oil formulations.
- Provides outstanding corrosion protection for extended component durability.
- Compatible with synchromesh transmissions for smooth shifting.
- Maintains strong seal compatibility to prevent leaks and protect system integrity.

PRODUCT CHARACTERISTICS:

ITEM	INDEX	TYPICAL VALUE
Appearance,Visual	Dark Brown Liquid	Dark Brown Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	4.0-8.0	5.02
Density (15°C), kg/m3 , ASTM D4052	970-1050	1010
Flash Point (COC),°C, ASTM D92	≥100	>120
B Content, m%, ASTM D5185	0.37-0.57	0.52
M Content, m% , ASTM D5185	0.85-1.05	0.95
N Content, m% , ASTM D5291	0.55-0.75	0.61
P Content, m% , ASTM D5185	1.47-1.79	1.63
S Content, m% , ASTM D4294	18.5-22.7	20.6

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 4343

MANUAL TRANSMISSION FLUID ADDITIVE

DESCRIPTION:

CHEMPOL 4343 is a premium-grade, non-chlorine extreme pressure additive system for manual gear oils. At a recommended treat rate of **4.2 wt%** in suitable base stocks, it produces finished gear lubricants meeting **API GL-5** service classifications. At lower treat rates of **2.1 wt%**, it delivers lubricants suitable for **API GL-4**. It is also suitable for grease formulations and industrial lubricants requiring dependable performance under extreme pressure and heavy load conditions.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
API GL-5, MT-1	**SAE 90, SAE 140, SAE 80W-90, SAE 85W-140**	**3.8-4.2**
API GL-4	**SAE 90, SAE 140, SAE 80W-90, SAE 85W-140**	**2.0-2.1**
Greases	**----**	**1.5-4.0**
Industrial Lubricants USS 224, AGMA 9005-E02 DIN 51517 Part 3	**ALL ISO Grades**	**1.5**

KEY PERFORMANCE BENEFITS:

- Produces API GL-5 quality lubricants at 4.2 wt% treat rate.
- Delivers API GL-4 performance at lower treat rates.
- Suitable for use in greases and heavy-duty industrial lubricants.
- Provides strong protection under extreme pressure and heavy load conditions.

PRODUCT CHARACTERISTICS:

ITEM	INDEX	TYPICAL VALUE
Appearance,Visual	Clear Yellow Liquid	Clear Yellow Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	3.0-7.0	5.02
Density (15°C), kg/m3 , ASTM D4052	970-1050	1010
Flash Point (COC),°C, ASTM D92	≥100	<150
S Content, m%, ASTM D4294	23.8-29.1	26.5
P Content, m% , ASTM D5185	1.17-1.43	1.3

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

VISCOSITY INDEX IMPROVERS

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5026

LOW SSI VI IMPROVER (LIQUID FORM)

DESCRIPTION:

CHEMPOL 5026 is a shear-stable amorphous Ethylene-Propylene copolymer intended for use as VI improver when formulating multigrade crankcase and industrial oils. It is a unique low viscosity emulsion based in a hydrotreated or hydrocracked carrier fluid. It has good low-temperature performance when combined with a suitable pour point depressant and gives superior pour point results.

DOSAGE RECOMMENDED (WT%):

SAE Viscosity Grades	Dosage, wt%
SAE 5W-30	7 - 12
SAE 10W-30	5 - 8
SAE 10W-40	9 - 14
SAE 10W-50	15 - 22
SAE 15W-40	8 – 11
SAE 20W-40	2 - 5
SAE 20W-50	7 - 11

KEY PERFORMANCE BENEFITS:

- Provides low SSI with excellent shear stability, ensuring long-term viscosity retention in service.
- Delivers good low-temperature fluidity, especially when used with suitable pour point depressants.
- Offers superior pour point reduction, enhancing cold-start and winter performance of lubricants
- Supplied in liquid form for easy handling and blending with both mineral and synthetic base stocks.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Bright & Clear Liquid	Bright & Clear Liquid
ASTM Color,ASTM D6045	L0.5	L0.5
Kinematic Viscosity (100° C) mm2/s,ASTM D445	900 - 1100	1000
Density (15° C), kg/m3, ASTM D4052	840 - 870	840
Flash Point (COC), ° C, ASTM D92	≥200	210
Shear Stability Index, ASTM D6278	18-22	22
Ash Content, wt%, ASTM D874	<0.4	0.1

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 165 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5510

LOW SSI VI IMPROVER (BALE FORM)

DESCRIPTION:

CHEMPOL 5510 is a high-performance, shear-stable amorphous Ethylene-Propylene copolymer designed to function as a viscosity index (VI) improver in the formulation of multigrade engine and industrial lubricants. It provides excellent low-temperature fluidity when used in conjunction with an appropriate pour point depressant and delivers outstanding pour point performance, ensuring optimal protection and performance across a wide temperature range.

KEY PERFORMANCE BENEFITS:

- Excellent shear stability for long-term viscosity control.
- Enhances low-temperature properties of lubricant formulations.
- Compatible with a wide range of base stocks and additives.
- Superior pour point performance when used with suitable PPDs.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Transparent Bale Form	Transparent Bale Form
Mooney Viscosity ML (1+4), 100 ° C,ASTM D1238	8 - 13	8.5
Density (15° C), kg/m3,ASTM D4052	840 - 880	860
Ethylene Content, wt%, ASTM D3900	48 – 52	52
Shear Stability Index, ASTM D6278	18-22	22
Ash Content, wt%, ASTM D874	<0.4	0.1
Kinematic Viscosity@100°C (1wt% in GI SN-150) *, ASTM D445	8 - 10	8.9

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 25 Kg bag, 500Kg & 1000 Kg Jumbo bag
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5530

SHEAR STABLE VI IMPROVER (SOLID FORM)

DESCRIPTION:

CHEMPOL 5530 is a solid-form Olefin Copolymer (OCP) Viscosity Index Improver specifically engineered for use in both monograde and multigrade crankcase oils, as well as a variety of industrial lubricant formulations. This low molecular weight copolymer offers a balanced combination of thickening efficiency and medium shear stability.

CHEMPOL 5530 also delivers excellent low-temperature performance and dissolves rapidly in base oils, making it an ideal choice for efficient blending. Treat rates vary depending on the target application and desired performance levels.

KEY PERFORMANCE BENEFITS:

- Solid form for convenient handling and fast dissolution in base oils.
- Balanced thickening efficiency and shear stability.
- Medium shear stability suitable for a range of lubricant applications.
- Excellent low-temperature fluidity and performance.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Granular Form	Granular Form
MFI (230 °C, 2,16 Kg) (g/10 min),ASTM D1238	8 - 13	8.3
Density (15° C), kg/m3,ASTM D4052	840 - 880	860
Ethylene Content, wt%, ASTM D3900	64 – 72	66
Shear Stability Index, ASTM D6278	24	24
Ash Content, wt%, ASTM D874	<0.4	0.1
Kinematic Viscosity@100°C (1wt% in GI SN-150) *, ASTM D445	10 - 12	10.5

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 20 Kg bag, 500Kg & 1000 Kg Jumbo bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5550

SHEAR STABLE VI IMPROVER (BALE FORM)

DESCRIPTION:

CHEMPOL 5550 is a solid-form Olefin Copolymer (OCP) Viscosity Index Improver specifically engineered for use in both monograde and multigrade crankcase oils, as well as a variety of industrial lubricant formulations. This low molecular weight copolymer offers a balanced combination of thickening efficiency and excellent shear stability.

CHEMPOL 5550 exhibits excellent resistance to both high and low temperature, delivers excellent low-temperature performance and dissolves rapidly in base oils, making it an ideal choice for efficient blending. Treat rates vary depending on the target application and desired performance levels.

KEY PERFORMANCE BENEFITS:

- Solid form for convenient handling and fast dissolution in base oils.
- Balanced thickening efficiency and shear stability.
- Excellent shear stability suitable for a range of lubricant applications.
- Excellent low-temperature fluidity and performance.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Granular Form	Granular Form
MFI (230 °C, 2,16 Kg) (g/10 min),ASTM D1238	8 - 13	8.3
Density (15° C), kg/m3,ASTM D4052	840 - 880	860
Ethylene Content, wt%, ASTM D3900	48 – 54	52
Shear Stability Index, ASTM D6278	24	24
Ash Content, wt%, ASTM D874	<0.4	0.1
Kinematic Viscosity@100°C(1wt% in GI SN-150) *, ASTM D445	9 - 11	10

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 20 Kg bag, 500Kg & 1000 Kg Jumbo bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5403

PMA BASED VI IMPROVER (LIQUID FORM)

DESCRIPTION:

CHEMPOL 5403 is a specially designed POLY METHACRYLATE Copolymer type VI Improver for formulating the lubricants where very low shear stability & high viscosity index is desired. It is recommended mainly for low SSI hydraulic oil, automotive transmission oils, automotive multigrade premium gear oils, Utto wet brake oils and shock absorber oils. It meets the sonic shear stability requirements for shock absorber oils.

KEY PERFORMANCE BENEFITS:

- High viscosity index enhancement.
- Controlled, low shear stability for specific applications.
- Polymethacrylate based chemistry for optimized thermal and viscosity performance.
- Excellent low-temperature flow characteristics.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Light Golden Viscous Liquid	Light Golden Viscous Liquid
ASTM Color, ASTM D6045	<2.0	1.0
Density (15° C), kg/m3,ASTM D4052	860 - 920	890
Kinematic Viscosity@100 ° C, ASTM D445	1100 – 1600	1400
Flash Point, ° C, ASTM D92	>180	190
Shear Stability Index, ASTM D6278	15-20	18
Ash Content, wt%, ASTM D874	<0.4	0.1
VI Boost @ 5wt% in Oil, ASTM D2270	>30	35

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 165 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

VISCOPOLY 1000

CONCENTRATED VI IMPROVER

DESCRIPTION:

VISCOPOLY 1000 is liquid viscosity Modifier having Shear Stability Index (SSI) of 24 with excellent low temperature properties and less volatility. It is Olefin Co polymer (OCP) solubilized in GR III base oil and does not contain pour point depressant.

VISCOPOLY 1000 is designed to formulate multigrade gasoline and diesel engine oils meeting the most stringent specifications set by SAE, particularly high-performance gasoline and diesel engine oils that requires Euro IV, V and VI, Low/mid SAP engine oils applications for stay in grade.

KEY PERFORMANCE BENEFITS:

- Provides excellent shear stability (SSI 24) to ensure long-lasting viscosity performance.
- Offers outstanding low-temperature properties for reliable cold start protection.
- Formulated with low volatile oil to minimize oil consumption and evaporation loss.
- Designed for high-performance gasoline and diesel engine oils, including Euro IV, V, and VI compliant lubricants.

DOSAGE RECOMMENDED (WT%):

SAE Viscosity Grades	Dosage, wt%
SAE 5W-30	7 - 12
SAE 10W-30	5 - 8
SAE 10W-40	9 - 14
SAE 10W-50	15 - 22
SAE 15W-40	8 – 11
SAE 20W-40	2 - 5
SAE 20W-50	7 - 11

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Bright & Clear Liquid	Bright & Clear Liquid
ASTM Color, ASTM D6045	L0.5	L0.5
Kinematic Viscosity@100 ° C, ASTM D445	900 - 1100	1000
Density (15° C), kg/m3,ASTM D4052	840 - 870	850
Flash Point, ° C, ASTM D92	≥200	210
Shear Stability Index, ASTM D6278	22-24	24

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 165 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

VISCOMAX

HIGHLY CONCENTRATED VI IMPROVER

DESCRIPTION:

VISCOMAX is a shear-stable Ethylene-Propylene copolymer supplied in solubilized form, specifically formulated for use as a Viscosity Index (VI) Improver in lubricating oils. It is ideally suited for the formulation of multigrade gasoline and diesel engine oils that comply with the most demanding SAE performance standards.

VISCOMAX offers exceptional handling characteristics, making it especially beneficial for manufacturers in remote locations or regions with challenging climate conditions. It's easy-to-handle liquid form simplifies blending operations and ensures consistent performance.

KEY PERFORMANCE BENEFITS:

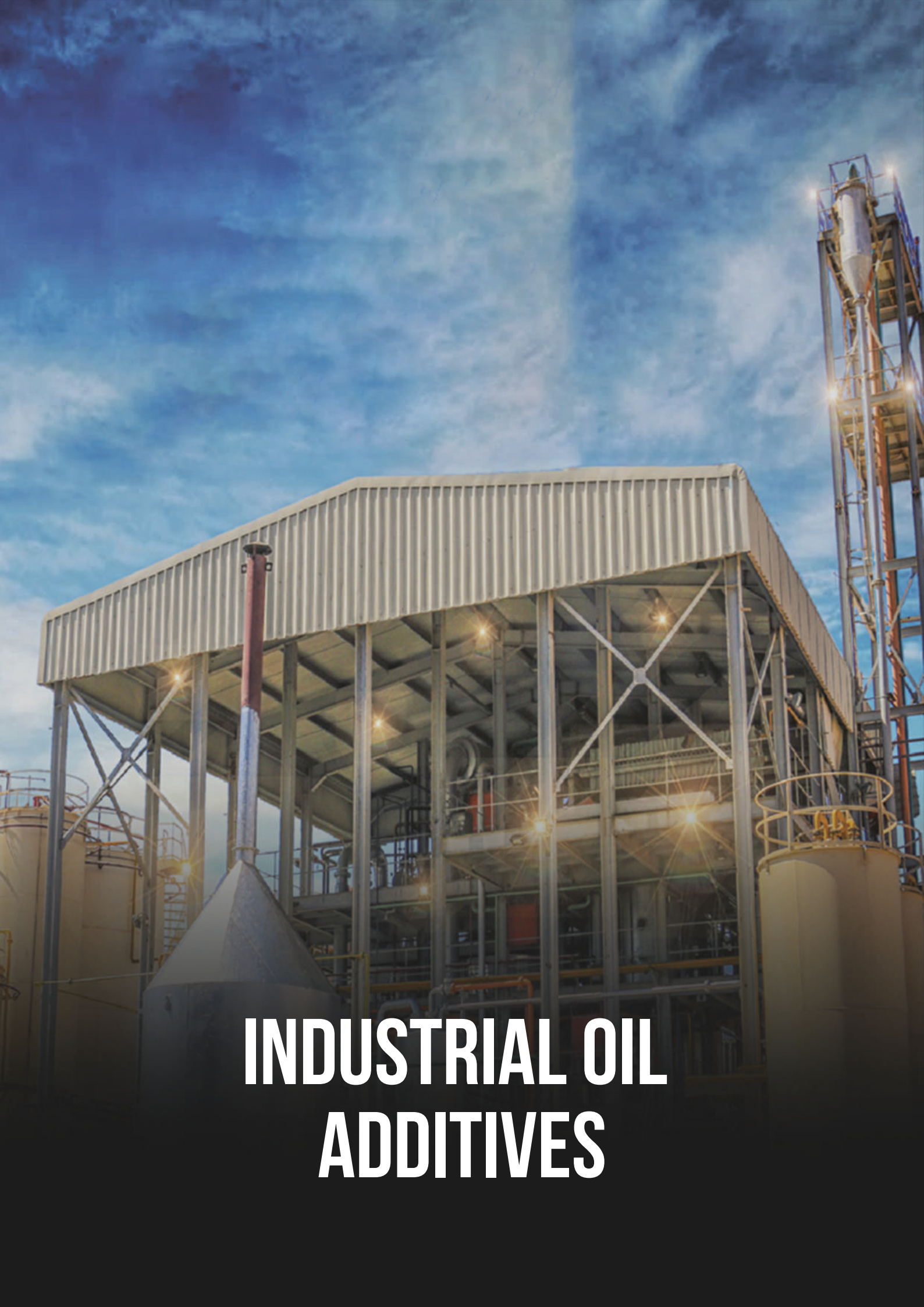
- Solubilized form for simplified handling and blending.
- Excellent shear stability for long-term viscosity retention.
- Designed for multigrade gasoline & diesel engine oil formulations.
- Meets stringent SAE specification requirements.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION		
	(VISCOMAX 1300)	(VISCOMAX 1800)	(VISCOMAX 2200)
Appearance,Visual	Turbid Solution	Turbid Solution	Turbid Solution
Kinematic Viscosity@100 ° C, ASTM D445	1200 - 1400	1600 - 2000	2000 - 2400
Density (15° C), kg/m3,ASTM D4052	840 - 870	840 - 870	840 - 870
Flash Point, ° C, ASTM D92	≥200	≥200	≥200
Shear Stability Index, ASTM D6278	24	24	24

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 165 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.



INDUSTRIAL OIL ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5022

ANTIWEAR HYDRAULIC OIL ADDITIVE

DESCRIPTION:

CHEMPOL 5022 additive is designed for the formulation of hydraulic oils. In addition to superior wear control, the product imparts rust and oxidation inhibition to the oil. **CHEMPOL 5022** additive is a flexible package suitable for both premium quality and economic performance levels through an appropriate choice of dosage.

DOSAGE RECOMMENDED (WT%):

The recommended dosage for **CHEMPOL 5022** additive is as follows:

- **0.3 %** to **0.5 %**wt for minimum antiwear performance in high leakage system.
- **0.6 %** to **0.75 %**wt for economic hydraulic oil requiring wear and oxidation protection.
- **0.8 %** to **1.0 %**wt for premium hydraulic oils meeting major National and International Specifications.
- **1.25 %**wt to formulate hydraulic oil meeting Rexnord Racine requirements for long drain applications with increased load carrying abilities

KEY PERFORMANCE BENEFITS:

- Outstanding wear protection, as manifested by performance in the **35VQ25** pump exceeding Vickers requirements.
- Good filterability.
- Security and confidence from a product with an extensive history of trouble – free performance worldwide

SPECIFICATIONS:

DIN 51524-part 2, 3, AIST 126/127, ASTM D6158 (HM, HV), GB 11118.1-2011, ISO 11158 (HM, HV), Denison Parker HF-0, HF-1, HF-2 (HM, HV), Cincinnati Machines P-68, P-69, P-70
Bosch Rexroth RDE 90235, ISO 6743 HM; ISO 6743 HV, AFNOR filtration test, Eaton E-FDGN-TB002-E, JCMAS P041 HK Hydraulic specification

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Amber Liquid	Clear Amber Liquid
ASTM Color, ASTM D6045	0.5-2.0	1.0
Kinematic Viscosity (40°C) mm2/s, ASTM D445	50-150	100
Density (15°C), kg/m3, ASTM D4052	1000-1100	1060
Flash Point (COC), °C, ASTM D92	≥140	200
Zn Content, m%, ASTM D5185	7.1-7.9	7.5
P Content, m%, ASTM D5185	6.0-6.8	6.4

Oem specs are viscosity grade specific , consult chempol representative for more information

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5024

ASHLESS ANTIWEAR HYDRAULIC OIL ADDITIVE

DESCRIPTION:

CHEMPOL 5024 additive is an ash less antiwear package, which is fully formulated for premium performance, in antiwear hydraulic, turbine and compressor applications. To ensure trouble free use, **CHEMPOL 5024** additive has been designed to have excellent compatibility with hydraulic oils currently on the market, both Zinc containing and ashless.

DOSAGE RECOMMENDED (WT%):

At the treat rate of **0.87%** wt, it will meet following specifications:

- DIN 51524-part 2, 3
- AIST 126/127
- ASTM D6158 (HM, HV)
- GB 11118.1-2011
- ISO 11158 (HM, HV)
- Denison Parker HF-0, HF-1, HF-2 (HM, HV)
- Cincinnati Machines P-68, P-69, P-70
- Bosch Rexroth RDE 90235
- ISO 6743 HM; ISO 6743 HV
- AFNOR filtration test
- Eaton E-FDGN-TB002-E
- JCMAS P041 HK Hydraulic specification.

KEY PERFORMANCE BENEFITS:

- Outstanding wear protection, as manifested by performance in the **35VQ25** pump exceeding Vickers requirements.
- Good filterability.
- Security and confidence from a product with an extensive history of trouble – free performance worldwide.
- Water tolerance / Excellent separation from water (**IP19** and **D1401**).

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Amber Liquid	Clear Amber Liquid
ASTM Color, ASTM D6045	0.5-2.0	1.0
Kinematic Viscosity (40°C) mm2/s, ASTM D445	50-150	100
Density (15°C), kg/m3, ASTM D4052	1000-1100	1060
Flash Point (COC), °C, ASTM D92	≥140	200
Zn Content, m%, ASTM D5185	7.1-7.9	7.5
P Content, m%, ASTM D5185	6.0-6.8	6.4

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5065

ASHLESS RUST & OXIDATION INHIBITOR ADDITIVE

DESCRIPTION:

CHEMPOL 5065 is a high-performance, ashless additive package designed for the formulation of premium turbine and hydraulic R&O fluids. It is fully formulated to deliver exceptional performance in systems where oxidation stability, rust protection and water separation are critical to operational efficiency and equipment longevity. This additive is particularly suited for use in steam, gas, and hydro turbines, as well as industrial hydraulic systems, offering extended oxidation life, enhanced demulsibility and excellent filterability. Its ashless formulation ensures minimal deposit formation, making it ideal for systems that require clean, long-life operation

DOSAGE RECOMMENDED (WT%):

At a dosage of **0.80 %** wt in suitable base stocks the **CHEMPOL 5065** R & O inhibitor meets the following requirements:

- Cincinnati Milacron P-38, P-54, P-55, P-57 & P-62
- General Electric GEK 32568, GEK 107395, GEK 46506
- Solar Turbines ES9-224
- U.S Military MIL-H-17672 D
- DIN 51515, Part 1&2, DIN 51524, Part 1, DIN 51517, Part 2, DIN 51506
- Denison HF-0, HF-1
- British Standards BS489
- Solar ES 9-224
- Siemens TLV 9013 04
- Alstom HTGD 90 117
- AGMA 9005 E02-RO

KEY PERFORMANCE BENEFITS:

- Excellent rust control.
- Extended oxidation life.
- Resistance to sludge formation.
- Compatible with a wide range of industrial fluids.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Brown Liquid	Clear Brown Liquid
Density (15°C), kg/m3, ASTM D4052	950-1000	980
Flash Point (COC), °C, ASTM D92	≥100	<160
N Content, m%, ASTM D5291	3.0-3.6	3.3
P Content, m%, ASTM D5185	0.3-0.7	0.5
S Content, m%, ASTM D4294	6.5-7.5	7.0

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5049

THERMIC FLUID ADDITIVE

DESCRIPTION:

CHEMPOL 5049 is an ashless type heat transfer oil additive package specially formulated for temperature working range from **-20** to **+ 340 °C** in closed heat transfer system. This package is specially made to meet excellent heat transfer and superior rust and corrosion protection, reduce oxidation, thermal degradation and minimize fouling and deposit formation on internal tubes & contact parts.

DOSAGE RECOMMENDED (WT%):

The recommended dosage for **CHEMPOL 5049** additive is **1.0 to 2%.**

KEY PERFORMANCE BENEFITS:

- Long Life.
- Clean and bright finished parts.
- Exceptional resistance to sludge and deposit formation.
- Outstanding corrosion inhibition.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Amber Liquid	Clear Amber Liquid
ASTM Color, ASTM D6045	0.5-2.0	1.0
Kinematic Viscosity (100°C) mm2/s, ASTM D445	5-20	10
Density (15°C), kg/m3, ASTM D4052	920-980	940
Flash Point (COC), °C, ASTM D92	≥160	<200
N Content, m%, ASTM D5185	1.5-2.5	1.8
Ash Content, m%, -	Nill	Nill

When blended with solvent refined/ hydro treated group II **ISO VG 32** base stocks (typical) at the treat level of **1.0 – 2 %** w/w it gives the following performance results:

Cu Strip Corrosion, 3 Hrs. @ 100°C (ASTM D 130)	1A
Rust Test (ASTM D 665 A & B)	Pass
Demulsibility (ASTM D 1401) in 20 minutes	40-40-0
Air release value@50°C Max. Minutes	3.5
Seal Compatibility Test	pass
Cincinnati Milacron Test	pass
Specific Heat Kcal/Kg-°C	
@ 260 °C	0.750
@ 280 °C	0.770
@ 300 °C	0.795

Foam Test (ASTM D 892)	
Sequence I (@ 24°C)	10/0
Sequence II (@ 93.5°C)	30/0
Sequence III (@ 24°C)	10/0
RBOT (ASTM D 2272), minutes	700+

Foam Test (ASTM D 892)	
Sequence I (@ 24°C)	10/0
Sequence II (@ 93.5°C)	30/0
Sequence III (@ 24°C)	10/0
RBOT (ASTM D 2272), minutes	700+

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5103

WATER SOLUBLE CUTTING FLUID ADDITIVE

DESCRIPTION:

CHEMPOL 5103 has been formulated to meet the requirements for the preparation of soluble oils from paraffinic and naphthenic base oils, which will give stable milky emulsions in all types of water. It is also suitable as the base for the preparation of translucent semi-synthetic micro-emulsions and also heavy-duty EP emulsions. It is a blend of emulsifying agents, wetting agents, and rust inhibitors, together with solvent refined mineral oils. It also contains biocides and fungicide additives to give the finished soluble oils and long service life, prevent emulsion breakdown and spoilage. It is an extremely versatile product for medium-cutting operations, provides all the lubrication and cooling properties necessary to ensure good work piece finish, and extended tool life. It is suitable on ferrous and non-ferrous metals in turning, milling, drilling, tapping, threading and cold sawing operations

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown Viscous Liquid	Dark Brown Viscous Liquid
Density (15°C), kg/m3, ASTM D4052	950-990	980
VISCOSITY @40°C, mm2/s, ASTM D445	200-300	230
TAN, mg KOH/g, ASTM D664	30-40	38
PH OF THE EMULSION IN D. WATER, ASTM D1293	8-9.5	8.7

SOLUBLE OIL FORMULATIONS BASED ON CHEMPOL 5103:

Typical opaque soluble oil formulations

A treat rate of **15-20 %** wt in paraffinic base oils yields a concentrate, which forms stable emulsions (5%) in medium hard water. The addition of biocide is recommended.

Suggested minimum treatment levels of CHEMPOL 5103 in base oil:

150 SUS Paraffinic Oil: from **15 %** w/w

100 SUS Paraffinic Oil: from **17 %** w/w

100 SUS Naphthenic Oil: from **15 %** w/w

Semi-synthetic formulation

CHEMPOL 5103	**50%** w/w
100 SUS Naphthenic oil	**48%** w/w
Triethanolamine	**2%** w/w

Emulsion Characteristics:

Appearance	Transparent
Corrosion test **IP.287**	**50:1** Pass

EP Soluble oil formulation

CHEMPOL 5103	**40%** w/w
100 SUS Naphthenic oil	**50%** w/w
Chlorinated paraffin	**10%** w/w

Emulsion Characteristics

Corrosion test **IP.287**	**20:1** Pass

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 51810

KNITTING OIL EMULSIFIER

DESCRIPTION:

CHEMPOL 51810 is a specialized non-ionic emulsifier additive designed for use in oil formulations across a wide range of fiber, textile knitting, and machinery lubrication applications. It enables the formation of stable milky emulsions in water and is particularly effective in anti-static and lubricating treatments for textile and industrial processes.

This additive is fully compatible with paraffinic mineral base oils in the viscosity range of **SN 70** to **SN 150**, making it highly versatile for different formulation requirements.

DOSAGE RECOMMENDED (WT%):

- **7.0-9.0% in SN/N70 Group I/II base oils.**
- **13.0-16.0% in SN/N 150 Group I/II base oils.**

KEY PERFORMANCE BENEFITS:

- Non-ionic emulsifier ideal for knitting oils and textile machinery applications
- Excellent compatibility with paraffinic base oils (SN 70 to SN 150)
- Suitable for blending soluble oils used in fiber, textile, and industrial machinery sectors
- Forms stable milky emulsions in water at 5% dilution (1:20 ratio)

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Colorless Liquid	Colorless Liquid
Density (15°C), kg/m3, ASTM D4052	850-950	900
Flash Point (COC), °C, ASTM D92	≥180	<200
VISCOSITY @100°C, mm2/s, ASTM D445	4-7	5
TAN, mg KOH/g, ASTM D664	<0.5	0.1
EMULSION STABILITY (@7.0% W/W IN OIL), Visual	Stable	Stable
PH OF THE EMULSION @3%wt, ASTM D1293	7-9	7.3

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

MARINE OIL ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 9012M

MARINE CYLINDER OIL ADDITIVE

DESCRIPTION:

CHEMPOL 9012M is a high-performance Multi-Cylinder Lubricant (MCL) additive package designed for formulating premium engine oils for large two-stroke crosshead marine diesel engines. These engines are widely used in merchant vessels, container ships, oil and gas tankers, and other heavy-duty marine applications operating under extreme load and environmental conditions.

Its balanced chemistry provides strong lubrication, wear protection, and deposit control in high-pressure and high-temperature cylinder environments. It strengthens oil film, maintains piston cleanliness, and prevents liner scuffing and ring wear—enhancing overall engine performance, fuel efficiency, and reliability. **CHEMPOL 9012M** can also serve as a TBN booster in formulating high TBN lubricants for four-stroke marine engines.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
For 50 TBN Oils in suitable base stocks	**15**
For 70 TBN Oils in suitable base stocks	**21.2**
For 80 TBN Oils in suitable base stocks	**24.2**
For 100 TBN Oils in suitable base stocks	**30.3**

KEY PERFORMANCE BENEFITS:

- Provides robust lubrication for high-load, high-temperature marine engine cylinders.
- Enhances piston cleanliness and reduces deposit formation.
- Strengthens oil film for stable operation under severe marine conditions.
- Offers flexibility as a TBN booster for four-stroke engine lubricants.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	50-100	70
Density (15°C), kg/m3 ,ASTM D4052	1050-1150	1110
Flash point (COC), °C , ASTM D92	≥180	200
TBN, mg KOH/g , ASTM D2896	300-340	330
Ca Content, m% , ASTM D5185	11.4-12.8	12.4
N Content, m% , ASTM D5291	0.012-0.020	0.015

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 9424M

SYSTEM OIL (SO) & TRUNK PISTON ENGINE OIL (TPEO) ADDITIVE

DESCRIPTION:

CHEMPOL 9424M is a multifunctional additive package designed for formulating Trunk Piston Engine Oils (TPEO) and System Oils (SO) for medium-speed marine and stationary diesel engines. It provides stable performance across fuels with varying sulfur levels, ensuring excellent protection and efficiency under both marine and power generation operations. Suitable for single and multi-fuel environments, it offers exceptional formulation flexibility, especially when combined with **CHEMPOL9012M** to meet tailored performance requirements.

DOSAGE RECOMMENDED (WT%):

Performance level	TBN	CHEMPOL 9012M	CHEMPOL 9424M	TOTAL DOSAGE
To Formulate System Oil for Crosshead engines with Oil Cooled Piston API CC	**5**	**--**	**3.2**	**3.2**
To Formulate System Oil for Crosshead engines with Oil Cooled Piston	**6**	**0.3**	**3.2**	**3.5**
To Formulate System Oil for Crosshead engines with Oil Cooled Piston	**7**	**0.5**	**3.5**	**4.0**
For normally aspirated marine diesel engine oils and also suitable To Formulate System Oil for Crosshead engines with Oil Cooled Pistons API CD	**10**	**--**	**6.3**	**6.3**
For Diesel Engines operated on Gasoil or Marine diesel oil API CD	**12**	**0.5**	**6.3**	**6.8**
For Diesel Engines operated on Residual Fuel to formulate lubricants of TBN 20	**20**	**3.0**	**6.3**	**9.3**
For Diesel Engines operated on Residual Fuel to formulate lubricants of TBN 30	**30**	**6.1**	**6.3**	**12.4**
For Diesel Engines operated on Residual Fuel to formulate lubricants of TBN 40	**40**	**9.2**	**6.3**	**15.5**

KEY PERFORMANCE BENEFITS:

- Optimized for medium-speed diesel engines in marine and power generation sectors.
- Maintains performance with fuels of varying sulfur content.
- Provides strong detergency to control deposits in high-load operations.
- Offers excellent oxidation resistance for longer oil life.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous liquid	Brown Viscous liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	50-90	70
Density (15°C), kg/m3 , ASTM D4052	1000-1100	1020
Flash Point (COC),°C, ASTM D92	≥180	>200
TBN, mg KOH/g, ASTM D2896	150-180	170
Ca Content, m% , ASTM D5185	5.65-6.25	5.85
Zn Content, m%, ASTM D5185	0.77-0.87	0.82
P Content, m%, ASTM D5185	0.68-0.78	0.73
N Content, m%, ASTM D5291	0.50-0.70	0.55

SPECIFICATIONS:

SYSTEM OIL

- **MAN DIESEL**
- **WARTSILA**
- **MITSUBISHI**
- **KEMEL**

TRUNK PISTON ENGINE OIL

- **API CD**
- **API CF**
- **MAN DIESEL**
- **WARTSILA**
- **DAIHATSU**
- **CAT**
- **HIMSEN**
- **BERGEN**

*Oem specs are viscosity grade specific , consult chempol representative for more information *

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 9233M

RAILROAD ENGINE OIL ADDITIVE

DESCRIPTION:

CHEMPOL 9233M is a high-performance, zinc-free and chlorine-free additive package developed for crankcase lubricants in medium-speed railroad diesel engines. It is suitable for both monograde (**SAE 40**) and multigrade (e.g., **SAE 20W-40**, Railroad Multigrade) formulations using a variety of base stocks and viscosity modifiers.

Designed to meet the demanding standards of OEMs such as **General Electric** and **General Motors EMD**, it provides excellent detergency, oxidation stability, and wear protection. Its compatibility with mixed-fleet operations makes it an ideal choice for operators looking for reliable and consistent engine protection across multiple engine types.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
GE Generation 4 Long Life LMOA Generation 5 API CD, CF, CF-2 Caterpillar 3601	**SAE 40 SAE 20W-40 Railroad Multigrade**	**10.2**
GE Generation 4 Long Life API CD, CF, CF-2 Caterpillar 3601	**SAE 40 SAE 20W-40**	**13.0**

KEY PERFORMANCE BENEFITS:

- Zinc-free and chlorine-free formulation for improved environmental compatibility.
- Excellent detergency to keep engines clean under heavy-duty service.
- Robust wear protection to extend component life.
- Broad compatibility for both monograde and multigrade railroad oil formulations.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Brown Viscous liquid	Brown Viscous liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	40-90	70
Density (15°C), kg/m3 , ASTM D4052	920-1000	950
Flash Point (COC),°C, ASTM D92	≥200	220
TBN, mg KOH/g, ASTM D2896	125-140	130
Ca Content, m% , ASTM D5185	4.20-4.80	4.40
Zn Content, ppm, ASTM D5185	<30	<10
Cl Content, ppm, GMS 0021	<30	<10

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5340R

ASHLESS WATER COOLED 2T OIL ADDITIVE

(Trusted Performance for Outboard and Marine Applications)

DESCRIPTION:

CHEMPOL 5340R is a next-generation ashless additive package developed specifically for two-stroke engines that operate in water-cooled environments. Designed to meet the rigorous demands of outboard marine engines, this additive delivers outstanding cleanliness, excellent lubricity, and superior rust protection even during extended periods of engine inactivity.

Formulators can rely on **CHEMPOL 5340R** to produce high-quality lubricants that meet **NMMA TC-WIII** performance standards. Its ashless composition helps eliminate issues related to spark plug fouling and pre-ignition, promoting smoother engine function and extended component life.

DOSAGE RECOMMENDED (WT%):

Performance level	Dosage
NMMA TC-WIII, mineral	10.5
NMMA TC-WIII, Synthetic Biodegradable	15
NMMA TC-WII, mineral	9.8

KEY PERFORMANCE BENEFITS:

- Exceptional detergent power that prevents piston and exhaust port deposits
- Excellent corrosion protection for long-term engine preservation.
- Reliable performance across a wide variety of marine engine brands
- Meets TC-WIII quality levels in both mineral and synthetic systems

PRODUCT CHARACTERISTICS:

ITEM	Index	Typical Value
Appearance,Visual	Clear Brown Liquid	Clear Brown Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	40-80	55
Density (15°C), kg/m3 , ASTM D4052	900-950	920
Flash Point (COC),°C, ASTM D92	≥140	<200
N Content, m%, ASTM D5291	3.0-6.0	5.6

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5956

NMMA FC-W 4T OIL ADDITIVE

(Reliable Protection for High-Performance Marine Engines)

DESCRIPTION:

CHEMPOL 5956 is a purpose-built additive package tailored for use in four-stroke marine engines, particularly those operating with modern emissions systems. Designed to meet the **NMMA FC-W** Catalyst Compatible specification, this formulation provides robust protection for gasoline-powered sterndrives and inboards—especially those equipped with catalytic converters.

Engineered for marine-specific challenges, **CHEMPOL 5956** protects against the harsh effects of water exposure, salt corrosion, and long idle periods, while also supporting smooth performance at high RPMs. It's a balanced blend of detergent, anti-wear, and antioxidant components that ensures clean engine operation and long oil life under demanding conditions.

DOSAGE RECOMMENDED (WT%):

Performance level	SAE Viscosity Grade	Dosage (m%)
NMMA FC-W Catalyst Compatible	**SAE 10W-30, SAE 10W-40, SAE 20W-40, SAE 20W-50**	**9.0**
NMMA FC-W	**SAE 10W-30, SAE 10W-40, SAE 20W-40, SAE 20W-50**	**9.0**

KEY PERFORMANCE BENEFITS:

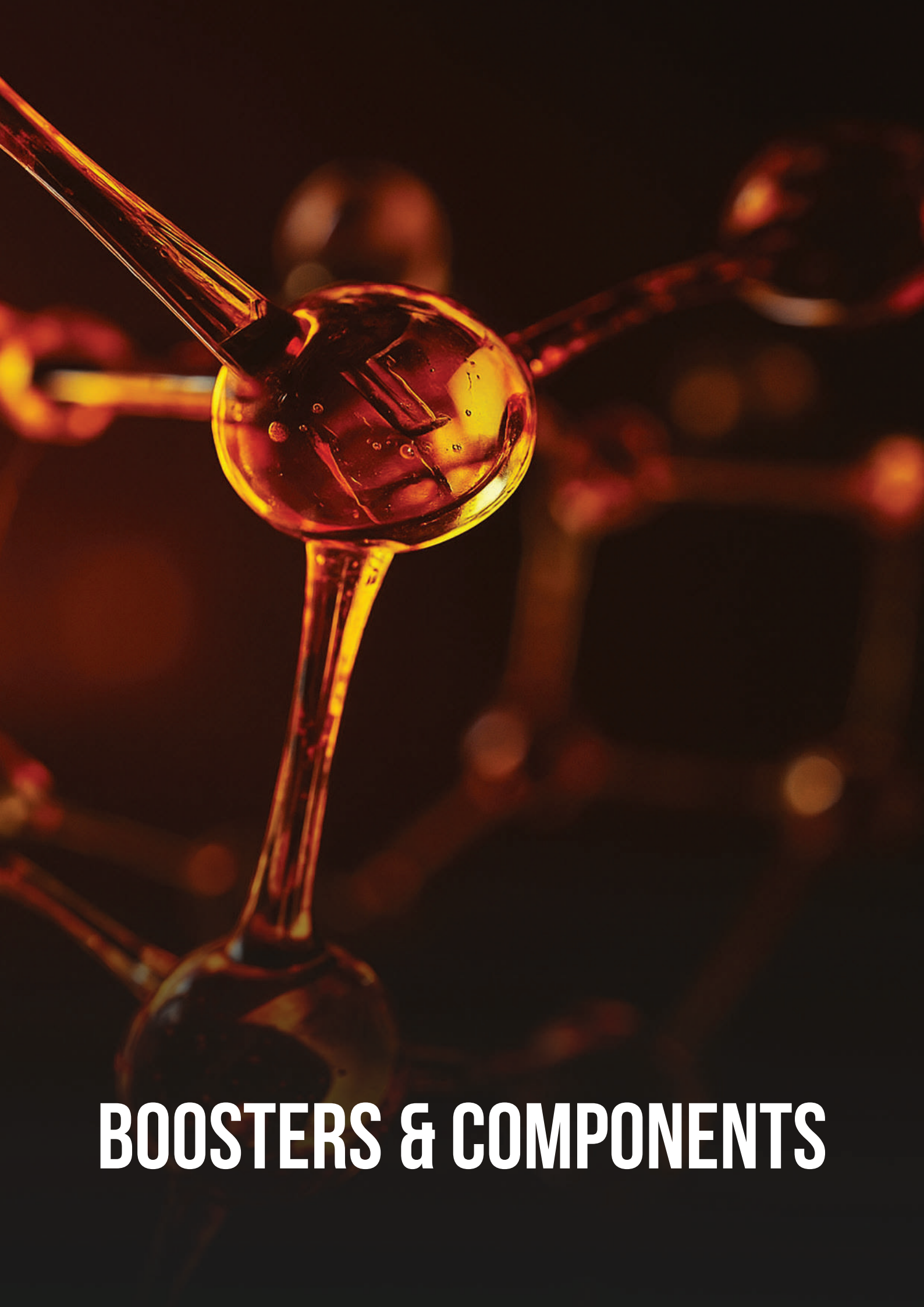
- Fully compliant with NMMA FC-W Catalyst Compatible requirements
- Delivers enhanced wear protection and oxidation control.
- Minimizes deposit buildup for cleaner pistons and combustion chambers
- Compatible with catalytic converters to help meet modern marine emissions regulations.

PRODUCT CHARACTERISTICS:

ITEM	Index	Typical Value
Appearance,Visual	Brown Viscous Liquid	Brown Viscous Liquid
Kinematic Viscosity (100°C) mm2/s, ASTM D445	50-150	95
Density (15°C), kg/m3 , ASTM D4052	950-1050	970
Flash Point (COC),°C, ASTM D92	≥120	<200
TBN, mg KOH/g, ASTM D2896	2.0-2.2	2.1
Ca Content, m% , ASTM D5185	0.80-0.98	0.94
Zn Content, m%, ASTM D5185	0.78-0.88	0.86
P Content, m%, ASTM D5185	0.75-0.92	0.83
N Content, m%, ASTM D5291	0.04-0.06	0.052
B Content, m% , ASTM D5185	75 Max	<60
Sulphated Ash , ASTM D874	8.4-9.6	9

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.



BOOSTERS & COMPONENTS

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5540C

OVER BASED CALCIUM SULFONATE

DESCRIPTION:

CHEMPOL 5540C is a general-purpose overbased calcium sulfonate additive with excellent base reserve, strong acid neutralization, and superior oil solubility. It effectively neutralizes both organic and inorganic acids in lubricants while delivering high-temperature detergency and strong thermal stability.

As a versatile base number booster, **CHEMPOL 5540C** is widely applied in automotive, diesel, marine, railroad, and stationary diesel lubricants, ensuring consistent performance across a variety of demanding conditions.

DOSAGE RECOMMENDED (WT%):

The dosage of **CHEMPOL 5540C** is typically **0.5-5.0%** by weight.

KEY PERFORMANCE BENEFITS:

- Provides strong acid neutralization for both organic and inorganic acids.
- Offers excellent base reserve for longer lubricant life.
- Enhances thermal stability under severe conditions.
- Suitable as a general-purpose base number booster across multiple lubricant applications.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown viscous liquid	Dark Brown viscous liquid
Density @ (15°C), kg/m3 , ASTM D4052	1150-1250	1200
Kinematic Viscosity @ (100°C) mm2/s, ASTM D445	60-120	85
Flash Point (COC), °C, ASTM D92	≥180	210
Total Base Number, mg KOH/g, ASTM D2896	395-425	405
Ca Content, m%, ASTM D5185	14.5-16.5	15.3

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5540M

OVER BASED MAGNESIUM SULFONATE

DESCRIPTION:

CHEMPOL 5540M is a general-purpose over based magnesium sulfonate additive that provides excellent acid neutralization, anti-rust protection, and high-temperature detergency. It is widely applied in engine oil formulations, including automotive, diesel, and stationary diesel lubricants. The additive is compatible with mineral base oils, white oils, and synthetic base stocks, offering versatility and stability across different formulations.

DOSAGE RECOMMENDED (WT%):

The recommended treat rate of **CHEMPOL 5540M** is typically **0.5–5.0%** by weight, depending on the application.

KEY PERFORMANCE BENEFITS:

- Strong acid neutralization capacity for prolonged engine protection.
- Provides anti-rust properties for enhanced durability of engine components.
- Compatible with a wide range of mineral and synthetic base stocks.
- Supports performance across automotive, diesel, and stationary lubricants.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Dark Brown viscous liquid	Dark Brown viscous liquid
Density @ (15°C), kg/m3 , ASTM D4052	1060-1150	1110
Kinematic Viscosity @ (100°C) mm2/s, ASTM D445	80-150	95
Flash Point (COC), °C, ASTM D92	≥180	210
Total Base Number, mg KOH/g, ASTM D2896	395-425	405
Mg Content, m%, ASTM D5185	8.8-9.8	9.1

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5555

POUR POINT DEPRESSANT

DESCRIPTION:

CHEMPOL 5555 is a shear-stable pour point depressant designed for use in engine oils, hydraulic fluids, and gear oils. Developed with advanced polymer technology, it delivers superior low-temperature performance across a wide range of lubricants. It is especially effective in formulations using catalytically dewaxed base stocks and high-ethylene content OCP viscosity modifiers. **CHEMPOL 5555** also performs well in lubricants formulated with conventional solvent-refined base stocks, making it a versatile choice for modern and traditional applications.

DOSAGE RECOMMENDED (WT%):

The dosage of **CHEMPOL 5555** is typically **0.1-0.3%** by weight and higher treat rates typically **0.5-1.0%** by weight may be required for gear oils.

COMPOSITION:

CHEMPOL 5555 is a viscous concentrate of poly alkyl methacrylate in highly refined neutral oil.

KEY PERFORMANCE BENEFITS:

- Excellent high-temperature detergency and strong low-temperature dispersancy.
- Enhances soot solubilization for cleaner engine performance.
- Chlorine-free composition to meet environmental standards.
- Broad application in engine oils, ATFs, and two-stroke lubricants.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Amber Liquid	Clear Amber Liquid
ASTM Color, ASTM D6045	0.5-2.0	1.0
Density @ (15°C), kg/m3 , ASTM D4052	880-950	910
Kinematic Viscosity (100°C) mm2/s , ASTM D445	50-150	110
Flash Point (COC), °C, ASTM D92	≥160	180

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 180 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5395

ANTI-WEAR & ANTIOXIDANT

DESCRIPTION:

CHEMPOL 5395 is a high-performance ZDDP additive, composed of zinc butyl octyl primary alkyl dithiophosphate. It delivers outstanding anti-wear protection, oxidation inhibition, corrosion resistance, and extreme pressure performance.

With its light color, excellent oil solubility, and broad compatibility with other additives, **CHEMPOL 5395** is widely applied in industrial lubricants such as hydraulic oils and gear oils. It is also used in multigrade engine oil formulations, where it works synergistically with detergents and dispersants to provide balanced and reliable performance.

DOSAGE RECOMMENDED (WT%):

The dosage of **CHEMPOL 5395** is typically **0.5-3.0%** by weight.

KEY PERFORMANCE BENEFITS:

- Provides exceptional anti-wear and extreme pressure protection.
- Strong oxidation inhibition for extended oil life.
- Excellent oil solubility and additive compatibility.
- Light-colored formulation suitable for a wide range of lubricants.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Clear Amber liquid	Clear Amber liquid
Density @ (15°C), kg/m3 , ASTM D4052	1060-1150	1120
Kinematic Viscosity @ (100°C) mm2/s, ASTM D445	10-20	12.02
Flash Point (COC), °C, ASTM D92	≥180	200
Zn Content, m%, ASTM D5185	8.0-10.0	8.9
P Content, m%, ASTM D5185	6.0-8.5	7.5

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5210

ASHLESS DISPERSANT

DESCRIPTION:

CHEMPOL 5210 has high temperature detergency and low temperature dispersing capability, and increases the solubilization of high temperature soot. Compared to common dispersing agents, it has better low and high temperature dispersing capability, and it is free of chlorine, which meets the demands of the environment. **CHEMPOL 5210** is suitable for use in a wide range of lubricant formulations, including high-grade engine oils, automatic transmission fluids, and two-stroke engine oils.

DOSAGE RECOMMENDED (WT%):

The recommended dosage of **CHEMPOL 5210** is **1-5%** by weight depending on the application.

KEY PERFORMANCE BENEFITS:

- Excellent high-temperature detergency and strong low-temperature dispersancy.
- Enhances soot solubilization for cleaner engine performance.
- Chlorine-free composition to meet environmental standards.
- Broad application in engine oils, ATFs, and two-stroke lubricants.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance,Visual	Reddish Brown transparent viscous liquid	Reddish Brown transparent viscous liquid
Density @ (15°C), kg/m3 , ASTM D4052	880-950	915
Kinematic Viscosity @ (100°C) mm2/s, ASTM D445	150-250	200
Flash Point (COC), °C, ASTM D92	≥180	200
Total Base Number, mg KOH/g, ASTM D2896	40-70	45
N Content, m%, ASTM D5291	2.0-2.6	2.5

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 185 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL 5800

NON-SILICON TYPE FOAM INHIBITOR

DESCRIPTION:

CHEMPOL 5800 is an ashless type defoamer for mineral and synthetic based automotive oils, gear oils, turbine oils, hydraulic oils and compressor oils. **CHEMPOL 5800** shows excellent stability and compatibility with all the systems. **CHEMPOL 5800** is recommended for use at **50** to **1,000 ppm** to impart characteristics to blended lubricants.

PERFORMANCE AND FEATURES:

- Good solubility characteristics.
- Improved foam inhibition as measured by ASTM 892 foam test.
- High flash point.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Density @ 15°C, Kg/m3,ASTM D4052	820-900	860
Kinematic Viscosity (100°C), mm2/s, ASTM D445	100-300	200
Flash Point (COC),°C , ASTM D92	≥100	<180
Pour Point , ASTM D97	<-18	-21

CHEMPOL 5177

SILICONE BASED ANTIFOAM

DESCRIPTION:

CHEMPOL 5177, Silicon based antifoam is prepared from Dimethylpolysiloxane polymers with linear chains. It can be used as a Foam Inhibitor for motor oil formulations.

DOSAGE RECOMMENDED (WT%):

The recommended dosage is **30** to **50 ppm**. Prepare a master batch as follows:

- **Dodecyl benzene (Kerosene) (99.9) %wt**
- **CHEMPOL 5177 (0.1) %wt**

The treat level range is between **0.030** to **0.050 %wt** of the above master batch and depends on the quality of base oil being used.

PERFORMANCE AND FEATURES:

- Excellent thermal stability and good resistance to combustion.
- Good dielectric properties.
- Low freezing point.
- High compressibility.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Density @ 15°C, Kg/m3,ASTM D4052	950-990	980
Kinematic Viscosity (100°C), mm2/s, ASTM D445	>3000	3800
Flash Point (COC),°C , ASTM D92	≥300	>300
Refractive Index , ASTM D1807	>1.30	1.403

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

GREASE ADDITIVES

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL G-12 HSA

(12-HYDROXY STEARIC ACID)

DESCRIPTION:

CHEMPOL G-12 HSA, commonly known as **12-Hydroxy Stearic Acid**, is the mixed fatty acid obtained by hydrolysis of Hydrogenated Castor Oil. It is a high-melting, brittle, waxy solid at ambient temperatures and should be stored away from heat to avoid deterioration. It is insoluble in water, and its solubility in many organic solvents is also limited. It is a non-toxic, non-hazardous material and is used in the manufacturing of greases.

KEY PERFORMANCE BENEFITS:

- Appears as off-white flakes or powder with a high melting point (72–78°C).
- Non-toxic and non-hazardous, making it safe for industrial applications.
- Provides excellent thickening properties for grease manufacturing.
- Stable waxy solid with limited solubility in organic solvents and insoluble in water.

PRODUCT CHARACTERISTICS:

ITEM	INDEX
Appearance	Off White Flakes/Powder
Molecular Weight	300
Color Gardner, max	5
Acid Value % (mg KOH/g)	175 to 185
Iodine Value gI2 /100g	3 to 4
Hydroxyl Value (mg KOH/g), Min	150
Saponification Value, Min	180
Melting Point ° C	72 - 78
Unsaponifiable Matter, Max	1.0
Nickel, PPM	3 - 5
12 HSA %	83 - 87
12 Keto Stearic Acid, Max	2

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 25 Kg bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL G-HCO

(HYDROGENATED CASTOR OIL)

DESCRIPTION:

CHEMPOL G-HCO (Hydrogenated Castor Oil), also called Castor Wax, is a hard, brittle, high-melting solid that is tasteless and odorless. It is insoluble in water, and solubility in many organic solvents is also very limited. HCO is available as flakes or powder, which melts to a clear transparent liquid. It is a non-toxic, non-hazardous material used in the manufacturing of greases and lubricants.

KEY PERFORMANCE BENEFITS:

- Appears as white flakes or powder with high melting stability.
- Insoluble in water and has limited solubility in organic solvents.
- Used in manufacturing greases and lubricants as a key raw material.
- Non-toxic and non-hazardous, making it safe for industrial use.

PRODUCT CHARACTERISTICS:

ITEM	INDEX
Appearance	White Flakes/Powder
Color Gardner, max	3
Acid Value % (mg KOH/g)	1 to 3
Iodine Value gI2 /100g	2 to 3
Hydroxyl Value (mgKoH/gm), Min	157
Saponification Value, Min	175
Melting Point ° C	83 - 89
Unsaponifiable Matter, Max	1.0
Nickel, PPM	3 - 5
12 HSA %	82 - 87
12 Keto Stearic Acid, Max	2
Flash Point ° C, Min	218

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 25 Kg bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL G-LITHIUM HYDROXIDE

(LITHIUM 12-HYDROXYSTEARATE)

DESCRIPTION:

CHEMPOL G-LITHIUM HYDROXIDE, commonly known as **Lithium 12-hydroxystearate** ($C_{18}H_{35}LiO_3$), is a chemical compound classified as a lithium soap. In chemistry, "soap" refers to salts of fatty acids. **Lithium 12-hydroxystearate** is a white solid, and Lithium soaps are a key component of many lubricating greases. Lithium 12-hydroxystearate exhibits high oxidation stability and a dropping point up to around **200 °C**. Most greases used today in motor vehicles, aircraft, and heavy machinery contain lithium stearates, mainly **lithium 12-hydroxystearate**.

Greases can be made with the addition of several different metallic soaps. Some greases are prepared from sodium, barium, lithium, and calcium soaps. Lithium soap greases are preferred for their water resistance and their oxidative and mechanical stability. Depending on the grease, they also have good performance at high or low temperatures.

KEY PERFORMANCE BENEFITS:

- Appears as a white crystalline solid with stable bulk density.
- Provides high oxidation stability and excellent mechanical strength.
- Widely used in lubricating greases for vehicles, aircraft, and heavy machinery.
- Delivers water resistance and stability under both high and low temperature conditions.

PRODUCT CHARACTERISTICS:

ITEM	INDEX
Appearance	White Crystals
Typical Bulk Density	>0.9
Lithium Hydroxide, wt%	56.5–58.0
Chloride, wt%, max	0.005
Sulphate, wt%, max	0.03
Calcium Oxide, wt%, max	0.03
Iron Oxide, wt%, max	0.0015
Carbon Dioxide, wt%, max	0.35
Sodium, wt%, max	0.03

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 25 Kg bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL G-TALLOW

(FATTY ACID/ANIMAL FAT)

DESCRIPTION:

CHEMPOL G-TALLOW is a high-quality technical animal fat. Tallow is low in free fatty acid content, which is below **3%**. Due to its higher saturated fatty acid content in the triglyceride structure, **CHEMPOL G-TALLOW** is significantly more stable to oxidative rancidity. This product is used as a lubricity additive in greases and lubricants. It works as a humectant, emollient, gelling agent, flotation aid, and release aid, and is often used as a chemical intermediate and processing aid.

KEY PERFORMANCE BENEFITS:

- Low free fatty acid content (<3%) ensures stable quality.
- High saturated fatty acid structure provides excellent oxidative stability.
- Acts as a humectant, emollient, gelling, flotation, and release aid.
- Serves as a chemical intermediate and processing aid in multiple applications.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION
Acid Value (mg KOH/g)	200-208
Iodine Value gI2 /100g	40-62
Saponification Value, Min	200
Titer ° C	38-42
Total fat content, min, wt%	99
Moisture, max, wt%	1
Impurities, max, wt%	1
Unsaponifiable matter, max, wt%	0.5
Composition %: C8, C10, C12, C14, C16, C18-1, C18-2 & C18-3	<0.5, <0.5, <1.5,2,25,20,43,5 & 1

CHEMPOL G-CLAY

(BENTONITE CLAY)

DESCRIPTION:

Bentonite Clay powder is used as a non-soap thickener in the manufacturing of greases. Organophilic clay thickeners include the mineral bentonite. These minerals are purified to remove any non-clay material, ground to the desired particle size distribution, and then chemically treated to make the particles organophilic (more compatible with organic chemicals). Bentonite Clay particles are then dispersed in a fluid lubricant to form grease. Clay particles must be activated with a polar material to stabilize the thickener structure. No chemical reaction takes place in the production of clay thickened greases. Clay thickeners have no defined melting point, so they have been used historically in high- temperature greases.

KEY PERFORMANCE BENEFITS:

- Appears as a fine powder with a moisture content of less than 3%.
- Functions as a non-soap thickener in grease manufacturing.
- Offers thermal stability as it has no defined melting point.
- Provides a strong, thickening structure when activated with a polar material.

PRODUCT CHARACTERISTICS:

ITEM	INDEX
Appearance	Powder
Moisture, % Max	3
Loss On Ignition (LOI) %	28 - 33

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 185 KG drums, & 25 KG bag.
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

SYNTHETIC BASE OILS

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

SYNOIL PAOS

(POLYALPHAOLEFIN)

(Highly Branched Isoparaffinic PolyAlphaolefin)

DESCRIPTION:

SynOil PAOs are specially designed chemicals that are uniquely made from alpha olefins. These stable molecules are produced by Steam cracking hydrocarbons to produce ultra-high-purity ethylene, Ethylene oligomerization to develop 1-decene and 1-dodecene & Decene or dodecene oligomerization to form a mixture of dimers, trimers, tetramers and higher oligomers. **SynOil PAOs** can be used in many industrial and automotive lubricant applications.

KEY PERFORMANCE BENEFITS:

- Greater oxidative stability.
- Superior volatility.
- Excellent low-temperature viscosities.
- Consistent, quality base stock.

PRODUCT CHARACTERISTICS:

Property	Value				
Product	2cSt	4cSt	8cSt	65cSt	150cSt
Appearance	B & C	B & C	B & C	B & C	B & C
Color, Pt-Co	0	0	0	0	0
Odor	No Foreign	No Foreign	No Foreign	No Foreign	No Foreign
Specific Gravity, 60°/60°F, 15.6°/15.6°C	0.7981	0.8190	0.8326	0.8460	0.849
Kinematic Viscosity,cSt @ 212 °F,100°C	1.7	3.9	7.8	65	156
Kinematic Viscosity, cSt @ 104°F, 40°C	5.1	16.8	46.4	605	1719
Kinematic Viscosity, cSt @ -40°F, -40°C	260	2498	19574	-	-
Viscosity Index	-	124	138	181	205
Pour Point, °C	-73	-68	-56	-46	-39
Flash Point (COC),°C	158	226	262	266	278
Bromine Index	<200	<200	<200	<400	<400
Total Acid Number	<0.03	<0.03	<0.03	-	-
Volatility, Noack , wt%	-	13.4	3.5	-	-

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 175 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

SYNOIL ESTER

(DI, POLY & COMPLEX ESTER)

DESCRIPTION:

SynOil Esters are common Group V base oils used in different lubricant formulations to improve the properties of the existing base oil. Ester oils can take more abuse at higher temperatures and will provide superior detergency compared to a PAO synthetic base oil, which in turn increases the hours of use.They can be used in many industrial and automotive lubricant applications. These include gear oils,compressor oils, engine oils, hydraulic fluids, turbine fluids, greases, chain lubricants, and other functional fluids.

KEY PERFORMANCE BENEFITS:

- Resistant to thermal breakdown.
- Good metal-wetting ability.
- High film strength
- Good shear stability

PRODUCT CHARACTERISTICS:

Property	Value				
SynOil ES	2971	2917	3345	TMP 05/68	TMP 05/320
Appearance	B & C	B & C	B & C	B & C	B & C
Specific Gravity, 60°/60°F,15.6°C	0.909	0.916	0.990	0.918	0.932
Kinematic Viscosity, cSt @ 100°C	5.3	2.5	14.4	13	42
Kinematic Viscosity, cSt @ 40°C	26.7	8.4	112	71	326
Viscosity Index	135	127	155	184	176
Pour Point, °C	-57	-36	-49	-42	-39
Flash Point (COC),°C	236	210	300	>300	>300
Hydroxyl Value, mgKOH/g	<2	<2	<12	<15	<15
Acid Value, mgKOH/g	<0.03	<0.03	<0.05	<2	<1
Volatility, Noack , wt%	7	31	2.0	1.4	<1

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 175 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

SPECIALITY CHEMICALS

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL GLYCOLS

(MEG, DEG, TEG, BDGE, BTG)

DESCRIPTION:

Glycols are clear, low-volatility, mobile liquid with a very faint, mild odor. It is miscible with many common solvents, e. g. aliphatic hydrocarbons, alcohols, ketones, aldehydes, ethers, glycols, glycol ethers and water. Butyl glycol may form peroxides, if it comes into contact with atmospheric oxygen.

KEY PERFORMANCE BENEFITS:

- A low-volatility solvent component in various paint systems to improve gloss and levelling.
- An additive for metal degreasers and floor cleaners etc.
- An intermediate in the manufacture of plasticizers.
- A co-solvent for printing inks, stamp-pad inks, writing and drawing inks.
- Additive for brake fluids. (Note: Butyl glycol can cause seals to swell if added in large amounts)
- An ingredient for cutting oils.

PRODUCT CHARACTERISTICS:

PARAMETERS	MEG	DEG	TEG	BDGE	BTG
Pt/Co color value, Max	50 max.	50 max.	35 max.	10	50
Density @ 20°C (g/cm3)	1.1153 -1.1156	1.1150-1.1170	1.124 – 1.126	0.952- 0.956	0.990 – 0.998
Viscosity @ 20°C (mPaS)	20	13.65	51	NA	10-11
Boiling range °C	197	245	NA	228-232	265 – 350
Refractive index n20D	1.4321	1.4476	1.453 – 1.457	1.431-1.433	1.440 – 1.442
Evaporation rate, Approx.	NA	NA	NA	3500	8000
Flash point °C	NA	NA	176	NA	131
Ignition temperature °C	NA	NA	NA	NA	202
Water %,max	0.05 max	0.1 Max	0.2 max.	0.1	0.1

HANDLING INFORMATION:

- **Max Handling Temp:** 40°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 210 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** >40°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL BLUE DYES

CHEMICAL PROPERTIES:

Solvent Chemistry: Xylene / Dimethyl Benzene / Alkyl Benzene

PHYSICAL PROPERTIES:

Solubility:

- Water - Insoluble
- Benzene - Soluble
- Xylene - Soluble
- Oils - Soluble

PRODUCT CHARACTERISTICS:

Property	Method	Value
Odour	Typical	Aromatic
Appearence	Visual	Dark Blue Liquid
Specific Gravity @15.6 °C, g / ml	ASTM D 4052	0.93 – 0.98
Flash Point (PMCC), °C	ASTM D 93	> 28
Boiling Point, °C	-	> 140
Active Matter, % wt.	-	50
Solvents, % wt	-	40

CHEMPOL BROWN DYES

PRODUCT CHARACTERISTICS:

Property	Method	Value
Odour	Typical	Aromatic
Appearence	Visual	Dark Brown Liquid
Specific Gravity @15.6 °C, g / ml	ASTM D 4052	0.93 – 0.98
Flash Point (PMCC), °C	ASTM D 93	> 28
Boiling Point, °C	-	> 140
Active Matter, % wt.	-	50
Solvents, % wt	-	40

CHEMICAL PROPERTIES:

Solvent Chemistry: Xylene / Dimethyl Benzene / Alkyl Benzene

PHYSICAL PROPERTIES:

Solubility:

- Water - Insoluble
- Benzene - Soluble
- Xylene - Soluble
- Oils - Soluble

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

CHEMPOL RED DYES

PRODUCT CHARACTERISTICS:

Property	Method	Value
Appearence	Typical	Aromatic
Odour	Visual	Dark Red Liquid
Specific Gravity @15.6 °C, g / ml	ASTM D 4052	0.981
Flash Point (PMCC), °C	ASTM D 93	58
Insoluble Mattern in Toluene, % wt	-	0.28
Moisture Content, % wt	ASTM D 6304	0.25

Chemical Properties:

Solvent Chemistry: Xylene / Dimethyl Benzene / Alkyl Benzene

Physical Properties:

Solubility: •Water - Insoluble •Benzene - Soluble •Xylene - Soluble •Oils - Soluble

CHEMPOL GREEN DYES

PRODUCT CHARACTERISTICS:

Property	Method	Value
Odour	Typical	Aromatic
Appearence	Visual	Dark Green Liquid
Specific Gravity @15.6 °C, g / ml	ASTM D 4052	0.986
Flash Point (PMCC), °C	ASTM D 93	63
Insoluble Mattern in Toluene, % wt	-	0.34
Moisture Content, % wt	ASTM D 6304	0.11

Chemical Properties:

Solvent Chemistry: Xylene / Dimethyl Benzene / Alkyl Benzene

Physical Properties:

Solubility: •Water - Insoluble •Benzene - Soluble •Xylene - Soluble •Oils - Soluble

CHEMPOL YELLOW DYES

PRODUCT CHARACTERISTICS:

Property	Method	Value
Odour	Typical	Aromatic
Appearence	Visual	Dark Yellow Liquid
Specific Gravity @15.6 °C, g / ml	ASTM D 4052	0.991
Flash Point (PMCC), °C	ASTM D 93	63
Insoluble Mattern in Toluene, % wt	-	0.81
Moisture Content, % wt	ASTM D 6304	0.11

Chemical Properties:

Solvent Chemistry: Xylene / Dimethyl Benzene / Alkyl Benzene

Physical Properties:

Solubility: •Water - Insoluble •Benzene - Soluble •Xylene - Soluble •Oils - Soluble

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY

NEX-CARBON

ACTIVATED CARBON

DESCRIPTION:

CHEMPOL NEX-CARBON is activated carbon for oil refineries offers exceptional performance for filtration and purification processes. This powerful substance is employed in various oil treatment stages, from lubricating oil purification to sulfur removal and odor control. Our activated carbon solutions are designed to meet the industry's stringent demands.

WHY TO CHOOSE ACTIVATED CARBON FOR PURIFICATION:

Activated carbon is renowned for its exceptional adsorption capabilities, making it ideal for removing a wide range of contaminants in oil and gas applications. It Effectively removes impurities such as sulfur compounds, organic compounds, and volatile organic compounds (VOCs), traps and removes contaminants from lubricating oil and other petroleum and edible products. Our Nex-Carbon has high BET specific surface area and micropore volume which makes it ideal for oil refining processes.

PRODUCT CHARACTERISTICS:

ITEM	SPECIFICATION	TYPICAL
Appearance	Black Powder	Black Powder
Iodine Adsorption Rate	≥950	1018
Methylene Blue Adsorption Value, ml/0.1g	≥15	19
Ash, wt%	≤8	7.1
Particle Size, 200 mesh, %	≥95	95.1
Moisture, wt%	≤10	8.2
PH	2.5 – 3.5	3.5

HANDLING INFORMATION:

- **Max Handling Temp:** 75°C
- **Shelf Life:** Refer to MSDS for specific details
- **Packing Options:** 200 KG drums, 1000 KG IBCs, and bulk ISO tanks
- **Recommended Long-Term Storage Temp:** ≤45°C
- **Storage & Safety:** Nonflammable, non-explosive, non-corrosive. Follow all guidelines in the product MSDS for safe handling and environmental precautions.

Sequence IX Test

Version 20210524

Title / Validity Declaration Page

Form 1

Conducted For

Atlantic Grease and Lubricants FZC
United Arab Emirates Sharjah

V	V = Valid
	I = Invalid
	N = Results cannot be Interpreted as Representative of Oil Performance (Non-Reference Oil) and shall not be used for Multiple Test Acceptance

NR	RO = Reference Oil Test
	NR = All Other Tests

Test Number			
Test Stand: 2	**Stand Run:** 339	**Engine:** 56	**Engine Run:** 21
Oil Code:[A]	AIL150923		
Formulation / Stand Code:[B]	AL-AIL150923-A-1-IX-01-SR-2		
Hours on Engine	1213	**Hours on Cylinder Head:**	1213
Alternate Codes[D]			
Date Started	20240301	**Time Started**	20:48
Date Completed	20240303	**Time Completed**	05:02
Test Length	16	**Total Downtime**	
Ref Oil Code[C]		AIL150923	
SAE Viscosity	5W-30	CHEMPOL 61458	

In my opinion this test has been conducted in a valid manner in accordance with Test Method D8291 and the appropriate amendments through the information letter system. The remarks included in the report describe the anomalies associated with this test.

The results of this report apply to the sample as received and tested.

[A] *CMIR or Non-Reference Oil Code*

[B] *ACC Registered Tests Only*

[C] *Reference Tests Only*

[D] *When Provided or Required by Client*

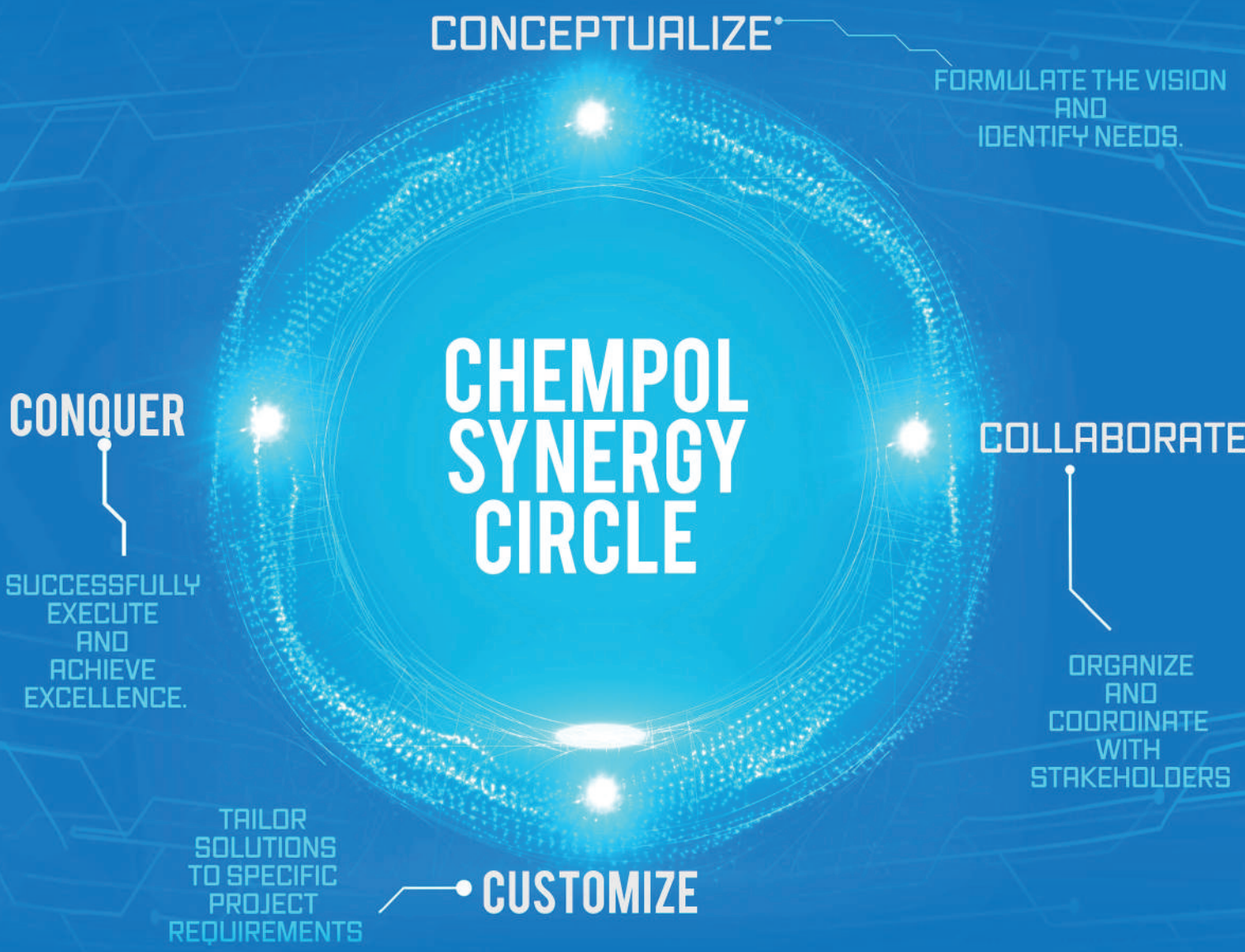
Southwest Research Institute (R)
Testing Laboratory

Submitted by: Khaled Rais
Signature

Christine Eickstead
Typed Name

Senior Research Engineer
Title

CHEMPOL
ADDITIVES & CHEMICAL SPECIALITY



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