

Innovation

Responsibility

Cooperation

Value

Company Profile

Since 1996, Xinxiang Richful Lube Additive Co., Ltd. has been a high-tech enterprise integrating scientific research, production and sales as a professional manufacturer of lubricant additive products. There are over 40 product categories with over 200 finished products, such as detergents, dispersants, ZDDP, high-temperature antioxidants, anti-friction and anti-wear additives, gasoline engine oil packages, diesel oil packages, marine oil packages, industrial oil packages, fuel oil detergents and so on, with a total production capacity of 250,000 tons. Richful is an excellent supplier of many leading enterprises in lubricant additives industry, and our products are exported to many countries and regions such as the United States, Europe, Southeast Asia and the Middle East. In November 2020, Richful was successfully listed on the Shenzhen Stock Exchange, stock code:300910.

Richful always makes quality a top priority and emphasizes innovative development. Our chairman personally led the establishment of the technical innovation team and spared no expense with enormous investment to build lubricant additive research institute, engine bench test center, road test center and other R&D institutions. Moreover, Richful has the CNAS certified Analysis & Test Center, and was awarded the title "Intelligent Factory of 2020, Henan Province". The company has strong global expert teams organized with high academic attainments and rich experience of the industry and innovative, high-performance R&D teams built by researchers with a number of highly educated Doctors and Masters.

Always staying true to original target and forge ahead. We Richful people adhere to the core values of "Innovation, Responsibility, Cooperation and Value" and aim to achieve our mission of "Providing lubricant essence, helping the environment, focusing on customer challenges and achieving customer value". Richful dedicates to being a significant supplier to lubricant additive market globally with greener, more energy-efficient products and better service. With this in mind, we believe we can go hand in hand with every customer and make win-win cooperation together!

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RF6408 CF-4 Diesel Engine Oil Package

■ Product Introduction

RF6408 Diesel Engine Oil Package is formulated with high performance dispersant, detergent, ZDDP and etc. it offers high performance with low treat rate. The diesel engine oil formulated with this package provides outstanding detergency, soot dispersancy, anti-oxidation and corrosion resistance performance.

The 10W-30, 15W-40 and 20W-50 diesel engine oils formulated with this package, Group II base oil and OCP viscosity modifier passed Mack T-8A, Caterpillar 1K, Sequence VIII and Mack T-9 engine tests and all bench tests.

■ Recommended Treat Rate

Performance Level	SAE Viscosity Grade	Treat Rate
CF-4	10W-30, 15W-40, 20W-50	5.88%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	998-1038	1018	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	113	GB/T 265, ASTM D445
Flash Point (COC), °C	≥ 180	216	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	128-156	142	SH/T 0251, ASTM D2896
Ca Content, m%	4.48-5.48	4.98	GB/T 17476, ASTM D4951
Zn Content, m%	1.63-1.99	1.81	GB/T 17476, ASTM D4951
P Content, m%	1.45-1.77	1.61	GB/T17476, ASTM D4951
N Content, m%	0.46-0.62	0.54	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not excess 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6400 CF-4/SG Universal Type Engine Oil Package

■ Product Introduction

RF6400 Universal Type Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. The engine oil blended with this package provides excellent soot disperancy, high temperature detergency, anti-oxidation, anti-wear and anti-corrosion performance, and this package is able to meet various performance categories with different treat rates.

■ Recommended Treat Rate

API Performance Level	Treat Rate	API Performance Level	Treat Rate
CF-4/SG	6%	CD/SD	2.8%
CF/SF	4.2%	SD/CC	2.7%
SF/CD	3.5%	SC/CC	2.5%
CD	2.6% (mono-grade)	SB/CB	1.6%

This product used in API group I, II base oils is able to formulate gasoline or diesel engine oil with various different viscosity grades covering 5W-30, 10W-30, 10W-40, 15W-40, 20W-50, 40, 50 and etc.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	1019-1059	1039	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	109	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	226	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	155-181	168	SH/T0251, ASTM D2896
Ca Content, m%	5.35-6.53	5.94	GB/T17476, ASTM D4951
Zn Content, m%	1.71-2.09	1.90	GB/T17476, ASTM D4951
P Content, m%	1.48-1.80	1.64	GB/T 17476, ASTM D4951
N Content, m%	0.46-0.62	0.54	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6406 Universal Type Engine Oil Package

■ Product Introduction

RF6406 Universal Type Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. The engine oil blended with this package provides excellent detergency, , anti-wear and anti-corrosion, soot disperancy and anti-oxidation performance, and this package is able to meet various oil performance requirements with different treat rates.

■ Recommended Treat Rate

API Performance Level	Multi/Mono Grade	Recommended Treat Rate
SJ/CF-4	Multi	5.8%
CF-4/SG	Multi	5.6%
SG/CF/CD	Multi	4.8%
CF/SF	Multi	4.1%
CF	Mono	3.6%
SF/CD	Multi	3.4%
CD	Multi/Mono	2.5%
CD/SD	Multi	2.7%
SD/CC	Multi	2.6%
SC/CC	Multi	2.4%
SB/CB	Mono	1.5%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20℃), kg/m ³	1037-1077	1060	SH/T 0604, ASTM D4052
Kinematic Viscosity (100℃), mm ² /s	Report	72	GB/T265, ASTM D445
Flash Point (COC), °C	≥ 180	223	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	168-198	185	SH/T0251, ASTM D2896
Ca Content, m%	5.98--7.30	6.80	GB/T17476, ASTM D4951
Zn Content, m%	1.97-2.53	2.23	GB/T17476, ASTM D4951
P Content, m%	1.72-2.10	1.96	GB/T 17476, ASTM D4951
N Content, m%	0.34-0.46	0.41	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45℃, and the loading/unloading or blending temperature shall not exceed 65℃
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6066 CH-4/CI-4 Diesel Engine Oil Package

■ Product Introduction

RF6066 Diesel Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP, high-temp anti-oxidant and other additive components. The API CH-4, CI-4 diesel engine oils formulated with this package with appropriate Group I, II and III base oils provide excellent lubricating, detergency, dispersancy, anti-oxidation and anti-wear performance, protecting the engine effectively.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CI-4	15W-40, 20W-50	10.5%
CH-4	15W-40, 20W-50, 40, 50	8.5%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20℃), kg/m ³	968-1008	988	SH/T 0604, ASTM D4052
Kinematic Viscosity (100℃), mm ² /s	Report	185	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	220	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	97-119	108	SH/T 0251, ASTM D2896
Ca Content, m%	2.82-3.44	3.15	GB/T 17476, ASTM D4951
Zn Content, m%	1.13-1.38	1.24	GB/T 17476, ASTM D4951
P Content, m%	0.97-1.19	1.10	GB/T 17476, ASTM D4951
N Content, m%	0.89-1.21	1.05	SH/T 0704, ASTM D5762
Mo Content, m%	0.037-0.056	0.048	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45℃, and the loading/unloading or blending temperature shall not exceed 65℃.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6067 CH-4 Diesel Engine Oil Additive Package

■ Product Introduction

RF6067 is a Heavy-duty diesel engine oil additive package formulated with detergent, dispersant, anti-oxidant and other components. 15W-40/20W-50 diesel engine oil blended with OCP VII in Group II base oil is compliant to API CH-4 specification.

Finished oils formulated with RF6067 provide advanced performance such as excellent soot dispersancy, anti-wear, high temperature detergency and anti-corrosion. It resists oil aging, provides high soot tolerance, good piston cleanliness, low engine oil consumption and good anti-wear.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CH-4	15W-40/20W-50	8.5%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	977-1017	997	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	160	GB/T 265, ASTM D445
Flash Point (COC), °C	≥ 180	220	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	95-117	106	SH/T 0251, ASTM D2896
Ca Content, m%	3.06-3.74	3.40	GB/T 17476, ASTM D4951
Zn Content, m%	1.46-1.78	1.62	GB/T 17476, ASTM D4951
P Content, m%	1.30-1.60	1.45	GB/T 17476, ASTM D4951
N Content, m%	0.62-0.84	0.73	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6069 CI-4 Diesel Engine Oil Package

■ Product Introduction

RF6069 Diesel Engine Oil Package is formulated with a number of high-quality detergent, soot dispersant, anti-oxidant and anti-corrosive, high-temp anti-oxidant and other additive components. The CI-4, CH-4, and CF-4 diesel engine oils formulated with this package with appropriate API Group I, II and III base oils provide excellent soot dispersancy, high-temp detergency, anti-oxidation and anti-wear performance, protecting the engine effectively.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CI-4	15W-40, 20W-50	8.5%
CH-4	15W-40, 20W-50, 40, 50	7.8%
CF-4	15W-40, 20W-50, 40, 50	4.1%+1.9%RF0206

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	961-1001	981	GB/T13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	142	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	216	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	93-113	103	SH/T0251, ASTM D2896
Ca Content, m%	3.19-3.89	3.54	GB/T17476, ASTM D4951
Zn Content, m%	1.37-1.67	1.52	GB/T17476, ASTM D4951
P Content, m%	1.21-1.49	1.35	GB/T17476, ASTM D4951
N Content, m%	0.44-0.60	0.52	SH/T 0656, ASTM D5291

■ Product Storage/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6071L CI-4 Extended EDI Diesel Engine Oil Package

■ Product Introduction

RF6071L Diesel Engine Oil Package is formulated with a number of high-quality additive components, providing excellent soot dispersancy, detergency, oxidation stabilities, and anti-wear performance. The diesel engine oils blended with this product at a treat rate of 15.8%, using Group III and above base oil, are able to provide engine with long-lasting cleaning and protection performance. It is applicable to vehicles with China V and above emission standards with oil drain interval up to 80,000-100,000km, reducing servicing and maintenance cost.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CI-4	10W-40	15.8%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	949-989	969	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	165	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	221	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	85-103	94	SH/T0251, ASTM D2896
Ca Content, m%	2.12-2.59	2.35	GB/T17476, ASTM D4951
Zn Content, m%	0.73-0.89	0.81	GB/T17476, ASTM D4951
P Content, m%	0.66-0.80	0.73	GB/T17476, ASTM D4951
N Content, m%	0.94-1.27	1.10	SH/T 0704, ASTM D5762
Mo Content, m%	0.038-0.058	0.048	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not excess 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6078 CI-4 Diesel Engine Oil Package

■ Product Introduction

RF6078 is a diesel engine oil additive package formulated with detergent, dispersant, anti-oxidation and corrosion inhibitor etc. A diesel engine oil formulated with the package provides excellent high temperature detergency, soot dispersancy and anti-oxidation and corrosion resistance performance.

Finished oil blended with OCP VII in Group II base oil at 15W-40 and 20W-50 viscosity grades passed all engine tests and bench tests that API CI-4 requires. It's suitable for diesel engines compliance with China V and below emission regulations. Proved 60,000km oil drain interval by field tests.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CI-4	15W-40, 20W-50	10.85%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	952-992	972	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	146	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	220	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	75-91	83	SH/T 0251, ASTM D2896
Ca Content, m%	2.30-2.81	2.55	GB/T 17476, ASTM D4951
Zn Content, m%	1.18-1.44	1.31	GB/T 17476, ASTM D4951
P Content, m%	1.04-1.28	1.16	GB/T17476, ASTM D4951
Mo Content, m%	0.042-0.062	0.052	GB/T17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6079 CI-4 Diesel Engine Oil Additive Package

■ Product Introduction

RF6079 is a heavy-duty diesel engine oil additive package formulated with detergent, dispersant, anti-oxidant and other components. 15W-40/20W-50 diesel engine oil blended with OCP VII in Group II base oil is compliant to API CI-4 specification.

Finished oils formulated with RF6079 provide advanced performance such as excellent soot dispersancy, anti-wear, high temperature detergency and anti-corrosion. It resists oil aging, provides high soot tolerance, good piston cleanness, low engine oil consumption and good anti-wear.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CI-4	15W-40/20W-50	9.15%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	980-1020	1000	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	140	GB/T 265, ASTM D445
Flash Point (COC), °C	≥ 180	214	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	98-120	109	SH/T 0251, ASTM D2896
Ca Content, m%	3.10-3.78	3.44	GB/T 17476, ASTM D4951
Zn Content, m%	1.35-1.65	1.50	GB/T 17476, ASTM D4951
P Content, m%	1.21-1.47	1.34	GB/T17476, ASTM D4951
N Content, m%	0.64-0.88	0.76	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6088E CK-4/CJ-4 Diesel Engine Oil Package

■ Product Introduction

RF6088E Diesel Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. The CK-4 engine oil formulated using this package provides excellent detergency, high temperature anti-oxidant, soot dispersancy and anti-wear performance. The diesel engine oils blended with this product using Group III and above base oil with appropriate viscosity index modifier, PPD and other additive components meet API CK-4/CJ-4 specification.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
CK-4/CJ-4	10W-30, 10W-40, 15W-40, 20W-50	15.1%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	935-975	955	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	175	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	216	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	54-66	60	SH/T0251, ASTM D2896
Ca Content, m%	1.40-1.71	1.55	GB/T17476, ASTM D4951
Zn Content, m%	0.75-0.91	0.83	GB/T17476, ASTM D4951
P Content, m%	0.66-0.80	0.73	GB/T17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6133 SE/SF Gasoline Engine Oil Package

■ Product Introduction

RF6133 Gasoline Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. The engine oil formulated using this package provides excellent detergency, anti-wear, anti-oxidation and anti-corrosion performance.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
SE	15W-40	4.0%
SF	15W-40, 10W-30	4.3%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	980-1020	1000	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	146	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	214	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	90-110	100	SH/T0251, ASTM D2896
Ca Content, m%	2.88-3.52	3.20	GB/T17476, ASTM D4951
Zn Content, m%	1.98-2.44	2.21	GB/T17476, ASTM D4951
P Content, m%	1.69-2.07	1.88	GB/T17476, ASTM D4951
N Content, m%	0.75-1.03	0.89	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6500 SL Universal Type Engine Oil Package

■ Product Introduction

RF6500 Universal Type Engine Oil Package is formulated with new-type Ashless dispersant, high-quality detergent, ZDDP and other additives components. The engine oil blended with this package provides excellent soot dispersancy, high-temperature detergency, anti-oxidation, anti-wear and anti-corrosion performance, which effectively inhibits oxidative degradation and sludge formation of the oil, preventing engine wear.

■ Recommended Treat Rate

API Performance Level	Treat Rate
SL/CF	5.8%
SJ/CF	4.8%
SG/CD	4.2%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20℃), kg/m ³	991-1031	1011	SH/T 0604, ASTM D4052
Kinematic Viscosity (100℃), mm ² /s	Report	125	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	102-126	114	SH/T 0251, ASTM D2896
Ca Content, m%	3.09-3.79	3.44	GB/T 17476, ASTM D4951
Zn Content, m%	1.76-2.16	1.96	GB/T 17476, ASTM D4951
P Content, m%	1.51-1.72	1.68	GB/T 17476, ASTM D4951
N Content, m%	0.90-1.20	0.99	SH/T 0704, ASTM D5762
Mo Content, m%	0.074-0.112	0.093	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45℃, and the loading/unloading or blending temperature shall not exceed 65℃.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6508 API SL Gasoline Engine Oil Additive Package

■ Product Introduction

RF6508 Gasoline Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. It passed all request tests for API SL gasoline oil and satisfied with all quality standards. It can be used in Group I&II base oils, which covers 10W-30, 10W-40, 15W-40, 20W-50, SAE 40, SAE 50 and other viscosity grades. Recommended treat rate for Group II base oils is 5.7%. Can meet the performance requirements of JASO MA/MA2&MB mixed with appropriate boosters.

■ Performance characteristic

Excellent high temperature antioxidant properties, which inhibit viscosity growth and sediment generation result from oil oxidation;

Outstanding sludge dispersion performance, prevent the forming of varnish and sludge;

Great performance in wear and corrosion resistance, effectively reduce valve wear and shafts corrosion and prolong engine life.

■ Recommended Treat Rate

Performance Level	Base Oil	SAE Viscosity Grade	Treat Rate		
			RF6508	RF0116	RF0106/RF4408
API SL / JASO MA2	Group I	10W-30、 10W-40、 15W-40、 20W-50、	5.7%	0.4%	/
API SL / JASO MB			5.7%	0.4%	0.3%
API SL / JASO MA2	Group II	SAE 40、 SAE 50, etc.	5.7%	/	/
API SL / JASO MB			5.7%	/	0.3%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Kinematic Viscosity (100℃), mm ² /s	Report	164	GB/T 265, ASTM D445
Density (20℃), kg/m ³	981-1021	1001	GB/T 13377, ASTM D4052
Flash Point (COC), °C	≥180	214	GB/T 3536, ASTM D92
Total Base Number, mg KOH/g	102-126	114	SH/T 0251, ASTM D2896
Ca Content, m%	3.18-3.89	3.53	GB/T 17476, ASTM D4951
Zn Content, m%	1.62-2.00	1.81	GB/T 17476, ASTM D4951
P Content, m%	1.45-1.75	1.62	GB/T 17476, ASTM D4951
N Content, m%	0.71-0.97	0.84	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45 °C , and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6176 SN Gasoline Engine Oil Additive Package

■ Product Introduction

RF6176 is a Gasoline Engine Oil Additive Package formulated with high performance components include detergent, dispersant, anti-oxidate, anti-wear additive and other components. It provides excellent detergency, dispersancy, anti-wear and good friction performance, which effectively mitigate oil downgrading and deposits building. Multi-grade engine oils formulated with RF6176 at 8.5wt% in selected Grp. II, Grp III or Grp IV base oil meet API SN performance requirement. GF-5 performance can be met with the booster RF0106. JASO MA2 performance can be met with the booster RF0296.

■ Recommended Treat Rate

Performance Level	SAE Viscosity Grade	Treat Rate
API SN	5W-30, 5W-40, 10W-30, 10W-40	8.5%
GF-5	0W-20, 5W-30	8.5% + 0.5% RF0106
JASO MA2	5W-30	8.5% + 0.18% RF0296

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	953-993	973	GB/T13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	142	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	216	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	92-114	103	SH/T 0251, ASTM D2896
Ca Content, m%	2.39-2.93	2.66	GB/T17476, ASTM D4951
Zn Content, m%	0.90-1.10	1.00	GB/T17476, ASTM D4951
P Content, m%	0.80-0.94	0.89	GB/T17476, ASTM D4951
N Content, m%	0.98-1.34	1.16	SH/T0656, ASTM D5291
Mo Content, m%	0.047-0.071	0.059	GB/T17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6188 SP Gasoline Engine Oil Package

■ Product Introduction

RF6188 Gasoline Engine Oil Package is formulated with a number of high-quality detergent, dispersant, anti-oxidant, anti-friction and anti-wear additive components. The 5W-30 oil blended with this package passed all the required engine tests of API SP gasoline engine oils standards. This product is also able to formulate SP specification gasoline engine oils when blending with appropriate Group II and III base oils and viscosity index modifier, pour point depressant and defoamer, with viscosity grade covering 5W-20, 5W-30, 10W-30, 10W-40, 15W-40 and etc. The recommended treat rate is 8.2%.

The main performance characteristic of the product: Excellent high temperature detergency, sludge dispersancy and anti-oxidation and anti-corrosion performance, able to effectively inhibit oil oxidation, degradation and formation of deposit; provides outstanding LSPI, timing chain wear and valve wear train protection for the engine; low phosphorous formula protects 3-way catalyst and reduces pollution.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
SP	5W-20, 5W-30, 10W-30, 10W-40, 15W-40	8.2%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	122	GB/T 265, ASTM D445
Density (20°C), kg/m ³	950-990	970	SH/T 0604, ASTM D4052
Flash Point (COC), °C	≥180	≥210	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	93-115	104	SH/T 0251, ASTM D2896
Ca Content, m%	1.15-1.41	1.28	GB/T 17476, ASTM D4951
Zn Content, m%	0.90-1.10	1.00	GB/T 17476, ASTM D4951
P Content, m%	0.80-0.98	0.89	GB/T 17476, ASTM D4951
N Content, m%	1.07-1.47	1.27	SH/T 0704, ASTM D5762
Mg Content, m%	0.68-0.84	0.76	GB/T 17476, ASTM D4951
Mo Content, m%	0.09-0.15	0.12	GB/T 17476, ASTM D4951
Sulfated Ash, m%	Report	9.30	GB/T 2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6189 API SP/GF-6 Gasoline Engine Oil Additive Package

■ Product Introduction

RF6189 is formulated with detergent, dispersant, anti-oxidant, anti-wear, friction modifier and other components. It passed all required tests of API SP and ILSAC GF-6 and satisfied with all quality standards. Can be formulated API SP/ILSAC GF-6 qualified gasoline engine oil with appropriate viscosity modifier, pour point depressant and anti-foam in API group II, group III base oils. It covers 0W-20, 0W-30, 5W-20, 5W-30, 10W-30, 10W-40, 15W-40 viscosity grades. Recommended treat rate is 7.68%.

■ Performance characteristic

Effectively protect post-processing devices with gasoline particulate filters and reduce emissions pollution.

Outstanding fuel economy performance. Reduce fuel consumption and carbon emission during oil drain interval.

Excellent high-temperature anti-oxidation and sludge dispersancy which prevent oil oxidative deterioration and deposit forming.

Protect TGDI engine operation effectively. Prevent LSPI and reduce wear of timing chain and valves.

■ Recommended Treat Rate

Performance Level	SAE Viscosity Grade	Treat Rate
API SP, ILSAC GF-6	0W-20, 0W-30, 5W-20, 5W-30, 10W-30, 10W-40, 15W-40, 20W-50, etc	7.68%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown Viscous Liquid	Brown Viscous Liquid	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	104	GB/T 265, ASTM D445
Density (20°C), kg/m ³	954-994	974	GB/T13377, ASTM D4052
Flash Point (COC), °C	≥ 180	≥ 200	GB/T 3536, ASTM D92
TBN, mg KOH/g	103-127	115	SH/T 0251, ASTM D2896
Ca Content, m%	1.22-1.50	1.36	GB/T 17476, ASTM D4951
Zn Content, m%	0.97-1.19	1.08	GB/T 17476, ASTM D4951
P Content, m%	0.85-1.04	0.95	GB/T 17476, ASTM D4951
N Content, m%	1.18-1.60	1.39	SH/T 0704, ASTM D5762
Mg Content, m%	0.72-0.88	0.80	GB/T 17476, ASTM D4951
Sulfate Ash, m%	Report	9.86	GB/T 2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6204 Gas Engine Oil Package

■ Product Introduction

RF6204 Gas Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP, high-temp anti-oxidant and other additive components. This product is with proper ash and provides excellent anti-oxidation, anti-wear, high-temp detergency and anti-corrosion performance for natural gas engine applications. It is widely used in the lubrication of compressed natural gas (CNG), liquified natural gas (LNG) and liquified petroleum gas (LPG) engines, protecting the engines and extending oil drain interval.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
10W-40, 15W-40, 20W-50	11.8%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	927-967	947	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	232	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	72-90	81	SH/T0251, ASTM D2896
Ca Content, m%	1.54-1.90	1.72	GB/T17476, ASTM D4951
Zn Content, m%	0.64-0.80	0.72	GB/T17476, ASTM D4951
P Content, m%	0.58-0.72	0.65	GB/T17476, ASTM D4951
Sulphated Ash, m%	Report	7.0	GB/T2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6206M Low-ash Mobile Gas Engine Oil Package

■ Product Introduction

RF6206M High-performance Low-ash Mobile Gas Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP, high-temp anti-oxidant and other additive components. This product is low in ash and provides excellent detergency, anti-wear, and outstanding anti-oxidation and anti-nitration performance for compressed natural gas (CNG), liquified natural gas (LNG) and liquified petroleum gas (LPG) applications. It performs better with vehicles in China, maintains engine cleanness and extends oil drain interval.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
10W-40, 15W-40, 20W-50	9.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	930-970	950	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	129	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	57-71	64	SH/T 0251, ASTM D2896
Ca Content, m%	1.08-1.32	1.2	GB/T17476, ASTM D4951
Zn Content, m%	0.80-0.98	0.89	GB/T17476, ASTM D4951
P Content, m%	0.68-0.83	0.75	GB/T17476, ASTM D4951
Sulphated Ash, m%	Report	6.18	GB/T2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6206S Low-ash Stationary Gas Engine Oil Package

■ Product Introduction

RF6206S Low-ash Stationary Gas Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. This product is low in ash and provides excellent detergency, oxidation stability, anti-wear, anti-oxidation and anti-nitration performance for low S content stationary gas engine applications, which can effectively maintain engine cleanliness and offer better lubricating protection for engine.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
40, 50, 10W-40, 15W-40, 20W-50	9.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	931-971	951	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	133	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	59-73	66	SH/T 0251, ASTM D2896
Ca Content, m%	1.09-1.33	1.21	GB/T17476, ASTM D4951
Zn Content, m%	0.77-0.95	0.86	GB/T17476, ASTM D4951
P Content, m%	0.67-0.81	0.74	GB/T17476, ASTM D4951
Sulphated Ash, m%	Report	6.07	GB/T2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6208 Medium Ash Mobile Long-mileage Gas Engine Oil Package

■ Product Introduction

RF6208 Medium Ash Mobile Long-mileage Gas Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP and other additive components. This product is with proper ash and provides excellent anti-oxidant and anti-wear, high-temp detergency, and corrosion resistant performance for natural gas engine applications. It is widely used in the lubrication of compressed natural gas (CNG), liquified natural gas (LNG) and liquified petroleum gas (LPG) engines, effectively protecting the engines and extending oil drain interval.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
10W-40, 15W-40, 20W-50	10.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	936-976	956	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	135	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	81-99	90	SH/T 0251, ASTM D2896
Ca Content, m%	2.07-2.53	2.30	GB/T17476, ASTM D4951
Zn Content, m%	0.80-0.98	0.89	GB/T17476, ASTM D4951
P Content, m%	0.72-0.88	0.80	GB/T17476, ASTM D4951
Sulphated Ash, m%	Report	8.76	GB/T2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6212 Low-ash Stationary Gas Engine Oil Additive Package

■ Product Introduction

RF6212 is a low-ash stationary gas engine oil additive package with salicylate detergent system. It has excellent detergency, anti-wear, anti-oxidation and anti-nitration performance which can be used in continuously high-load stationary gas engine oil, and can effectively protect the engine clean, provide good lubricating protection for engine and further extend the oil drain intervals.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
40, 50, 10W-40, 15W-40, 20W-50	9.0%-10.4%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	912-952	932	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	120	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	223	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	52-64	58	SH/T 0251, ASTM D2896
Ca Content, m%	1.14-1.43	1.27	GB/T17476, ASTM D4951
Zn Content, m%	0.32-0.40	0.36	GB/T17476, ASTM D4951
P Content, m%	0.27-0.34	0.31	GB/T17476, ASTM D4951
Sulphated Ash, m%	Report	4.8	GB/T2433, ASTM D874

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6214 Stationary Gas Engine Oil Package

■ Product Introduction

RF6214 Stationary Gas Engine Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP, high-temp anti-oxidant and other additive components. This product is with proper ash and provides excellent detergency, oxidation stability, anti-wear, anti-oxidant and anti-nitrification performance for higher S content stationary natural gas engine applications, which can effectively maintain engine cleanness and offer better lubricating protection for engine.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
40, 50, 10W-40, 15W-40, 20W-50	10.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	960-1000	980	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	149	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	210	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	111-137	124	SH/T0251, ASTM D2896
Ca Content, m%	3.32-4.06	3.69	GB/T17476, ASTM D4951
Zn Content, m%	0.81-1.01	0.91	GB/T17476, ASTM D4951
P Content, m%	0.72-0.88	0.80	GB/T17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6163 Two-stroke Motorcycle Oil Package

■ Product Introduction

RF6163 Two-stroke Motorcycle Oil Package is formulated with high-quality detergent and dispersant. It provides excellent detergency, lubricating, low ash and low smoke performance. The FB, FC air-cooled two-stroke engine oil formulated with this product meets JASO M345 FB and FC performance specification.

■ Recommended Treat Rate

API Performance Level	Treat Rate
FB	4.0%
FC	5.5%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	885-925	905	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	96	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	236	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	37-47	42	SH/T0251, ASTM D2896
Ca Content, m%	0.79-0.97	0.88	GB/T17476, ASTM D4951
N Content, m%	0.73-0.99	0.86	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in iron drums with a net weight of 180kg/drum, or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6164 Four-stroke Motorcycle Oil Package

■ Product Introduction

RF6164 Four-stroke Motorcycle Oil Package is formulated with a number of high-quality detergent, dispersant, ZDDP, high-temp anti-oxidant and other additive components. this product provides excellent high-temperature detergency, low-temperature dispersancy, anti-oxidation and anti-wear performance, and it is simultaneously use in the lubrication of engine, clutch and gearbox. The formulated motorcycle engine oil with difference treat rate using appropriate Group I, II and III base oils, meets API SL, SJ and other specifications.

■ Recommended Treat Rate

API Performance Level	SAE Viscosity Grade	Treat Rate
SL	5W-30,10W-30,10W-40,10W-50	6.0%
SJ	10W-30,10W-40,10W-50	5.5%
SG	10W-30,10W-40,10W-50	5.0%
SF	10W-30,10W-40,10W-50	4.5%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brown viscous liquid	Brown viscous liquid	Visual Inspection
Density (20°C), kg/m ³	980-1020	1000	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	92	GB/T265, ASTMD445
Flash Point (COC), °C	≥180	215	GB/T3536, ASTMD92
Total Base Number, mgKOH/g	89-109	99	SH/T0251, ASTM D2896
Ca Content, m%	2.85-3.49	3.17	GB/T17476, ASTM D4951
Zn Content, m%	1.95-2.39	2.17	GB/T17476, ASTM D4951
P Content, m%	1.69-2.07	1.88	GB/T17476, ASTM D4951
N Content, m%	0.66-0.90	0.78	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6302 Marine System Oil Package

■ Product Introduction

RF6302 Marine System Oil Package is formulated with a number of high-quality detergent, dispersant, anti-oxidant and other additive components. It provides excellent anti-oxidation, anti-corrosion, anti-wear, cooling, detergency and dispersancy performance, and the formulated oil meets two-stroke low speed cross-head marine diesel engine system oil specifications. This product is able to formulate marine system oil, meeting GB/T 38049-2019 specification with Group I and II base oil, with viscosity grades covering SAE30 and SAE40. The recommended package treat rate is 5.5%.

■ Performance Characteristic

RF6302 Marine System Oil Package formulated with in-house high-quality high BN detergent and other additive components, is of high product quality, stability and cost effective. The formulated oil provides excellent high temperature detergency, anti-rust and anti-corrosion performance, as well as outstanding water separation, acid neutralization and anti-wear performance.

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	983-1023	1003	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	56	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	222	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	134-164	149	SH/T0251, ASTM D2896
Ca Content, m%	4.84-5.92	5.38	GB/T17476, ASTM D4951
Zn Content, m%	0.98-1.20	1.09	GB/T17476, ASTM D4951
N Content, m%	0.40-0.60	0.52	NB/SH/T0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6311 Marine Cylinder Oil Package

■ Product Introduction

RF6311 Marine Cylinder Oil Package is formulated with in-house high-quality detergent, dispersant, anti-oxidant, anti-wear and other additive components. The formulated oil (SAE 50, 40BN) provides excellent detergency, dispersancy and anti-wear performance, and neutralizes acid substance immediately. This product meets low sulfur two-stroke low speed cross-head marine diesel engine cylinder lubrication specifications. The recommended package treat rate is 13.6%.

■ Performance Characteristic

1. RF6311 Marine Cylinder oil package formulated with in-house high-quality detergent, dispersant, anti-oxidant, anti-wear and other additive components, is of high product quality, stability and cost effective.
2. The formulated oil providing acid neutralization performance, effectively mitigates acid cold corrosion caused by low cylinder temperature, protects the integrity of cylinder liner, reduces bore polishing, and extends engine maintenance interval.
3. The formulated oil provides excellent anti-wear performance, effectively improves the hydrodynamic and boundary lubricating performance of the cylinder oil, and prolongs the service life of the engine.

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	1091-1131	1105	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	156	GB/T 265, ASTM D445
Total Base Number, mgKOH/g	270-330	300	SH/T 0251, ASTM D2896
Flash Point (COC), °C	≥180	233	GB/T 3536, ASTM D92
Ca Content, m%	9.94-12.16	11.05	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6312 Marine Cylinder Oil Package

■ Product Introduction

RF6312 Marine Cylinder Oil Package is formulated with in-house high-quality detergent, dispersant, anti-oxidant, anti-wear and other additive components. The formulated oil provides excellent detergency, dispersancy, anti-wear, oxidation resistance and acid neutralization performance. This product meets two-stroke low speed cross-head marine diesel engine cylinder lubrication specifications. Blended with Group I and II base oils, RF6312 is able to formulate marine cylinder oil, meeting GB/T 38049-2019 specification with BN ranges from 70-100mgKOH/g.

■ Performance Characteristic

1. RF6312 Marine Cylinder oil package formulated with in-house high-quality detergent, dispersant, anti-oxidant, anti-wear and other additive components, is of high product quality, stability and cost effective.
2. The formulated oil provides acid neutralization performance, effectively mitigates acid cold corrosion caused by low cylinder temperature, protects the integrity of cylinder liner, reduces bore polishing, and extends engine maintenance interval.
3. The formulated oil provides excellent anti-wear performance, effectively improves the hydrodynamic and boundary lubricating performance of the cylinder oil, and prolongs the service life of the engine.

■ Recommended Treat Rate

Marine Cylinder Oil	5070	5080	50100
RF6312 Treat Rate	22%	25%	31%

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	1107-1147	1127	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	169	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	234	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	291-357	324	SH/T 0251, ASTM D2896
Ca Content, m%	10.98-13.42	12.20	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6326, RF6327 Medium-speed Trunk Piston Engine Oil Package

■ Product Introduction

RF6326 and RF6327 refers to a group of high performance marine medium speed trunk piston diesel engine oil packages, which is composed of detergent, dispersant, ZDDP and etc. Of which RF6326 serves as core package and RF6327 serves as high performance BN booster, the marine medium speed trunk piston diesel engine oil formulated with a combination of both packages provide excellent acid neutralization, detergency, dispersancy, anti-oxidation, anti-corrosion and water separation performance. Blending with Group I and II base oils and with the combination of RF6326 and RF6327 is able to formulate Medium-speed trunk piston engine oil, meeting GB/T38049-2019 specification with BN ranges from 12-50mgKOH/g and viscosity covers SAE30 and SAE40.

■ Recommended Treat Rate

BN Level	12	15	20	30	40	50
RF6326, %	3.3	3.3	3.3	3.3	3.3	3.3
RF6327, %	2.3	3.2	4.8	8	11.2	14.3

■ Technical Specification

Item	RF6326 Index	Typical Value	Test Method
Density (20°C), kg/m ³	999-1039	1019	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	159	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	230	GB/T3536, ASTM D92
Total Base Number, mg (KOH)/g	133-163	148	SH/T0251, ASTM D2896
Ca Content, m%	4.59-5.61	5.10	GB/T17476, ASTM D4951
Zn Content, m%	1.76-2.16	1.96	GB/T17476, ASTM D4951
P Content, m%	1.50-1.84	1.67	GB/T17476, ASTM D4951

Item	RF6327 Index	Typical Value	Test Method
Density (20°C), kg/m ³	1076-1116	1096	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	118	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	243	GB/T3536, ASTM D92
Total Base Number, mg (KOH)/g	283-347	315	SH/T0251, ASTM D2896
Ca Content, m%	10.31-12.61	11.46	GB/T17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6316H Marine Blending-on-Board Cylinder Oil Package

■ Product Introduction

RF6316H refers to a dedicated Marine Blending-on-Board Cylinder Oil Package. This product is scientifically formulated with detergent, dispersant and other functional components, which provides excellent detergency, dispersancy, anti-wear, oxidation resistance and acid neutralization performance. This product is able to meet two-stroke low speed cross-head marine diesel engine lubrication requirements. RF6316 is recommended for ocean going vessels equipped with Blending-on-Board equipment. It is blended with on-board system oil to formulate cylinder oil with base number ranges from 40mgKOH/g to 140mgKOH/g to cope with the requirement of engines running on high and low sulfur fuels.

■ Performance Characteristic

1. Compatible with various system oils, able to blend corresponding cylinder oils according to specific fuel sulfur levels.
2. Blending-on-Board equipment speeds up the renewal of the oil on board, keeps engine clean and extends the service life of the parts of the engine.
3. Outstanding detergency, dispersancy, anti-wear and acid neutralization performance ensures blended cylinder oil fulfill engine operation requirements.

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	1105-1145	1125	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	125	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	≥200	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	319-391	355	SH/T 0251, ASTM D2896
Ca Content, m%	11.83-14.47	13.15	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6331 Marine High-Speed Engine Oil Additive Package

■ Product Introduction

RF6331 is a marine high-speed engine oil additive package formulated with high performance detergent, dispersant, anti-oxidation, anti-wear component and other components. Engine oils formulated with the product provides good detergency, dispersancy, anti-wear and anti-oxidation performance. It meets performance requirements of marine high-speed engine applications in multiple environments such as offshore fishing, coastal carrier, refrigerated vessel, tourism ferry etc. Finished oil can be blended with the product as API CD level with TBN between 7-10 mgKOH/g in multiple viscosity grades such as SAE 40 mono, 15W-40, 20W-50.

■ Recommended Treat Rate

Performance Level	Viscosity Grade	Treat Rate
CD	SAE40, 15W-40, 20W-50	3.8-5.4%

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	1037-1077	1060	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	72	GB/T265, ASTM D445
Flash Point (COC), °C	≥180	223	GB/T3536, ASTM D92
Total Base Number, mgKOH/g	168-198	185	SH/T0251, ASTM D2896
Ca Content, m%	5.98-7.30	6.80	GB/T17476, ASTM D4951
Zn Content, m%	1.97-2.53	2.23	GB/T17476, ASTM D4951
P Content, m%	1.72-2.10	1.96	GB/T 17476, ASTM D4951
N Content, m%	0.34-0.46	0.41	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6332 Marine High-Speed Engine Oil Additive Package

■ Product Introduction

RF6332 is a marine high-speed engine oil additive package formulated with high performance detergent, dispersant, anti-oxidation, anti-wear component and other components. Engine oils formulated with the product provides good detergency, dispersancy, anti-wear and anti-oxidation performance. It meets performance requirements of marine high-speed engine applications in multiple environments such as offshore fishing, coastal carrier, refrigerated vessel, tourism ferry etc. Finished oil can be blended with the product meet API CF-4 specifications with TBN between 8.5-10 mgKOH/g in multiple viscosity grades such as SAE 40 mono, 15W-40, 20W-50.

■ Recommended Treat Rate

Performance Level	Viscosity Grade	Treat Rate
CF-4	SAE40, 15W-40, 20W-50	6-7%

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	998-1038	1018	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	113	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	216	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	128-156	142	SH/T 0251, ASTM D2896
Ca Content, m%	4.48-5.48	4.98	GB/T 17476, ASTM D4951
Zn Content, m%	1.63-1.99	1.81	GB/T 17476, ASTM D4951
P Content, m%	1.45-1.77	1.61	GB/T17476, ASTM D4951
N Content, m%	0.46-0.62	0.54	SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF6340A Two-Stroke Water-Cooled Outboard Engine Oil Package

■ Product Introduction

RF6340A two-stroke outboard engine oil package is formulated with high performance ashless dispersant, rust inhibitor, detergent and etc. This product offers excellent lubricating, anti-wear and fume exhausting performances. The formulated two stroke water-cooled engine oil meets NMMA TC-W3 performance requirement.

■ Recommended Treat Rate

Performance Grade	Dosage
TC-W3	20.3%

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20°C), kg/m ³	879-919	904	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	159	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	251	GB/T 3536, ASTM D92
TBN, mg KOH/g	17-30	24	SH/T 0251, ASTM D2896
N Content, m%	1.00-1.40	1.23	NB/SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- The product is packed with 200L iron drum or according to user's requirement. Specific weight of delivery is subject to the actual filling weight
- The storage temperature should not exceed 45°C, the loading/unloading and blending temperature should not exceed 65°C.
- The product is not flammable, not explosive, not corrosive, in the items of safety, environment protection, use and etc, it is same as normal petroleum product, with no special protection required.

RF6044 4th Gen Railway Locomotive Engine Oil Package

■ Product Introduction

RF6044 Railway Locomotive Engine Oil Package is formulated with high-quality detergent, dispersant, ZDDP and other additives components. The engine oil blended with this package provides excellent detergency and dispersancy performance, effectively inhibits piston deposit and film formation, as well as performs outstanding anti-oxidation and anti-wear properties, which meets severe operating conditions for railway locomotives.

■ Recommended Treat Rate

SAE Viscosity Grade	Treat Rate
40, 20W-40	13%

■ Technical Specification

Item	Index	Typical Value	Test Method
Density (20℃), kg/m ³	967-1007	987	SH/T 0604, ASTM D4052
Kinematic Viscosity (100℃), mm ² /s	Report	125	GB/T 265, ASTM D445
Flash Point (COC), °C	≥180	231	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	108-132	120	SH/T 0251, ASTM D2896
Ca Content, m%	3.52-4.32	3.92	GB/T 17476, ASTM D4951
Zn Content, m%	0.90-1.10	1.00	GB/T 17476, ASTM D4951
P Content, m%	0.77-0.95	0.86	GB/T 17476, ASTM D4951
N Content, m%	0.50-0.80	0.72	NB/SH/T 0704, ASTM D5762

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45℃, and the loading/unloading or blending temperature shall not exceed 65℃.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF4201 Multi-function Universal Gear Oil Package

■ Product Introduction

RF4201 Multifunctional Universal Gear Oil Package is formulated with high-quality extreme pressure anti-wear, anti-rust and other additives. With scientific combination and stringent inspection and evaluation, this product provides excellent extreme pressure anti-wear, thermal oxidation stability, anti-corrosion and anti-rust performances. The GL-5 vehicle gear oil formulated with the package passed L-37-1, L-42, L-33-1, L-60-1 tests. With a specific treat rate, blended with Group I -V base oils, it is able to formulate heavy duty automobile gear oil which meets API GL-5 and GB13895 specifications, as well as GB 5903 L-CKC and L-CKD specification for industrial closed gear oil.

■ Performance Characteristics

RF4201 Multifunctional Universal Gear Oil Package is formulated with high-quality extreme pressure anti-wear agent, anti-rust and other additives. The GL-5 vehicle gear oil formulated with the package at a treat rate of 4.2% performs well in copper corrosion and oxidative stability. This product meets API GL-5 and GB 13895 specifications, with different treat rates for various vehicle and industrial gear oils.

■ Recommended Treat Rate

4.2% for formulation of GL-5 heavy duty vehicle gear oil; 2.1% for GL-4 vehicle gear oil; 1.0% for formulation of L-CKC mid-duty industrial closed gear oil; 1.5% for L-CKD heavy-duty industrial closed gear oil.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear transparent liquid	Clear transparent liquid	Visual Inspection
Density (20°C), kg/m ³	975-1015	995	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	2.2	GB/T 265, ASTM D445
Flash Point (PMCC), °C	Report	81	GB/T 261, ASTM D93
P Content, m%	1.20-1.80	1.5	GB/T 17476, ASTM D4951
S Content, m%	27.6-37.4	32.5	SH/T 0303, ASTM D1552

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF4206 Automotive Gear Oil Additive Package

■ Product Introduction

The product is an additive package for automotive gear oil. It formulated with several components such as high quality EP & anti-wear additive, anti-rust additive, corrosion inhibitor etc. With reasonable compounding and strict evaluation by tests proofed it's good EP & anti-wear, anti-oxidation and anti-rust and corrosion resistance performance. An 80W-90 automotive gear oil formulated with the product at 3.8%wt passed the bench tests of L-33-1, L-37-1, L-42, L-60-1. Overall performance is higher than typical gear oils meets API GL-5 and GB 13895.

■ Performance characteristic

RF4206 automotive gear oil additive package treated at 3.8%wt with proper base oils to make an automotive gear oil that meets API GL-5 and GB13895 specifications. The oil provides excellent anti-oxidation, EP & anti-wear, anti-rust and corrosion resistance performance. Can be used in multiple severe environments such as low speed high torque, high shock load and high temperature and humidity etc.

■ Recommended Treat Rate

Treat Rate: 3.8%.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear Transparent liquid	Clear Transparent liquid	Visual Inspection
Density (20°C), kg/m ³	965-1045	1005	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	2.2	GB/T 265, ASTM D445
Flash Point, °C	Report	90	GB/T 261, ASTM D93
P Content, m%	1.00-1.50	1.25	GB/T 17476, ASTM D5185
S Content, m%	29.7-40.3	34.9	SH/T 0303, ASTM D1552

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF4011 Industrial Gear Oil Package

■ Product Introduction

RF4011 refers to an Industrial Gear Oil Package, which is formulated with a variety of high-quality extreme pressure, anti-rust and other additive components. With scientific formulation and stringent evaluation, this product offers outstanding extreme pressure, oxidation stability and anti-rust and anti-corrosion performances. The industrial oils formulated with this product with viscosity grades of VG150, VG220, VG320, VG460 meet industrial gear oil specifications including GB 5903, ISO 12925-1, DIN 51517-3, AGMA 9005.

■ Recommended Treat Rate

Recommended Treat Rate:2.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear transparent liquid	Clear transparent liquid	Visual Inspection
Kinematic Viscosity (40°C), mm ² /s	Report	25.6	GB/T265, ASTM D445
Flash Point (PMCC), °C	Report	85	GB/T 261, ASTM D93
Density (20°C), kg/m ³	935-1015	970	GB/T 13377, SH/T 0604, ASTM D4052
S Content, m%	13.6-20.5	17.0	GB/T 17476, SH/T 0303, NB/SH/T 0824, ASTM D1552, ASTM D4951, ASTM D5185
P Content, m%	1.40-2.00	1.68	GB/T 17476, NB/SH/T 0824, ASTM D4951
Water Content, %	≤0.3	0.03	GB/T 260, ASTM D95
Mechanical Impurity, %	≤0.1	0.03	GB/T 511

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF5012 Zinc Hydraulic Oil Package

■ Product Introduction

RF5012 Zinc Hydraulic Oil Package is formulated with high-quality anti-wear agent, high and low temperature anti-oxidant, corrosion inhibitor and other additive components. With scientific combination and stringent inspection and evaluation, this product is able to effectively solve anti-wear and anti-oxidation problems and meet mainstream product requirements both domestically and internationally. The anti-wear hydraulic oil formulated with this product and appropriate Group I-IV base oils provides effective anti-wear protection for various hydraulic equipment, ensuring safe and effective operation of those equipment, and more appropriate for lubrication requirements of steel making and construction machinery equipment. The formulated oil meets GB 11118.1. Blended with Group I-IV base oils, this product is able to formulate GB 11118.1 single grade anti-wear hydraulic oil (L-HM), low temperature hydraulic oil (L-HV) and ultra-low temperature hydraulic oil (L-HS), with viscosity grades covering 22, 32, 46, 68, 100 and etc. Recommended treat rate: 0.8-1.1%.

■ Performance Characteristics

With a relative low treat rate and good cost effectiveness, the formulated hydraulic oil is able to meet lubricating requirement of vane pump and piston pump, providing excellent anti-wear, anti-corrosion and sealing compatibility performance, reducing equipment wear and sealing aging. It offers outstanding thermal stability, hydrolytic stability and anti-oxidation performance, decreases oil oxidation and extends oil drain interval. This product is compatible with mainstream Zinc Hydraulic Oil in the market, and is widely used in the equipment in steel making and construction machinery industries, with application at numerous companies currently.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear transparent liquid	Clear transparent liquid	Visual Inspection
Density (20°C), kg/m ³	1010-1050	1030	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	7.100	GB/T 265, ASTM D445
Flash Point (COC), °C	≥120	150	GB/T 3536, ASTM D92
Zn Content, m%	4.50-5.50	5.00	GB/T 17476, ASTM D4951
P Content, m%	4.00-4.80	4.40	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF5012C Zinc Hydraulic Oil Package

■ Product Introduction

RF5012C Zinc Hydraulic Oil Package is formulated with high-quality anti-wear agent, high and low temperature anti-oxidant, corrosion inhibitor and other additive components. The anti-wear hydraulic oil formulated with this product and appropriate Group I, II base oils, provides effective anti-wear protection for various hydraulic equipment, ensuring safe and effective operation of those equipment, and more appropriate for lubrication requirements of steel making and construction machinery equipment. Blended with appropriate Group I, II base oils, this product is able to formulate GB 11118.1 single grade anti-wear hydraulic oil (L-HM), with viscosity grades covering 22, 32, 46, 68, 100 and etc. Recommended treat rate: 0.6-1.0%.

■ Performance Characteristics

With a relative low treat rate and good cost effectiveness, the formulated hydraulic oil is able to meet lubricating requirement of vane pump and piston pump, providing excellent anti-wear, anti-corrosion and sealing compatibility performance, reducing equipment wear and sealing aging. It offers outstanding thermal stability, hydrolytic stability and anti-oxidation performance, decreases oil oxidation and extends oil drain interval. This product is compatible with mainstream Zinc Hydraulic Oil Package in the market, and is widely used in the equipment in steel making and construction machinery industries, with application at numerous companies currently.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear transparent liquid	Clear transparent liquid	Visual Inspection
Density (20°C), kg/m ³	1030-1070	1050	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	11.50	GB/T 265, ASTM D445
Flash Point (COC), °C	≥150	180	GB/T 3536, ASTM D92
Zn Content, m%	6.00-7.30	6.60	GB/T 17476, ASTM D4951
P Content, m%	5.20-6.30	5.80	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF5016 Zinc Hydraulic Oil Package

■ Product Introduction

RF5016 is formulated with high quality anti-wear agent, high&low temperature anti-oxidant, corrosion inhibitor and other additive components. With scientific combination and stringent inspection and evaluation, this product is able to effectively solve anti-wear and anti-oxidation problems and meet mainstream product requirements both domestically and internationally. The anti-wear hydraulic oil formulated with this products and appropriate Group I-IV base oils provides effective anti-wear protection for various hydraulic equipment, ensuring safe and effective operation of those equipment, and more appropriate for hydraulic equipment operating under stringent conditions. Recommended treat rate: 0.8-1.2%.

■ Performance Characteristics

With a relative low treat rate and good cost effectiveness, the formulated hydraulic oil is able to meet lubricating requirement of vane pump and piston pump, providing excellent anti-wear, anti-corrosion and sealing compatibility performance, reducing equipment wear and sealing aging. It offers outstanding thermal stability, hydrolytic stability and anti-oxidation performance, reduces oil oxidation and extends oil drain interval. This product is compatible with mainstream Zinc Hydraulic Oil Package in the market, widely used in the equipment in steel making and construction machinery industries, with application at numerous companies currently.

■ Specifications

- GB 11118.1 L-HL, L-HM, L-HV
- ISO 11158 HL, HM, HV
- DIN 51524-2, 3 HLP, HVLP
- ASTM D6158 HL, HM, HV
- SEB 181222
- AIST 126
- Parker Denison HF-0, HF-1, HF-2
- Eaton E-FDGN-TB002-E
- Bosch Rexroth 90235 HLP

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Clear transparent liquid	Clear transparent liquid	Visual Inspection
Density (20°C), kg/m ³	1000-1040	1016	SH/T 0604, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	6.700	GB/T 265, ASTM D445
Flash Point (COC), °C	≥120	140	GB/T 3536, ASTM D92
Zn Content, m%	4.50-5.50	5.00	GB/T 17476, ASTM D4951
P Content, m%	3.80-4.70	4.25	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45 °C , and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF5022 Ashless Hydraulic Oil Package

■ Product Introduction

RF5022 Ashless Hydraulic Oil Package is formulated with high-quality ashless anti-wear agent, high and low temperature anti-oxidant, corrosion inhibitor and other additive components. With scientific combination and stringent inspection and evaluation, this product is able to meet mainstream product requirements both domestically and internationally, ensuring safe and effective operation of those equipments.

■ Product Application

Blended with Group I-IV base oils, this product is able to formulate mono-grade anti-wear hydraulic oil (L-HM), low temperature hydraulic oil (L-HV) and ultra-low temperature hydraulic oil (L-HS), with viscosity grades covering 22, 32, 46, 68, 100 and etc.

■ Performance Characteristics

- The product doesn't contain metal elements, offering outstanding hydrolytic stability and anti-oxidation performance, decreases oil degradation and extends oil drain interval.
- It provides excellent anti-wear, anti-corrosion and sealing compatibility performance, reducing equipment wear and sealing aging.
- The formulated hydraulic oil offers outstanding filtration performance and can meet the requirements of precision filters for high-end hydraulic equipment.
- With a relative low treat rate and high cost effectiveness, the formulated hydraulic oil is able to meet lubricating requirement of vane pump and piston pump, and is widely used in the equipment in steel making and construction machinery industries.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	5.9	GB/T 265, ASTM D445
Density (20°C), kg/m ³	Report	978	SH/T 0604, ASTM D4052
Flash Point (COC), °C	Report	185	GB/T 3536, ASTM D92
P Content, m%	≥2.0	2.5	GB/T 17476, ASTM D4951
S Content, m%	≥2.5	3.0	SH/T 0303, ASTM D1552
Water Content, m%	≤0.3	0.2	GB/T 260, ASTM D95
Mechanical Impurity, %	≤0.1	0.02	GB/T 511

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7001 Turbine Oil Additive Package

■ Product Introduction

RF7001 refers to a high-performance turbine oil additive package which formulated with a number of high-quality detergent, anti-oxidant, anti-rust agent, metal deactivator, demulsifier and other additive components. With scientific formulation and strict test, the product provides excellent oxidation stability, anti-rust and demulsifying performance. The oil formulated with this package offers effective protection to various turbines, ensures safe and efficient running of the equipment, which can greatly meet operation requirements of turbine equipment in many fields, such as electric power, steel, petrochemical, industrial engineering, etc. Recommended treat rate: 0.4%.

■ Technical Standard

The formulated oil meets the specifications of GB 11120-2011, ASTM D4304, DIN 51515, TLV 901304, HTGD 90117, GEK 32568f.

■ Scope of Application

Applicable to Group I-III base oils, the formulated gas turbine oil meets GB 11120 L-TSA, L-TSE, L-TGA, L-TGE specifications, viscosity grades cover 32, 46, 68 and etc.

■ Technical Specification

Item	Index	Test Method
Kinematic Viscosity(100°C)/mm ² /s	Report	GB/T 265, ASTM D445
Density (20°C) , kg/m ³	Report	GB/T 13377, ASTM D4052
TAN, mg KOH/g	30-45	GB/T 7304, ASTM D664
S , %	9.0- 12.0	SH/T 0303, ASTM D1552
P , %	1.0- 1.8	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- The product is packed in iron drums with a net weight of 200L, applicable to various modes of transportation.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60 °C. Shelf life: 3 months(max.45 °C)/2 years (at 10-35°C ambient temperature)
- This product is not flammable, explosive and corrosive, with no special protection required. In case of accidental contact with skin, wash it off thoroughly with water and detergents.

RF7002 Low Sludge and EP Type Turbine Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, metal-deactivator, anti-corrosion and extreme pressure and anti-wear agent etc. It meets anti-oxidation stability, extreme pressure and anti-rust performance requirements of multiple performance levels. The product can be used to improve lubrication and sealing of power generations, industrial engines and marine gear systems with improving bearing load requirements.

■ Technology Standards

Oils formulated with the product meet performance requirements of GB 11120-2011, ASTM D4304, DIN 51515, TLV 901304/05, HTGD 90117.

■ Production Application

Can be used for L-TSA, L-TSE, L-TGA, L-TGE, L-TGSB, L-TGSE turbine oils in viscosity grades 32, 46 and 68 with Grp II, Grp III Grp IV and Grp V base stocks.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	13.6	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	999.6	GB/T 13377, ASTM D4052
N, %	3.0-4.1	3.57	SH/T 0704, ASTM D5762

■ Recommended Treat Rate

Recommended treat rate: 0.4-0.8%

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7003 Low Sludge None EP Type Turbine Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, metal-deactivator, and anti-corrosion etc. It meets anti-oxidation stability, water separation and anti-rust performance requirements of L-TSA, L-TGA and L-TGSA. The product is for turbine oils formulations without EP requirement.

■ Technology Standards

Oils formulated with the product meet performance requirements of GB 11120-2011, ASTM D4304, DIN 51515, TLV 901304/05, HTGD 90117.

■ Production Application

Can be used for L-TSA, L-TGA, L-TGSB turbine oils in viscosity grades 32, 46 and 68 with Grp II, Grp III Grp IV and Grp V base stocks.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	13.6	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	999.6	GB/T 13377, ASTM D4052
N, %	3.0-4.1	3.57	SH/T 0704, ASTM D5762

■ Recommended Treat Rate

Recommended treat rate: 0.4-0.8%

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7004 Anti-Ammonia Turbine Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as high-performance anti-oxidant, metal deactivator, antioxidant and antiseptic etc. It has excellent oxidation stability, water separability and anti-ammonia stability.

■ Production Application

Finished oil blended with the product in Grp I, Group II and Group III base oils meet SH/T 0362 turbine oil specification requirement. Viscosity grades are 32, 46, and 68 etc.

■ Recommended Treat Rate

Recommended treat rate: 0.6%

L-TSA 46 typical formulation:

Ingredients	Treat rate %wt
150N	59.4
500N	40.0
RF7004	0.6
Anti-foam (extra)	0.01

■ Performance Features

RF7004 provides excellent overall performance with low treat rate. Turbine oils formulated with the product has good anti-ammonia stability, anti-oxidation stability and water separability. Suitable for use in lubrication and sealing at centrifugal synthesis compressor, refrigerating compressor and turbine unit for large scale fertilizer facilities. There are a few real cases are ongoing now.

■ Technical Specification

Item	Index	Test Method
Appearance	Clear Oily Liquid	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	GB/T 13377, ASTM D4052
N, %	2.3-3.1	SH/T 0656, ASTM D5291

■ Product Package/Transportation/Acceptance

- Packed in 200L standard new steel drums or as required by customers, such as IBC TANK or bulk.

- Mark, sample and delivery acceptance according to SH/T 0164 specification requirement.
- Drums and ISO TANK for land transportation, tanker for railway transportation.

■ **Product Storage/Handling**

- The recommended operating and storage temperature is 20 °C -40 °C , and the maximum storage temperature is 45°C.
- The maximum loading/unloading and blending temperature is 60°C.
- Shelf life: 3 months (45°C) and 24 months (10°C-35°C storage temperature).

■ **Product Notice**

- Transport must be clearly marked to prevent confusion with other types of petroleum products.
- Storage containers shall be dedicated, stored indoors or in controllable climate environment as far as possible, and shall be waterproof, moisture-proof and mechanical impurities.
- Before use, the containers, oil tanks, pipelines, valves, etc. should be carefully cleaned and inspected in case of pollution.

■ **Health and Safety**

- Avoid prolonged or repeated contact with skin, do not drink, and keep away from children.
- Please protect the environment, packaging and waste liquid should be handed over to qualified units for centralized treatment, do not pour into the drainage system, water and soil.
- For other health and safety information, please refer to the safety Data sheet (MSDS) of this product.

RF7008 Low Sludge and EP Type Turbine Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, metal-deactivator, anti-corrosion and extreme pressure and anti-wear agent etc. It meets high-temperature anti-oxidation, extreme pressure and water separation performance requirements by multiple OEMs. The product can be used to improve lubrication and sealing of power generations, industrial engines and marine gear systems with improving bearing load requirements. Especially suitable for lubrication and sealing of gas turbines and combined cycle power generations.

■ Technology Standards

Oils formulated with the product meet performance requirements of GB 11120-2011, ASTM D4304, DIN 51515, TLV 901304/05, HTGD 90117, GEK 107395A, MS04-MA-CL003.

■ Production Application

Can be used for L-TSA、L-TSE、L-TGA、L-TGE、L-TGSB、L-TGSE turbine oils in viscosity grades 32, 46 and 68 with Grp II, Grp III Grp IV and Grp V base stocks. It can be used to formulate turbine oils meet MS04-MA-CL003 for 32# viscosity grade.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	13.6	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	999.6	GB/T 13377, ASTM D4052
N, %	3.0-4.4	3.8	SH/T 0704, ASTM D5762

■ Recommended Treat Rate

Recommended treat rate: 0.7-1.2 %

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7101 Zinc Type Oil Film Bearing Oil Additive Package

■ Product Introduction

RF7101 is formulated with multiple components such as high-performance anti-oxidant, anti-corrosion, metal deactivator, and EP anti-wear agent etc. It has good anti-oxidant, anti-rust, EP anti-wear and emulsion resistance properties, and it meets the application of high-speed wire rod mill after formulating with highly refined high viscosity distillate oil. Finished oil blended with the product provide excellent anti-oxidant and thermal stability, while providing high level anti-wear protection. They have excellent emulsion resistance property, allowing water and other contaminants that entering the system tank to separate from the oil easily.

■ Technology Standards

Finished oil blend with the product meet the requirements of DIN 51517-1, DIN 51517-2, ISO 12925-1, AIST 125 R & O Circulating Oil, AGMA for Inhibited (R&O) Oils, DANIELI®BGV and ESS bearings, MORGOIL ® Standart Lubricant-SN 180 Part 3, MORGOIL ® Advanced Lubricant-SN 180 Part 4 and SH/T 0017.

■ Production Application

Using group I ~ V base oil, it can be modulated different viscosity levels filmatic bearing oil, viscosity grades are 100, 150, 220, 320, 460.

■ Technical Specification

Item	Index	Test Method
Appearance	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	GB/T 13377, ASTM D4052
N, %	0.5-1.0	SH/T 0656, ASTM D5291

■ Recommended Treat Rate

Recommended treat rate: 0.5-1.2 %

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7102 Ashless Type Oil Film Bearing Oil Additive Package

■ Product Introduction

RF7102 is formulated with multiple components such as high-performance anti-oxidant, anti-corrosion, anti-rust, and EP anti-wear agent etc. It has good anti-oxidant, anti-rust, EP anti-wear and emulsion resistance properties, and it meets the application of high-speed wire rod mill after formulating with highly refined high viscosity distillate oil. Finished oil blended with the product provide excellent anti-oxidant and thermal stability, while providing high level anti-wear protection. They have excellent emulsion resistance property, allowing water and other contaminants that entering the system tank to separate from the oil easily.

■ Technology Standards

Finished oil blend with the product meet the requirements of DIN 51517-1, DIN 51517-2, ISO 12925-1, AIST 125 R & O Circulating Oil, AGMA for Inhibited (R&O) Oils, DANIELI®BGV and ESS bearings, MORGOIL ® Standart Lubricant-SN 180 Part 3, MORGOIL ® Advanced Lubricant-SN 180 Part 4 and SH/T 0017.

■ Production Application

Using group I ~ V base oil, it can be modulated different viscosity levels filmatic bearing oil, viscosity grades are 100, 150, 220, 320, 460.

■ Technical Specification

Item	Index	Test Method
Appearance	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity(100°C), mm ² /s	Report	GB/T 265, ASTM D445
Density(20°C), kg/m ³	Report	GB/T 13377, ASTM D4052
N, %	1.5-2.5	SH/T 0656, ASTM D5291

■ Recommended Treat Rate

Recommended treat rate: 0.5-1.2 %

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7230 Air Compressor Oil Package

■ Product Introduction

RF7230 refers to an air compressor oil package which is formulated with antioxidant, anti-wear agent, metal deactivator, rust inhibitor and the other additive components. Applicable for reciprocating, dripping rotary air compressor oil and oil-injecting rotary air compressor oil. The air compressor oil formulated by RF7230 is able to meet mainstream international specification requirements, effectively mitigate oxidation, coking and other issues and protect the equipment.

■ Technology standards

The air compressor oil formulated with RF7230 meets GB/T 12691, DIN51506, ISO 6743-3 specification requirements.

■ Production Application

Blended with Group II-V base oils, RF7230 is able to formulate L-DAA, L-DAB, L-DAJ air compressor oil, with viscosity grades of 32, 46.

■ Recommended Treat Rate

Recommended treat rate: 0.4-2.0%

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity (400°C), mm ² /s	Report	174.5	GB/T265, ASTM D445
Density (20°C), kg/m ³	Report	993.8	GB/T 13377, ASTM D4052
S Content, m%	8.6-12.8	10.7	SH/T 0303, ASTM D1552
P Content, m%	1.0-1.4	1.2	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7231 Low Sludge Air Compressor Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, anti-wear, metal-deactivator and anti-rust agent etc. Can be used for compressor oils for reciprocating compressors, drip rotary air compressors and oil injection rotary air compressors. Oils formulated with the product meet major standards. It is metal free which resolve oxidation and coking problems, and resist the trends of sludge forming, provide good protection to equipment.

■ Technology standards

Oils formulated with the product meet performance requirements of GB/T 12691, DIN51506, ISO 6521-1/2.

■ Production Application

Can be used for L-DAA, L-DAB, L-DAG, L-DAH, L-DAJ air compressor oils in viscosity grades 32, 46 and 68 with Grp I, Grp II, Grp III Grp IV and Grp V base stocks.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	11.9	GB/T265, ASTM D445
Density (20°C), kg/m ³	Report	998	GB/T 13377, ASTM D4052
N Content, m%	3.8-5.2	4.54	SH/T 0704, ASTM D5762

■ Recommended Treat Rate

Recommended treat rate: 0.4-1.0%

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7232 Low Sludge Air Compressor Oil Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, anti-wear, metal-deactivator and anti-rust agent etc. Can be used for compressor oils for reciprocating compressors, drip rotary air compressors and oil injection rotary air compressors. Oils formulated with the product meet major standards. It is metal free which resolve oxidation and coking problems, and resist the trends of sludge forming, provide good protection to equipment.

■ Technology standards

Oils formulated with the product meet performance requirements of GB/T 12691, DIN51506, ISO 6521-1/2.

■ Production Application

Can be used for L-DAA, L-DAB, L-DAG, L-DAH, L-DAJ turbine oils in viscosity grades 32, 46 and 68 with Grp I, Grp II, Grp III Grp IV and Grp V base stocks.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Homogeneous Transparent	Homogeneous Transparent	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	10.5	GB/T265, ASTM D445
Density (20°C), kg/m ³	Report	959.4	GB/T 13377, ASTM D4052
N Content, m%	3.8-5.2	2.72	SH/T 0704, ASTM D5762

■ Recommended Treat Rate

Recommended treat rate: 0.5-1.5%

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7601 Additive Package for Multifunction Agricultural Machine Fluid

■ Product Introduction

The product is formulated with multiple components such as anti-oxidant, anti-rust, anti-corrosion and detergent etc. It has excellent thermal oxidation stability, detergency, copper-corrosion inhibition, and lubrication performance. Oils formulated with the product can meet the requirements of agricultural machinery hydraulic and transmission dual function fluid and multifunctional transmission oil, provides smooth gear shifting and no shocking and noise while braking.

■ Technology Standards

Oils formulated with the product can meet the performance requirements of JB/T 7282-2016 and NB/SH/T 6034-2021.

■ Production Application

Can be used for formulating hydraulic and transmission dual function fluid and multifunctional transmission oil with group I, group II and group III.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brownish Viscous Liquid	Brownish Viscous Liquid	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	22.4	GB/T 265, ASTM D445
Density (20°C), kg/m ³	Report	983.4	GB/T 13377, ASTM D4052
N Content, m%	0.52-0.70	0.61	SH/T 0704, ASTM D5762
Zn Content, m%	1.62-1.98	1.80	GB/T 17476

■ Recommended Treat Rate

Hydraulic and transmission dual function fluid :2%.
Multifunctional transmission oil:3%.

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7602 Multifunctional Tractor Oil Package

■ Product Introduction

RF7602 refers to a multifunctional tractor oil package, which meets STOU requirements as well as UTTO specifications of OEM. The oil formulated with this product provides excellent protection to the engine, as well as widely used in the applications which require tractor hydraulic transmission oil for reliable performance.

■ Technical Standard

The oil blended with this package meets JB/T 7282, API CF-4 requirements.

■ Recommended Treat Rate

STOU/CF-4:8.3%.

Multifunctional Transmission Oil:3.5% (JB/T 7282).

Hydraulic Transmission Dual Oil:2.5%(JB/T 7282).

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Brownish Viscous Liquid	Brownish Viscous Liquid	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	90.2	GB/T 265, ASTM D445
Density (20°C), kg/m ³	Report	987.5	GB/T 13377, ASTM 4052
Flash Point (COC), °C	≥180	199	GB/T 3536, ASTM D92
Total Base Number, mgKOH/g	Report	105	SH/T 0251, ASTM D2896
Ca Content, m%	1.52-1.85	1.68	GB/T 17476, ASTM D4951
P Content, m%	1.60-1.96	1.78	GB/T 17476, ASTM D4951
Zn Content, m%	1.56-1.90	1.73	GB/T 17476, ASTM D4951

■ Product Storage/Handling/Transportation/Package

- Packed in 200L iron drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.

RF7801 Automotive Transmission Fluid Additive Package

■ Product Introduction

The product is formulated with multiple components such as anti-oxidate, metal deactivator, EP anti-wear agent etc. The product is ashless. It has excellent thermal oxidation stability, detergency, and thermal stability. Oils formulated with the product can meet the requirements of four-speed, six-speed transmission and power steering.

■ Technology Standards

Oils formulated with the product can meet the performance requirements of General Motors DEXRON III&IIIH、JASCO M315、Ford Mercon、Allison C-4、CaterpillarTO-2.

■ Production Application

Can be used for four-speed, six-speed transmission oil and power steering fluid with Group II, Group III, Group IV and Group V base oils.

■ Technical Specification

Item	Index	Typical Value	Test Method
Appearance	Transparent Oily Liquid	Transparent Oily Liquid	Visual Inspection
Kinematic Viscosity (100°C), mm ² /s	Report	173.8	GB/T 265、ASTM D445
Density (20°C), kg/m ³	Report	936.4	GB/T 13377、ASTM D4052
N Content,%	2.09-2.83	2.46	SH/T 0704, ASTM D5762

■ Treat Rate

Recommended treat rate for compounded additive: 5.2%.

■ Product Storage/Handling/Transportation/Package

- Packed in 200L metal drums or as required by customers, subject to the actual weight.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 60°C.
- This product is not flammable, explosive and corrosive. In terms of safety, environmental protection and use, it is the same as general petroleum products with no special protection required.