

Quantrix[®]
ADDITIVES

PRODUCT
HANDBOOK





**EVERY
ELEMENT
DELIVERED**



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LEADERS IN LUBRICANT TECHNOLOGY

Who we are

Built upon a rich chemical legacy, QUANTRIX® ADDITIVES is a forerunner in the field of Lubricant Technology. With expertise in the development and supply of technologically-advanced Lubrication products.

Fuelled by innovation, our brand strategically operates beyond the boundaries of conventional operations in the lubricant industry. Our strong technical team comprising of expert formulators and allied suppliers, leaves no stone unturned in providing high-performance and economically-improved solutions. With an array of comprehensive offerings and operations globally, we are committed to providing state of the art research and manufacturing solutions for the present and future highly demanding markets.

OPTIMIZING YOUR PERFORMANCE

What we do

We offer unparalleled services to transform your requirements and expectations into winning attributes for the market. Consistent with the market demand, our products are uniquely tailored to enhance client experience and add value to their needs. From superior base oils and additives to unique polymers and specialty chemicals, our line of products delivers a wide range of solutions and raw materials. Complying with various industry specifications, our potent resources and strong technical database help us maximize the reliability, efficiency, and lifespan of your finished products.

BRINGING YOU QUALITY AND EXCELLENCE

Products and Services

QUANTRIX® ADDITIVES delivers the best of lubricant additive technology. Our product portfolio meets and surpasses a host of significant industrial standards.

Designed by industry experts, our additives contribute advanced engineering technologies to our clients' finished products. We offer a wide range of Packages covering every category of Automotive and Industrial applications such as PCMO, HDDO, Two-Stroke Oil additive packages as well as Gear Oil packages, Hydraulic Fluid packages, etc. We also offer a wide range of Viscosity Improvers and Pour Point Depressants.

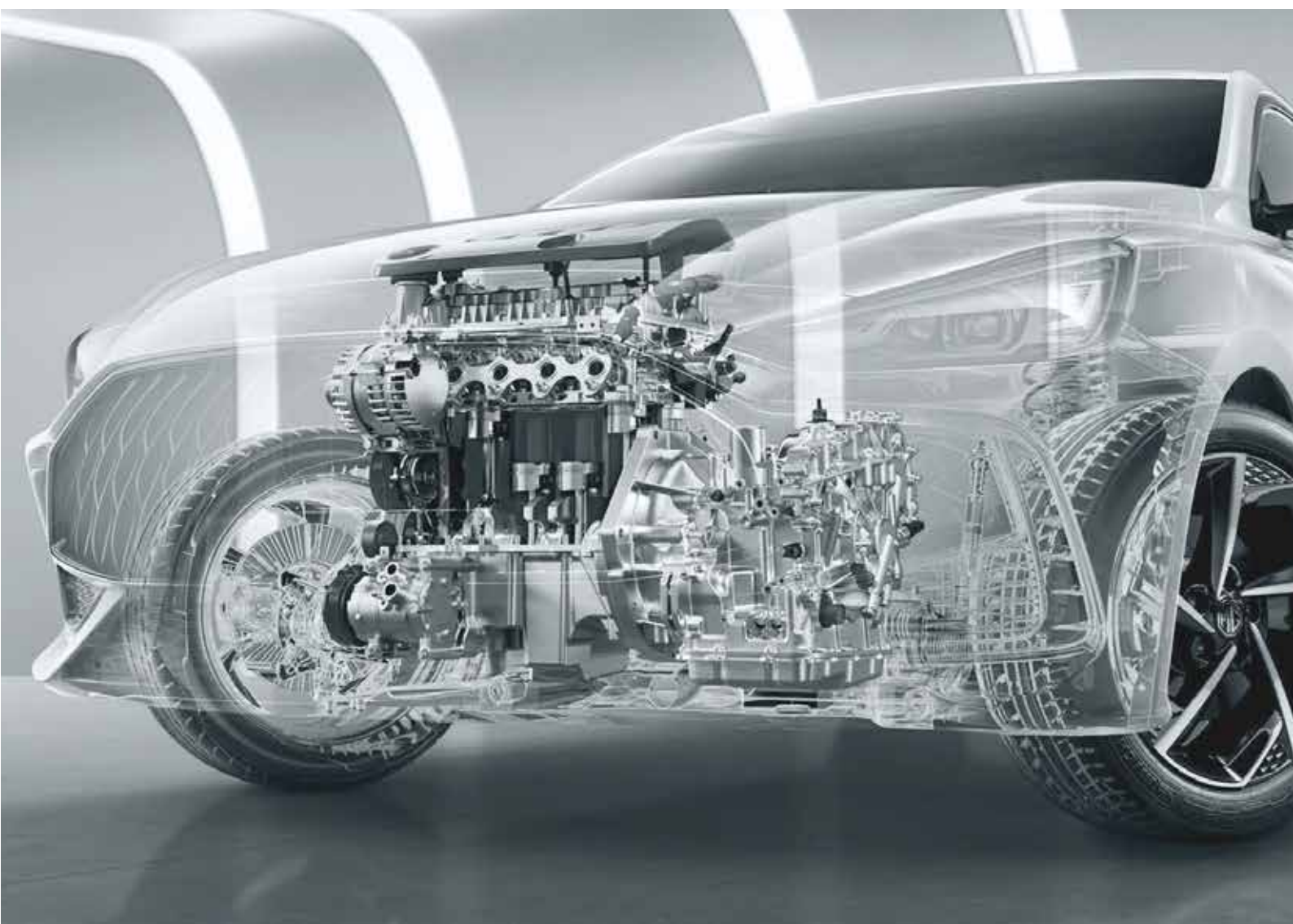
We offer many other additive components critical to the formulation of any lubricant such as TBN Boosters, Extreme Pressure Additives, Antifoam, Antiwear, Dispersants, Antioxidants, Polyisobutylenes and many more lubricant technology solutions.

All of our products originate from the roots of our core values and are therefore innovative, customer centric, available globally and most importantly sustainable. We always integrate sustainability with the innovative design of our products and ensure that these practices are also reflected in the finished products of our customers.

ADDITIVE PACKAGES

AUTOMOTIVE ADDITIVE PACKAGES

QUANTRIX® ADDITIVES offers you an entire range of intelligently-designed lubricant additives encompassing Passenger Car Motor Oils, Heavy Duty Diesel Oils, Automotive Gear Oils, Automatic Transmission Fluids and Two-Stroke Oil additive packages. Our family of Automotive Additive Packages is suitable for both on road and off-road applications; our range is your one-stop, expert solution to optimize the performance of your oils.



ADDITIVE PACKAGES

PRODUCT: QA-SL7010

DESCRIPTION: Passenger car Motor Oil additive Package formulated with high-quality Antiwear, detergent and ashless dispersant, among antioxidant, corrosion inhibitor and outstanding friction modifier. This enables providing excellent detergency and lubricating .

API SL performance in final product.

MAIN PROPERTIES

PHYSICOCHEMICAL PARAMETER	VALUE
COLOR	Brown,dark
SPECIFIC GRAVITY (25°C)	0,93-0.98
FLASH POINT °C (°F)	>130 (266)
VISCOSITY (cst a 100°C)	Report
TBN (mKOH/g)	65-70
CALCIUM (Ca),W%	1.8-2.0
NITROGEN (N), W%	0.4-0.6
Zinc (Zn), W%	0.90-1.10

TREAT RATE: Recommended treat rate: 9.5-10.5%. This rate allows final product to meet API SL specifications, with target in 5W-30, 15W-40 and 20W-50 blends based on API Group I or Group II base oils.

AVAILABLE IN : 275 IBC containers (Totes), 55 gal drums.

ADDITIVE PACKAGES

QUANTRIX® QA-FL8585

DESCRIPTION: Heavy duty Diesel Motor Oil additive Package formulated with high-quality antiwear, detergent and ashless dispersant, among antioxidant, corrosion inhibitor and outstanding friction modifier. This enables providing excellent detergency and lubricating .

API CF/SL performance in final product.

MAIN PROPERTIES

PHYSICOCHEMICAL PARAMETER	VALUE
COLOR	Brown,dark
SPECIFIC GRAVITY (25°C)	0,95-0.99
FLASH POINT °C (°F)	>130 (266)
VISCOSITY (cst a 100°C)	Report
TBN (mKOH/g)	80-90
CALCIUM (Ca),W%	2.5-3.5
NITROGEN (N), W%	0.5-0.7
Zinc (Zn), W%	1.2-16

TREAT RATE Recommended treat rate: 8.5 %. Fluids blended using the SL/CF treat rates may be suitable for use in:

API SL/CF

API SL, SJ, SG, SF, CF, CD

ACEA A3/B2

MBV 229.1

VW 50500

ADDITIVE PACKAGES

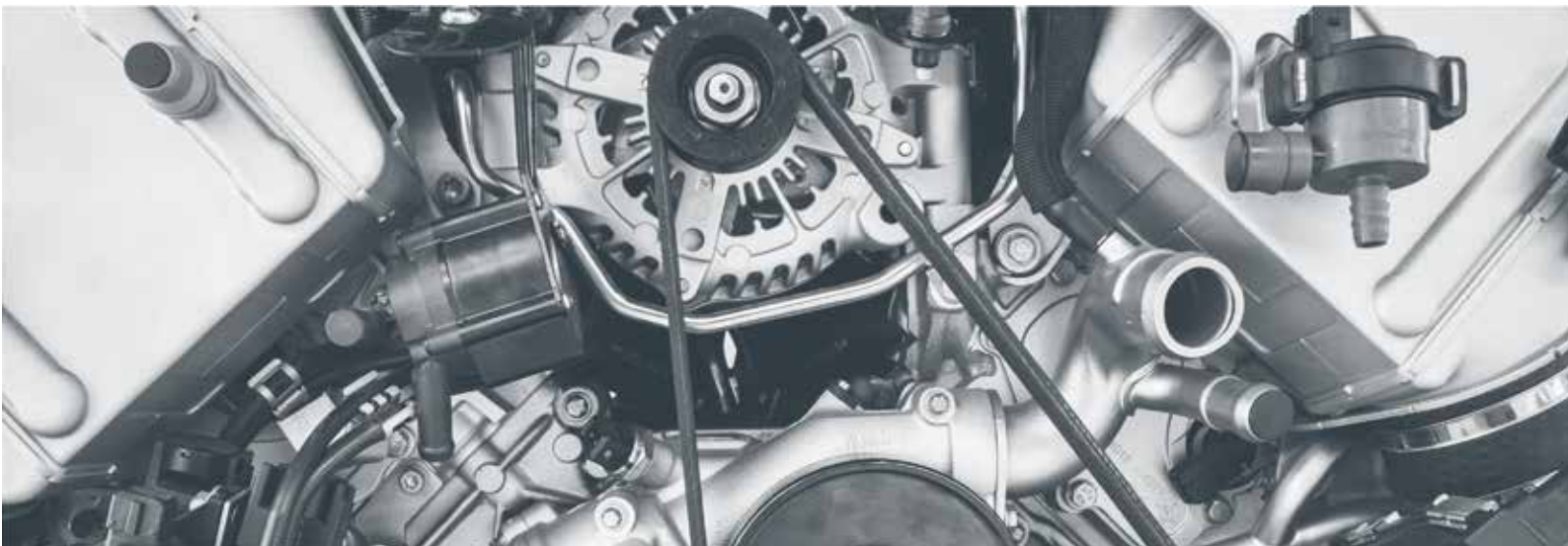
QUANTRIX® QA-D9989

To serve your needs pertaining to both on road and off road applications, QUANTRIX® offers performance additives for formulating premium and super premium quality diesel engine oils. Our portfolio of HDEOs (Heavy Duty Engine Oils) has been specially designed to deliver superior performance while meeting the needs of heavy duty trucking, mining and construction equipment.

Predominantly recommended for use in the formulation of automotive (diesel engine) lubricants, our primary HDEO package, QUANTRIX® QA-D9989 , meets a variety of specifications such as API CI-4, ACEA E3,5, Global DHD-1, and can also be used for marine engine lubricants.

Package Highlights

- Optimized treat rates
- Excellent soot handling properties
- Steep terrain and extreme weather performance
- Good Viscosity control
- Effective wear prevention
- Compatible with a variety of formulations – on road, off road and marine
- Improved TBN option can be made available



ADDITIVE PACKAGES

Applications:

QUANTRIX® QA-D9989 can be used in formulation of a range of HDDOs meeting the following standard levels.

- ACEA E7-12
- MB 228.3
- MAN 3275
- Volvo VDS-3
- Deutz DQC-II, Deutz DQC-III
- MTU 2.0
- Mack EO-M+, Mack EO-N
- CES 20077, CES 20078
- Caterpillar ECF-1a, Caterpillar ECF-2
- Renault RLD-2
- JASO DH-1
- Global DHD-1
- DDC 93K215

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Observation	Viscous Brownish Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	200
Density at 15°C, kg/m ³	ASTM D4052	989
Flash Point (PMCC), °C	ASTM D93	135 Min.
Total Base Number, mg KOH/g	ASTM D2896	104
Calcium, wt.%	ASTM D4951	3.35
Nitrogen, wt.%	ASTM D5291	0.95
Phosphorus, wt.%	ASTM D4951	0.92
Zinc, wt.%	ASTM D4951	1.01
Molybdenum, wt.%	ASTM D4951	0.037
Boron, wt.%	ASTM D4951	0.08

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on required performance level and the base oil 6.1 – 10.8 wt.% of QUANTRIX® QA-D9989 is recommended.

Performance Level	Treat rate (wt.%)	Theoretical TBN
API CI-4/SL	10.8	11.2
API CH-4/SJ	9.7	10.1
API CG-4	8.2	8.5
API CF-4	6.1	6.3

Note: The above-mentioned treat rates are based on blends using appropriate base stock.

Handling:

- Store in a dry, clean, and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- Maximum storage temperature is 45°C.
- Maximum blending temperature is 65°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-1820P

QUANTRIX® QA-1820P is used in the formulation of multigrade diesel engine oils, meeting API CI-4 PLUS and ACEA E7 requirements.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Brown Thick Liquid
Density at 20°C, kg/m ³	ASTM D4052	972
Kinematic Viscosity at 100°C, cSt	ASTM D445	146
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	83
Calcium Content, wt.%	ASTM D4951	2.55
Zinc Content, wt.%	ASTM D4951	1.31
Phosphorus Content, wt.%	ASTM D4951	1.16
Molybdenum Content, wt.%	ASTM D4951	0.052

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate

Performance Level	QUANTRIX® QA-1820P (wt.%)
API CI-4	10.85
API CI-4 PLUS, ACEA E7	11.85

Handling:

- Store in a dry, clean, and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The long-term storage temperature shall not exceed 45°C
- The blending temperature shall not exceed 65°C.
- For health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-1841

QUANTRIX® QA-1841 is a high-performance additive package specially designed for use in diesel engine oil applications meeting API CK- 4/CJ-4 and ACEA E11 requirements. This package is a combination of engineered components, including high-quality detergent, dispersant, antiwear, and other components that impart enhanced performance to the finished product.

Features:

- Outstanding soot dispersancy and detergency
- Excellent antiwear performance
- Long-lasting durability
- Excellent resistance to oxidation and corrosion

Applications:

QUANTRIX® QA-1841 is used to formulate multigrade diesel engine oils meeting API CK- 4/CJ-4 and ACEA E11 requirements.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Brown Thick Liquid
Density at 20°C, kg/m ³	ASTM D4052	955
Kinematic Viscosity at 100°C, cSt	ASTM D445	175
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	60
Calcium Content, wt.%	ASTM D4951	1.55
Zinc Content, wt.%	ASTM D4951	0.83
Phosphorus Content, wt.%	ASTM D4951	0.73

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

To formulate SAE 10W-30, 10W-40, 15W,40, and 20W-50 viscosity grades meeting API CK- 4/CJ-4 and ACEA E11 requirements, 15.1% of QUANTRIX® QA-1841 is needed.

Handling:

- Store in a dry, clean, and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The long-term storage temperature shall not exceed 45°C.
- The blending temperature shall not exceed 65°C.
- For health and safety precautions, refer to the Safety Data Sheet (SDS).

ADDITIVE PACKAGES

PRODUCT: QA-CF8011

DESCRIPTION: Heavy duty Diesel Motor Oil additive Package formulated with high-quality antiwear, detergent and ashless dispersant, among antioxidant, corrosion inhibitor and outstanding friction modifier. This enables providing excellent detergency and lubricating .

API CF performance in final product.

MAIN PROPERTIES

PHYSICOCHEMICAL PARAMETER	VALUE
COLOR	Brown,dark
SPECIFIC GRAVITY (25°C)	0,93-0.98
FLASH POINT °C (°F)	>130 (266)
VISCOSITY (cst a 100°C)	Report
TBN (mKOH/g)	75-85
CALCIUM (Ca),W%	1.8-2.0
NITROGEN (N), W%	0.2-0.4
Zinc (Zn), W%	0.90-1.10

TREAT RATE: Recommended treat rate: 10-11%. This rate allows final product to meet API CF specifications, with target in 15W-40 and heavier blends based on API Group I or Group II base oils.

AVAILABLE IN : 275 IBC containers (Totes), 55 gal drums.

QUANTRIX® QA-1650

QUANTRIX® QA-1650 is a high-performance additive package specially designed for use in gasoline passenger car applications, requiring API SP performance level. High-performance multigrade engine oils formulated with QUANTRIX® QA-1650 provide the additional performance demand of LSPI (low-speed pre-ignition) protection, and its low phosphorus formula protects the three-way catalytic converter.

Features:

- Excellent high-temperature detergency
- Outstanding antioxidation and anticorrosion properties
- Superior wear protection of chain and valve system
- Low phosphorus formula
- LSPI protection

Applications:

QUANTRIX® QA-1650 is used in the formulation of multigrade gasoline engine oils meeting API SP requirements.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Thick Brown Liquid
Density at 20°C, kg/m ³	ASTM D4052	970
Kinematic Viscosity at 100°C, cSt	ASTM D445	122
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	104
Calcium Content, wt.%	ASTM D4951	1.28
Magnesium Content, wt.%	ASTM D4951	0.76
Zinc Content, wt.%	ASTM D4951	1.00
Phosphorus Content, wt.%	ASTM D4951	0.89
Nitrogen Content, wt.%	ASTM D5762	1.27
Molybdenum Content, wt.%	ASTM D4951	0.12
Sulfated Ash, wt.%	ASTM D874	9.3

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Recommended treat rate of QUANTRIX® QA-1650 for SAE 5W-20, 5W-30, 10W-30, 10W-40, 15W-40 viscosity grades is 8.2% to meet API SP requirements.

Handling:

- Keep in a dry and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The long-term storage temperature shall not exceed 45°C.
- Maximum allowable blending temperature is 65°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-1606E

QUANTRIX® QA-1606E is a cost-effective cascading additive package developed to cover most gasoline and diesel engine oil applications. This versatile product covers a wide range of API performance levels as well as JASO MA and MB performance requirements.

Features:

- Broad API performance level coverage from API SL/CF down to SB/CB
- High performance
- Cost-effective

Applications:

QUANTRIX® QA-1606E is a complete additive package for passenger car, light-duty diesel and 4-stroke motorcycle engine oil applications.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Dark Brown Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	125
Density at 15°C, kg/m ³	ASTM D4052	998
Flash Point (PMCC), °C	ASTM D93	150 Min.
Total Base Number (TBN), mg KOH/g	ASTM D2896	114
Calcium Content, wt.%	ASTM D4951	3.40
Zinc Content, wt.%	ASTM D4951	1.64
Phosphorus Content, wt.%	ASTM D4951	1.48
Nitrogen Content, wt.%	ASTM D5291	0.98

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Performance Level		QUANTRIX® 1606E wt.%	QUANTRIX® AW 3000 wt.%	Theoretical TBN
API SL/CF	JASO MA	6.2	-	7.1
API SJ/CF		5.4	-	6.2
API SL/CF	JASO MB	6.2	0.4	7.1
API SJ/CF		5.4	0.4	6.2
API SG/CD		4.9	-	5.6

ADDITIVE PACKAGES

QUANTRIX® QA-1606E

Cascade Performance Levels:

Performance Level	SAE Viscosity Grade	QUANTRIX® 1606E (wt.%)	QUANTRIX® 411E (wt.%)	Theoretical TBN
SG/CF	15W-40, 20W-40, 20W-50	5.0	0.2	6.5
CF-4/SG	10W-30, 15W-40, 20W-50	5.8	0.2	7.5
SF/CF	10W-30 (for SF only), 15W-40, 20W-40, 20W-50	3.6	0.6	6.7
SF/CF	20W, 30, 40, 50	3.6	0.4	5.6
CF	15W-40, 20W-40, 20W-50	2.5	1.0	6.8
CF	20W, 30, 40, 50	2.5	0.7	5.6
SF/SE/CD	10W-30 (for SF/SE only), 15W-40, 20W-40, 20W-50	3.6	0.3	5.3
SD/SC/CC	10W-30 (for SD/SC only), 15W-40, 20W-40, 20W-50	1.8	0.4	3.6
SB/CB	20W, 30, 40, 50	1.6	0.2	2.4

QUANTRIX® QA-1609E

Is a high-performance additive package for formulating high quality crankcase oils with suitable base stocks. It is especially designed to provide superior deposit control, wear, and rust control of engine components. Also, it meets the requirements of API SN, SM and SL in different base oils for a wide range of viscosity grades.

QUANTRIX® QA-1609E is designed to meet a wide range of API standards and performance levels.

Application:

- Broad performance coverage from API SN/CF-4 down to SL/CF.
- Specially formulated for high sulfur fueled engines in hot climatic conditions.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Transparent Brownish Red Liquid
Kinematic Viscosity @ 100°C, cSt	ASTM D445	100
Density at 20°C, kg/m ³	ASTM D1298	1,000
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	102.5
Calcium, wt%	ASTM D4951	2.85
Zinc, wt %	ASTM D4951	1.00
Boron, wt %	ASTM D4951	0.11
Phosphorus, wt %	ASTM D4951	0.98
Molybdenum, wt %	ASTM D4951	0.19
Nitrogen, wt %	ASTM D3228	1.09
Sulfur, wt %	ASTM D3120	2.75

Note: The above-mentioned properties are typical unless indicated otherwise, these are not considered as delivery specification.

Specifications:

Performance	SAE Grade	Treat Rate	Theoretical TBN
SN/CF-4	Multigrade	7.60	7.8
SM	Multigrade	7.28	7.5
SL/CF	Multigrade	7.00	7.2

Note: The above-mentioned treat rates are based on blends using appropriate base stock.

Packaging and Handling

- Packed in 210kg steel drums on pallet.
- Store in a dry, clean, and well-ventilated storage area.
- Max Storage Temp: 45°C.
- Maximum Blending Temp: 65°C.
- Shelf Life of up to 24 months from the date of manufacture at ambient temperature (10 – 40°C).
- For details of health and safety precautions, please read the Safety Data Sheet.

QUANTRIX® QA-1821

QUANTRIX® QA-1821 is a high-performance additive package designed for diesel engine oil applications that meet API CI-4 requirements. This package is a combination of engineered components, including high-quality detergent, dispersant, corrosion inhibitor, high-temperature antioxidant, and other components that impart enhanced performance to the finished oils.

Features:

- Outstanding detergency and soot dispersancy properties
- Cost efficient with low treat-rate
- Excellent resistance to oxidation and corrosion
- Long-lasting durability

Applications:

QUANTRIX® QA-1821 is used in the formulation of multigrade diesel engine oils, meeting API CI-4, CH-4, and CF-4 requirements.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Brown Viscous Liquid
Density at 20°C, kg/m ³	ASTM D4052	981
Kinematic Viscosity at 100°C, cSt	ASTM D445	142
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	103
Calcium Content, wt.%	ASTM D4951	3.54
Zinc Content, wt.%	ASTM D4951	1.52
Phosphorus Content, wt.%	ASTM D4951	1.35
Nitrogen Content, wt.%	ASTM D5291	0.52

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

Performance Level	SAE Viscosity Grade	Treat Rate, wt.%
API CI-4	15W-40, 20W-50	8.5
API CH-4	15W-40, 20W-50, 40, 50	7.8
API CF-4	15W-40, 20W-50, 40, 50	4.1+1.9 LUBIMAX® 18210

Handling:

- Store in a dry, clean, and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The long-term storage temperature shall not exceed 45°C.
- The blending temperature shall not exceed 65°C.
- For health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-1631

QUANTRIX® QA-1631 is an engine oil additive package specially designed to meet the requirements of API SL/CF specifications, ensuring compatibility and performance excellence in a wide range of gasoline and diesel engines.

Features:

- Excellent protection against wear, oxidation, and deposit formation.
- Excellent viscosity grade coverage of 10W-30, 10W-40, 15W-40, 20W-40 and 20W-50

Applications:

QUANTRIX® QA-1631 is a complete additive package for passenger cars and light trucks with gasoline engines as well as vehicles with diesel engines. This package has been optimized to provide improved oxidation stability, allowing for longer drain intervals.

QUANTRIX® QA-1631, when used at the recommended treat rate, will provide a minimum TBN of 7, protecting engines running on fuels with a higher sulfur content.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Clear Brown Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	90.00
Density at 15°C, kg/m ³	ASTM D4052	1,010
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number (TBN), mg KOH/g	ASTM D2896	128.9
Calcium Content, wt.%	ASTM D4951	4.00
Zinc Content, wt.%	ASTM D4951	2.14
Phosphorus Content, wt.%	ASTM D4951	1.80
Molybdenum Content, wt.%	ASTM D4951	0.04
Nitrogen Content, wt.%	ASTM D5762	0.95

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Performance Level	QUANTRIX® QA-1631 (wt.%)
API SL/CF	5.30

Handling:

- Store in a dry and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- Maximum storage temperature is 50°C and maximum blending temperature is 70°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-1600HT

QUANTRIX® QA-1600HT is a high-performance additive package with a low treat rate cost, specifically tailored for mid to low-tier crankcase lubricants formulated using Group I base stocks. This additive package guarantees excellent protection, delivering superior deposit control, wear and rust reduction. Additionally, its capabilities extend to ensuring optimal oil oxidation protection, a vital aspect for maintaining the performance and longevity of both diesel and gasoline engines. Impressively versatile, QUANTRIX® QA-1600HT can be adeptly used for both HDEO (Heavy Duty Engine Oil) and PCMO (Passenger Car Motor Oil) production, presenting a cost-efficient solution.

Features:

- Outstanding detergency property
- Excellent thermal and oxidation stability
- Broad performance coverage from API CF/SF down to CB/SB
- Specially formulated for high sulfur fueled engines in hot climate conditions

Application:

QUANTRIX® QA-1600HT, characterized by its high base number, offers a cost-effective solution for the production of a broad spectrum of HDEOs for API CF level and lower. Coupled with its controlled ash content, it becomes an optimal selection for the formulation of specific PCMOs, particularly those targeting API levels below SF.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Brown Viscous Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	60
Density at 15°C, kg/m ³	ASTM D4052	1,080
Flash Point (COC), °C	ASTM D92	200 Min.
Total Base Number, mg KOH/g	ASTM D2896	185
Calcium Content, wt.%	ASTM D4951	6.50
Zinc Content, wt.%	ASTM D4951	2.65
Nitrogen Content, wt.%	ASTM D5291	0.46
Sulfated Ash, wt.%	ASTM D874	29 Max.

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Performance Level	SAE Grade	QUANTRIX® QA-1600HT, wt.%
API CF/SF	Monograde & Multigrade	2.8
API SF/CD	Monograde & Multigrade	2.4
API SE/CC	Monograde & Multigrade	2.3
API SD/CD	Monograde & Multigrade	2.3
API SD/CC	Monograde & Multigrade	2.2
API CC/SC	Monograde & Multigrade	1.1
API CB/SB	Monograde & Multigrade	1.0

Handling and Packaging:

- Store in a dry, and well-ventilated storage area.
- Packaging: This information is available on request through our local representative. Please contact your QUANTRIX® sales representative to find the options available in your region.
- Maximum storage temperature is 40°C and maximum blending temperature is 70°C.
-

ADDITIVE PACKAGES

TWO STROKE OIL ADDITIVE PACKAGE

QUANTRIX® QA-0423S / QA-6340 / QA-6223

Two stroke petrol fueled engines demand a low ash, high performance output in the formulation of their lubricants. QUANTRIX® QA-0423S / QA-6340 / QA-6223 is well compatible with a broad range of two stroke motor engine oils for all terrain cars, motor cycles, scooters and lawn equipment. It offers excellent engine cleanliness and imparts excellent wear protection and hence a longer engine life. It is a low ash additive package which results in deposit control and cleaner engines. This package has been developed to formulate lubricants meeting API TC, ISO L-EGD, and JASO FD two stroke lubricant requirements.

Package Highlights

- Low ash additive package
- Extended engine life
- Adequate protection against piston and cylinder scuffing
- Reduced smoke emission



QUANTRIX® QA-0423S

Description and Applications:

QA-0423S is a performance engine oil additive designed for use in small engine applications. When combined with suitable base stocks, solvents and other components it can be used to formulate 2T engine water-cooled lubricants applications. Treat rate ranges from 10 wt% - 12 wt%.

Typical Physical and Chemical Properties

Specific Gravity @ 60°F	0.89
Density, lbs/gal	7.4
Viscosity @ 100°C, cSt	20-60
Nitrogen, wt%	1.65
TBN	45

Safety, Handling, and Storage

Maximum temperature of 80°C (176°F) for handling and 32°C (90°F) for long-term storage are recommended. Typical precautions for handling concentrated chemicals and blending additives into base oils and solvents should be observed.

No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their particular production conditions and use or uses of the product. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product.

QUANTRIX® QA-6340

■ Product Introduction

QA-6340 two-stroke outboard engine oil package is formulated with high performance ashless dispersant, rust inhibitor 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	11 %

■ Technical Specification

Item	Index	Test Method
Density (20°C), kg/m ³	0.88-0.96	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	GB/T 265, ASTM D445
TBN, mg KOH/g	40-50	SH/T 0251, ASTM D2896
N Content, m%	1.20-1.60	NB/SH/T 0704, ASTM D5762
Ca (Calcium) %w:	0.11-0.14	ASTM D4951

■ 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.

QUANTRIX® QA-6223

QA-6223 is a 2T air cooled engine oil additive package that is low ash and sulfur free. When combined with suitable base stocks QA-6223 provides good detergency and lubricity in both low smoke and traditional air-cooled 2T cycle engine lubricant applications. Treat rate ranges from 1.5 wt% - 6.5 wt%.

Typical Physical and Chemical Properties

Specific Gravity @ 60°F	0.90
Density, lb/gal	7.65
Viscosity @ 100°C, cSt	80
Nitrogen, wt%	1.2
Calcium, wt%	0.5

Safety, Handling, and Storage

Maximum temperature of 80°C (176°F) for handling and 32°C (90°F) for long-term storage are recommended. Typical precautions for handling concentrated chemicals and blending additives into base oils and solvents should be observed.

Responsible Care

For complete storage, handling, safety, health, personnel protection and first aid information, please refer to the Safety Data Sheet (SDS) that can be ordered via your QUANTRIX® representative.

No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their particular production conditions and use or uses of the product. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product. **Date: 8/07/15**

AUTOMOTIVE

GEAR OIL ADDITIVE PACKAGE

QUANTRIX® QA-G337/QA-G339

We offer our customers a superlative class of multipurpose, Automotive Gear Oil (AGO) packages apt for extreme pressure, manual transmissions and rear axles. Apart from these applications, our AGO additive package is specifically formulated to meet your requirements in conventional differentials, final drives and various other passenger car and commercial automotive units.

Our star product of the range, QUANTRIX® QA-G337/QA-G339 is dually applicable for industrial gear oils. Therefore, its product profile can also be found in the Industrial Additive Packages section of this catalogue.

Package Highlights

- Low Treat Rate
- Improved economic efficiency
- Resistant to extreme pressure
- Light color
- Environment friendly
- Soluble in variety of Group II, III base stocks



QUANTRIX® QA-G337

QUANTRIX® QA-G337 is a premium quality gear oil additive package used to formulate automotive and industrial gear oils with suitable base stocks. QUANTRIX® QA-G337 is designed to provide superior performance of extreme pressure, rust protection, corrosion protection, thermal and oxidation stability.

Features:

- Excellent rust and corrosion protection
- Extreme pressure performance
- Outstanding thermal and oxidation stability

Application:

QUANTRIX® QA-G337 is used in the production of high-quality gear oils meeting the following standard levels:

- API GL-5
- API GL-4
- DIN 51517 Part 3 (CLP)
- ISO 12925-1 CKC
- US Steel 224
- ISO 6743-6 CKC
- AGMA 9005-F16
- GB 5903-L-CKD

Characteristics:

Properties	Test Method	Typical Value
Appearance	Observation	Transparent Liquid
Colour	ASTM D1500	L2.5
Kinematic Viscosity at 40°C, cSt	ASTM D445	8.357
Kinematic Viscosity at 100°C, cSt	ASTM D445	2.20
Density at 20°C, kg/m ³	ASTM D4052	994
Flash Point (PMCC), °C	ASTM D93	82
Phosphorus, wt.%	ASTM D4951	1.5
Nitrogen, wt.%	ASTM D5762	0.8
Sulfur, wt.%	ASTM D4951	33.0

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on the required performance level and the base oil 0.1 – 4.2 wt. % of QUANTRIX® QA-G337 is recommended.

Performance	QUANTRIX® QA-G337 (wt.%)
API GL-5	4.2
API GL-4	2.1
API GL-3	1.4
Industrial Gear Oils	1.5
General EP/anti-wear component	0.1 - 1.0

Handling:

- Store in a dry and well-ventilated storage area. For more details refer to the Drum Storage Guide.
- Maximum storage temperature is 40°C.
- For details of health and safety precautions, please see the related Safety Data Sheet.

QUANTRIX® QA-G339

QUANTRIX® QA-G 339 is a high- performance universal gear oil additive package intended to be used in formulating both vehicle and industrial gear oils. This eco-friendly additive, with low odor, provides superior performance such as excellent load carrying and anti-scuffing properties, corrosion protection, thermal and oxidation stability. QUANTRIX® QA-G 339 has good oil solubility in various base oils such as API Group I, II, III and PAOs.

Features:

- Excellent load carrying and anti-scuffing properties
- Outstanding anti-foam and anti-corrosion performance
- Excellent detergency and antioxidant properties
- Good oil solubility
- Low odor
- Cost effective

Applications:

QUANTRIX® QA-G 339 can be used in the production of automobile and industrial gear oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Transparent Liquid
Density at 20°C, kg/m ³	ASTM D4052	995
Kinematic Viscosity at 40°C, cSt	ASTM D445	7.5
Phosphorus Content, wt.%	ASTM D4951	1.6
Sulfur Content, wt.%	ASTM D4951	33
Nitrogen Content, wt.%	ASTM D5291	0.82

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on the required performance level and the base oil, recommended treat rate of QUANTRIX® QA-G 339 is:

Performance Level	Viscosity Grades	Treat Rate, wt.%
API GL-5	SAE 80W-90, SAE 85W-90, SAE 85W-140, SAE 90	3.8
API GL-4	SAE 80W-90, SAE 85W-90, SAE 85W-140, SAE 90	1.9
Industrial Gear Oil, Heavy Load	ISO 68, ISO 100, ISO 150, ISO 220, ISO 320, ISO 460	1.5
Industrial Gear Oil, Medium Load	ISO 68, ISO 100, ISO 150, ISO 220, ISO 320, ISO 460	1.0

Handling:

- Store in a dry and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The temperature should not exceed 70°C during oil blending, and 45 °C for storage.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

AUTOMATIC

TRANSMISSION FLUID ADDITIVE PACKAGE

QUANTRIX® QA-2124

QA-2124 is a multipurpose, low ash automatic transmission fluid additive package formulated suitable for use in pre-2006 General Motors, Ford and Allison transmissions (except Ford Type F). QA-2124 provides good thermal and oxidative stability, excellent corrosion and wear protection, anti-shudder and optimized frictional properties, as well as sludge and deposit prevention performance. The recommended treat rate is 8.2 wt% with suitable base stocks.

Typical Physical

Specific Gravity @ 60°F	0.90
Density, lbs/gal	7.51
Viscosity @ 100°C, cSt	170-240
Nitrogen, wt%	0.86
Phosphorous, wt%	0.13

Safety, Handling, and Storage

Maximum temperature of 71°C (170°F) for handling and 32°C (90°F) for long-term storage are recommended. Typical precautions for handling concentrated chemicals and blending additives into base oils and solvents should be observed.

Packaging

QA-2124 is available in bulk, totes, and drums



QUANTRIX® QA-1430N

Description:

QUANTRIX® QA-1430N is a high-performance additive package specially designed for formulating multi-vehicle Automatic Transmission Fluids (ATFs). The combination of this product with suitable full synthetic base stocks produces ATF meeting and exceeding the performance requirements of DEXRON®-VI, MERCON®LV and JASO-1A. QUANTRIX® QA-1430N provides longer drain intervals by offering superior anti-oxidation and anti-wear properties. This product improves the ATF's performance to provide smoother power transmission without undesirable noise, vibration, and harshness.

Features:

- Outstanding protection of transmission gears
- Superior prevention of sludge and varnish build-up
- Extends transmission fluid life

Applications:

QUANTRIX®QA-14 30N can be used in formulating ATFs meeting and exceeding performance requirements of DEXRON®-VI, MERCON®LV and JASO-1A.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Dark Amber Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	59
Flash Point (PMCC), °C	ASTM D93	120 Min.
Specific gravity at 15.6°C	ASTM D4052	0.921
Phosphorus, wt.%	ASTM D4951	0.15
Boron, wt.%	ASTM D4951	0.067
Sulfur, wt.%	ASTM D1552	1.53

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Recommended treat rate of QUANTRIX® QA-1430N is 10.98 wt.%.

Handling:

- Store in a dry and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- Maximum handling temperature is 70°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

RAIL ROAD

ADDITIVE PACKAGE

QUANTRIX® QA-7221

Description:

QUANTRIX® QA-7221 is a high performance additive package specially designed for use in Railroad (RR) engine oils. This additive is zinc-free and developed for use in engines with a silver liner. Formulated oils with this additive package meet the performance requirements of Generation 2, 3 and 4 of RR diesel engine oil performance categories.

Features:

- Zinc free
- Excellent detergency property
- Highly compatible with silver components

Application:

QUANTRIX® QA-7221 can be used in formulating RR diesel engine oils meeting the requirements of LMOA Generation 2, 3 and 4 performance levels.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Red Brown
Kinematic Viscosity at 100°C, cSt	ASTM D445	83
Flash Point (COC), °C	ASTM D92	190 Min.
Total Base Number, mg KOH/g	ASTM D2896	120
Sulfur Content, wt.%	ASTM D3102	1.90
Nitrogen Content, wt.%	ASTM D3228	0.80
Zinc Content, ppm	ASTM D4951	30 Max.

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

LMOA Performance Level	Treat Rate (wt.%)	Theoretical TBN
Generation 4	10.35	12.4
Generation 3	7.96	9.5
Generation 2	5.60	6.7

Note: The above-mentioned treat rates are based on blends using appropriate base stock.

Handling:

- Store in a dry and well-ventilated storage area. For more details, refer to the Drum Storage Guide.
- Maximum blending temperature is 60°C.
- The storage temperature should not exceed 50°C.
- For health and safety precautions details, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-7321M

Application, Product Summary & Benefits

QA-7321M is formulated to provide excellent engine cleanliness and oil filter life in late model EMD and GE engines in a wide range of railroad, inland marine and stationary engine applications. Oils blended with QA-7321M meet API CF/CF-2 performance and exceed LMOA generation V requirements. QA-7321M is non-chlorinated.

Treat Rate

13 TBN: 12.0 wt-% (11.0 vol-% in 28° API base oil) is the recommended treatment.

Typical Properties

Chemical

Nitrogen, mass/wt-% (ASTM D 5291)	0.5
Calcium, mass/wt-% (ASTM D 4951/D 4927)	3.72
Molybdenum, mass/wt-% (ASTM D 5185)	0.069
TBN, mg KOH/g (ASTM D 2896)	110

Physical

Gravity, API @ 60°F (ASTM D 4052)	13.8
Density, lb/US gal at 60°F (ASTM D 4052)	8.11
Flash (COC), °C (ASTM D 92)	182
Viscosity, mm ² /s(cSt) at 100°C (ASTM D 445)	Report
Color, Double Dilute (ASTM D 6045)	3.5

Handling

Maximum temperatures of 82 °C (180 °F) for handling and 49 °C (120 °F) for long-term storage are recommended.

MARINE

ADDITIVE PACKAGE

QUANTRIX® QA-6340

QA-6340 two-stroke outboard engine oil package is formulated with high performance ashless dispersant, rust inhibitor 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	11%

■ Technical Specification

Item	Index	Test Method
Density (20°C), kg/m ³	0.88-0.96	GB/T 13377, ASTM D4052
Kinematic Viscosity (100°C), mm ² /s	Report	GB/T 265, ASTM D445
TBN, mg KOH/g	40-50	SH/T 0251, ASTM D2896
N Content, m%	1.20-1.60	NB/SH/T 0704, ASTM D5762
Ca (Calcium) %w:	0.11-0.14	ASTM D4951

■ 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.

QUANTRIX® QA-8823

QUANTRIX® QA-8823 is a high-performance additive package specially developed to formulate marine cylinder oils. Formulated cylinder oils with this additive have excellent detergency and dispersibility and meet the stringent requirements of marine lubricants.

QUANTRIX® QA-8823 contains specially selected components such as high-performance detergent, dispersant antioxidant, and anti-wear agents, as well as other additives. This package meets and exceeds the lubrication requirements of low-speed, two-stroke crosshead marine diesel engines in combination with high-quality base oils.

Features:

- Outstanding antiwear property
- Superb water separation properties
- Excellent acid neutralisation capacity

Applications:

QUANTRIX® QA-8823 is mainly used in formulating marine cylinder oils for lubricating low-speed, crosshead marine diesel engines.

Characteristics:

Parameter	Test Method	Typical Value
Kinematic Viscosity at 100°C, mm ² /s	ASTM D445	Report
Total Base Number, mg KOH/g	ASTM D2896	320 Min.
Flash Point (COC), °C	ASTM D92	185 Min.
Calcium Content, wt. %	ASTM D4951	12 Min.
Water, wt. %	ASTM D95	0.08 Max.
Mechanical Impurities, wt. %	Internal	0.1 Max.

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

Recommended treat rates of QUANTRIX® QA-8823 for formulating 5040, 5070, 5080, 50100 marine cylinder oils are 12.7%, 22%, 25.4%, 32% by weight respectively.

Handling:

- Store in a dry and well-ventilated storage area. For more details, refer to the Drum Storage Guide.
- Maximum temperature for storage, handling, and blending is 75°C.
- For long-term storage, the maximum temperature should not exceed 45°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-8826

QUANTRIX® QA-8826 is a high-performance additive package specially developed to formulate Trunk Piston Engine Oil (TPEO). Formulated TPEOs with this additive have excellent detergency and dispersibility and meet the stringent requirements of marine lubricants.

QUANTRIX® QA-8826 imparts excellent acid neutralisation capacity to the finished lubricants and provides excellent corrosion inhibition of the acidic material generated by the sulfurous fuel.

Features:

- Contains especially selected detergent, ash-less dispersant, antioxidant and antiseptic agents
- Provides extended lubricant lifetime
- Excellent acid neutralisation capacity
- Avoids oil emulsification

Applications:

QUANTRIX® QA-8826 is mainly used to formulate high-performance 4030 medium speed trunk piston engine oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Brown viscous liquid
Kinematic Viscosity at 100° , mm ² /s	ASTM D445	Report
Density at 20 , kg/m ³	ASTM D4052	1,050
Flash Point (COC), °	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	221
Nitrogen Content, wt. %	ASTM D3228	0.30
Zinc Content, wt. %	ASTM D4951	0.65
Calcium Content, wt. %	ASTM D4951	8.22
Phosphorus Content, wt. %	ASTM D4951	0.56

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

Recommended treat rate of QUANTRIX® QA-8826 for formulating 4030 TPEOs is 14 wt. %.

Handling:

- Store in a dry and well-ventilated storage area. For more details, refer to the Drum Storage Guide.
- Maximum temperature for storage and handling is 60 .
- For long-term storage, the maximum temperature should not exceed 50C .
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

NATURAL GAS ENGINE OIL

ADDITIVE PACKAGE

QUANTRIX® QA-5522

QA-5522 is a multi-functional additive package which helps in deposit control and protection against wear, oil oxidation and oil nitration in natural gas engines. Designed for gasoline engine oils where industry certification is not required. When used at with appropriate base stocks and VII, it can produce oils equivalent to the service category CF.

Treat Rate: 10.1 wt%

Typical Properties

Test	Method	Value
Specific Gravity @ 15.6/15.6°C, g/ml	D-4052	0.91
Total Base Number, mg KOH/g	D-2896	54
Viscosity @ 100°C, cSt	D-445	20
Calcium, wt%	D-7751	1.25
Zinc, wt%	D-7751	0.32
Phosphorus, wt%	D-7751	0.25
Nitrogen, wt%	SOLT001	0.95

Packaging

QA-5522 is available in Totes and in bulk (tank trucks and railcars).
Samples are available upon request.

No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their production conditions and use or uses of the product. Seller makes no representation as to which specific base oils, VI improvers or PPD may be suitable for use with QA-5522. Selection of suitable base oils, VI improvers and PPD is the customer's or user's sole responsibility. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product.

OTHERS ADDITIVE PACKAGE

QUANTRIX® QA-8012

QUANTRIX® QA-8012 is a high-performance low-ash additive package specially designed for formulating stationary Natural Gas engine oils. Formulated engine oils with this additive package provide excellent performance even under severe conditions and meet API CF requirements.

QUANTRIX® QA-8012 offers excellent antioxidation and antinitration performance for low sulfur content stationary gas engine applications.

Features:

- Low ash content
- Excellent detergency
- Outstanding antioxidation and antiwear properties

Applications:

QUANTRIX® QA-8012 can be used for the production of high-performance stationary natural gas engine oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Thick Brown Liquid
Kinematic Viscosity at 100°C, mm ² /s	ASTM D445	149
Density at 20°C, kg/m ³	ASTM D4052	951
Flash Point (COC), °C	ASTM D92	180 Min.
Total Base Number, mg KOH/g	ASTM D2896	68
Sulfated Ash Content, wt.%	ASTM D874	6.07
Zinc Content, wt.%	ASTM D4951	0.88
Phosphorus Content, wt.%	ASTM D4951	0.74
Calcium Content, wt.%	ASTM D4951	1.21

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

SAE Viscosity Grade	Recommended Treat Rate, wt.%
40, 50, 10W-40, 15W-40, 20W-50	9

Handling:

- Store in dry and well-ventilated storage areas away from direct sunlight. For more information, refer to the Drum Storage Guide.
- The long-term storage temperature shall not exceed 45°C, and the loading/unloading or blending temperature shall not exceed 65°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

OTHERS ADDITIVE PACKAGE

QUANTRIX® QA-9921

QA-9921 is an ashless natural gas engine oil additive formulated to provide control of deposits, wear, oil oxidation and oil nitration in naturally aspirated and turbocharged 2 cycle natural gas engines and light duty 4 cycle engines. QA-9921 is suitable for use where industry certification is not required.

Dosage:

5.3 wt% for light to medium duty applications and 6.6 wt% for heavy duty applications for turbocharged 2-cycle engines.

Properties

Specification	Method	Typical
Specific Gravity @ 15.6/15.6°C, g/ml	D-4052	0.94
Nitrogen, wt%	Internal	0.94
Phosphorous, wt%	D-4927	1.05
Flash Point, °C	D-93	130 min
Total base number	D-2896	18
Viscosity @ 100°C, cSt	D-445	15

Packaging

QA-9921 is available in totes and in bulk (tank trucks)
Samples are available upon request.

No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their production conditions and use or uses of the product. Seller makes no representation as to which specific base oils, VI improvers or PPD may be suitable for use with QA-9921. Selection of suitable base oils, VI improvers and PPD is the customer's or user's sole responsibility. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product.

TRACTOR OIL

ADDITIVE PACKAGE

QUANTRIX® QA-8831

QUANTRIX® QA-8831 is a high-quality Super Tractor Oil Universal (STOU) additive package especially designed for advanced off-highway performance. This multifunctional fluid can be used in formulation of high-performance lubricants using in tractors or other off highway equipment.

QUANTRIX® QA-8831 imparts excellent performance characteristics to STOU lubricants using in lubrication of different equipment parts including four stroke gasoline engines, transmission, final drive, wet brakes, and hydraulic systems.

Features:

- Suitable for all parts of the machine
- Leading to extended machine life by providing excellent wear, rust, and corrosion protection
- Meeting required specifications of a wide range of manufacturers

Applications:

QUANTRIX® QA-8831 is recommended to use in formulation of STOU lubricants. Formulated STOU lubricants with this additive package meet and exceed all major manufacturer requirements such as Caterpillar, Ford, Ford -New Holland, John Deere, Massey Ferguson, Denison Hydraulics.

Characteristics:

Parameter	Test Method	Typical Value
Kinematic Viscosity at 100°C, cSt	ASTM D445	100 Max.
Total Base Number, mg KOH/g	ASTM D2896	117
Flash point (COC), °C	ASTM D92	170 Min.
Sulfated Ash, wt.%	ASTM D874	16
Calcium, wt.%	ASTM D4951	3.8
Zinc, wt.%	ASTM D4951	1.82
Phosphorus, wt.%	ASTM D4951	1.58
Nitrogen, wt.%	ASTM D4951	0.65
Water content, wt.%	ASTM D95	0.18 Max.
Mechanical Impurities, wt.%	Internal	0.1 Max.

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

The treat rate of QUANTRIX® QA-8831 is 10 .0 wt.%.

Handling:

- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

OTHERS ADDITIVE PACKAGE

QUANTRIX® QA-8832

QUANTRIX® QA-8832 is a high-quality Universal Tractor Transmission Oil (UTTO) additive package especially designed for advanced off-highway performance. This multifunctional fluid can be used in formulation of high performance lubricants used in tractors or other off highway equipment.

QUANTRIX® QA-8832 imparts excellent performance characteristics to UTTO lubricants used in the lubrication of different equipment parts including final drive, wet brake, clutch, transmission, and hydraulic systems.

Features:

- Leading to extended machine life by providing excellent wear, rust, and corrosion protection
- Meeting required specifications of a wide range of manufacturers
- Providing excellent cleanliness

Applications:

QUANTRIX® QA-8832 is recommended to use in formulation of UTTO lubricants. Formulated UTTO lubricants with this additive package meet and exceed all major manufacturer requirements such as John Deere, J.I. Case, Massey Ferguson, White Farm Equipment, Allis Chalmers, Ford, International Harvester.

Characteristics:

Parameter	Test Method	Typical Value
Kinematic Viscosity @ 100°C, cSt	ASTM D445	100 Max.
TBN, mg KOH/g	ASTM D2896	150
Sulfated Ash, wt.%	ASTM D874	24
Calcium, wt.%	ASTM D4951	5.6
Zinc, wt.%	ASTM D4951	2.5
Phosphorus, wt.%	ASTM D4951	2.18
Nitrogen, wt.%	ASTM D4951	0.86

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

The treat rate of QUANTRIX® QA-8832 is 6.0 wt.%.

Handling:

- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

OTHERS ADDITIVE PACKAGE

QUANTRIX® QA-8836

QUANTRIX® QA-8836 is a multipurpose Tractor Hydraulic Fluid (THF) / Universal Tractor Transmission Oil (UTTO) additive package especially designed for common sump off-highway transmissions, final drives, wet brakes and hydraulic systems. Lubricants formulated with this package meet service performance requirements of John Deere JDM J20C/D.

QUANTRIX® QA-8836 imparts excellent performance characteristics to THFs used in the most applications where tractor hydraulic fluids are required.

Features:

- Outstanding gear wear protection
- Provides good friction capacity in transmissions
- Maintains hydraulic system performance

Applications:

Lubricants formulated with QUANTRIX® QA-8836 can be used in the most applications where tractor hydraulic fluids are utilized, in common sump off-highway transmissions, final drives, wet brakes and hydraulic systems.

Characteristics:

Parameter	Test Method	Typical Value
Kinematic Viscosity at 100°C, cSt	ASTM D445	17
Kinematic Viscosity at 40°C, cSt	ASTM D445	155
Density at 15.6°C, kg/m ³	ASTM D4052	1,035
Flash Point, °C	ASTM D93	150
Calcium, wt.%	ASTM D4951	5.09
Zinc, wt.%	ASTM D4951	2.11
Phosphorus, wt.%	ASTM D4951	1.79

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

The recommended treat rate of QUANTRIX® QA- 8836 is 5.20 wt.%.

Handling and Packaging:

- Store in a dry, and well-ventilated storage area.
- Packaging: This information is available on request through our local representative. Please contact your QUANTRIX® sales representative to find the options available in your region.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

OTHERS ADDITIVE PACKAGE

QUANTRIX® QA-8837

QUANTRIX®QA-8837 is a multipurpose Tractor Hydraulic Fluid (THF)/Universal Tractor Transmission Oil (UTTO) and Brake Fluid additive package specially designed for common sump off-highway transmissions, final drives, wet brakes and hydraulic systems.

QUANTRIX®QA-8837 imparts excellent performance characteristics to THFs used in most applications where tractor hydraulic fluids are required.

Features:

- Outstanding gear wear protection
- Provides good friction capacity in transmissions
- Maintains hydraulic system performance

Applications:

Lubricants formulated with QUANTRIX®QA-8837 package meet the service performance requirements of:

Universal Tractor Transmission Oil (UTTO)	Super Tractor Oil Universal (STOU)
John Deere JDM J20C/D	ZF TE-ML 06A
Allison C4	ZF TE-ML 06B (inc 06R), 06C
Sperry Vickers/Eaton I 280S	ZF TE-ML 07B
API GL-4	Massey Ferguson: M1145

Characteristics:

Parameter	Test Method	Typical Value
Kinematic Viscosity at 100°C, cSt	ASTM D445	34.01
Density at 15.6°C, kg/m ³	ASTM D4052	1060
Flash Point, °C	ASTM D93	>160
Zinc, wt.%	ASTM D4951	4.15
Phosphorus, wt.%	ASTM D4951	4.12

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

The recommended treat rate of QUANTRIX®QA-8837 is 5 wt.%. In application where hydraulic and transmission only functionality is required, a 2 wt% treat rate would suffice.

Handling and Packaging:

- Store in a dry, and well-ventilated storage area.
- Packaging: This information is available on request through our local representative. Please contact your QUANTRIX® sales representative to find the options available in your region.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

POWER

TRANSMISSION ADDITIVE PACKAGE

QUANTRIX® QA-9021

QA-9021 is a multifunctional additive package used to formulate power transmission fluids. Multi -functionality includes superior wear control, high friction inhibition, excellent corrosion performance and strong EP performance. QA-9021 treats at 8.8 wt% (roughly 7.6 vol%). QA-9021 is suitable for use where industry certification is not required.

Dosage:

8.8 wt% (7.6 vol%) with suitable base oils and OCP Viscosity modifier.

Properties

Specification	Method	Typical
Specific Gravity @ 15.6/15.6°C, g/ml	D-4052	1.00
Zinc, wt%	D-5185	1.35
Phosphorous, wt%	D-5185	1.08
Calcium, wt%	D-5185	4.55
Total base number	D-2896	120
Viscosity @ 100°C, cSt	D-445	10

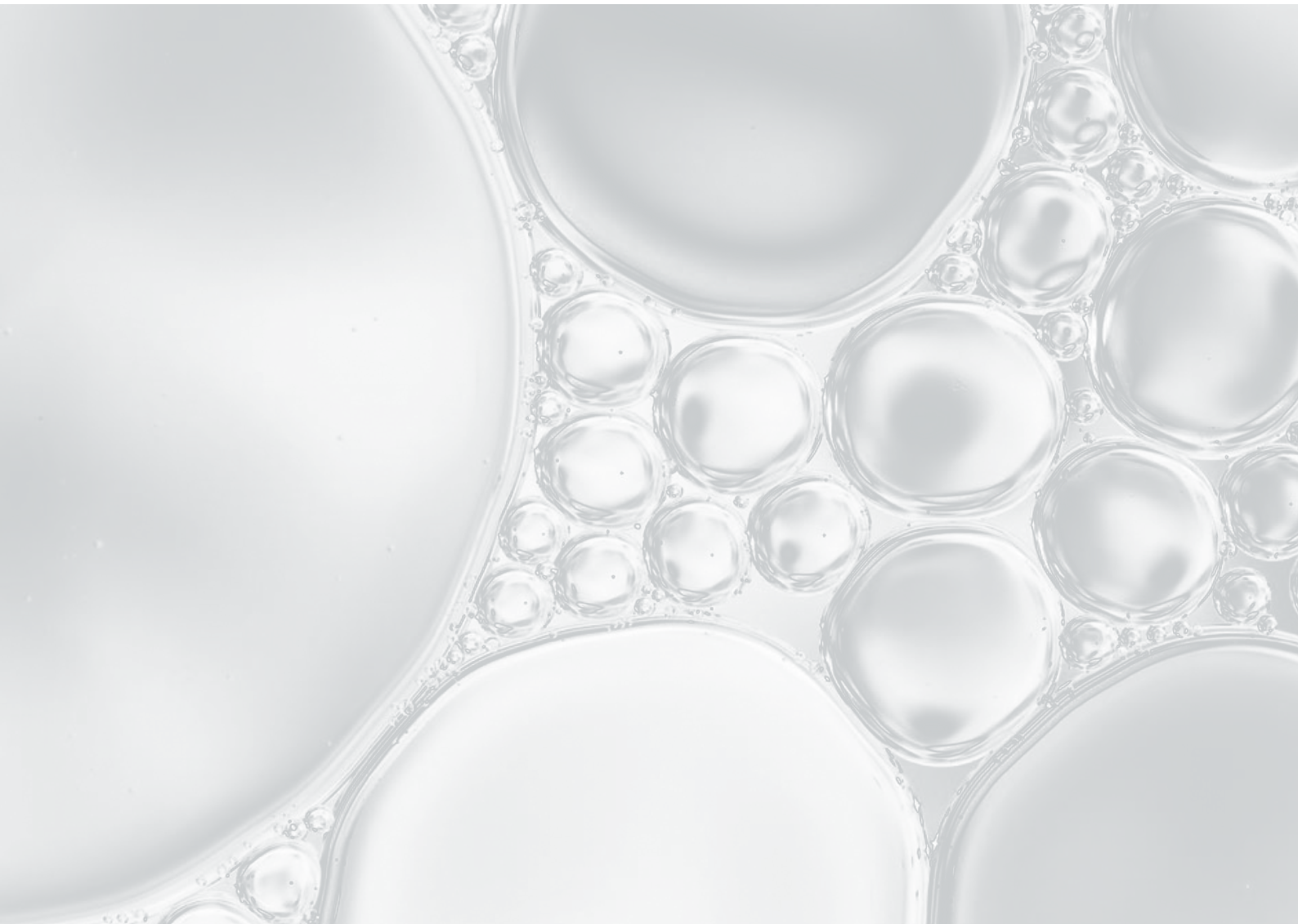
Packaging

QA-9021 is available in totes and in bulk (tank trucks)
Samples are available upon request.

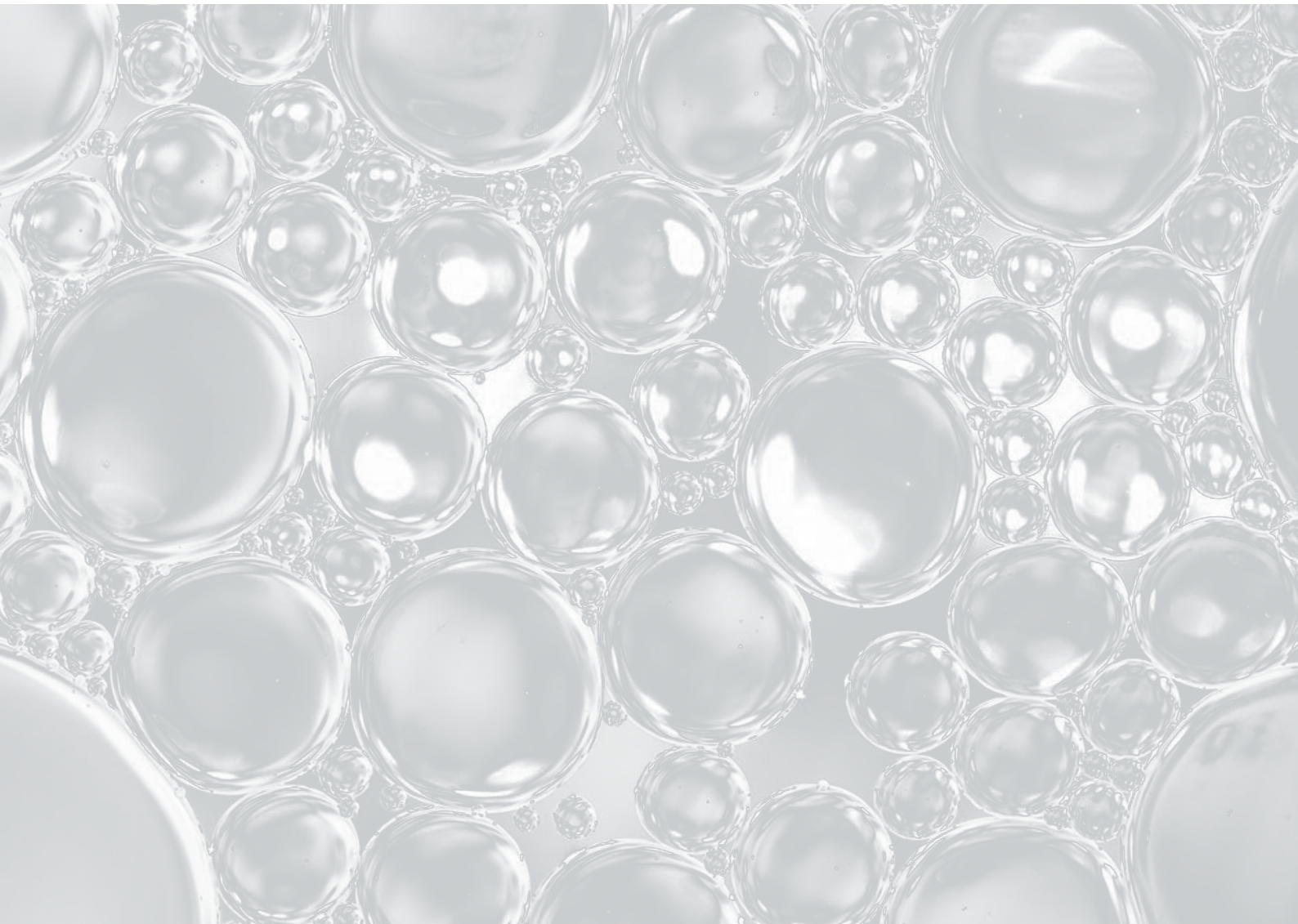
No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their production conditions and use or uses of the product. Seller makes no representation as to which specific base oils, VI improvers or PPD may be suitable for use with QA-9021. Selection of suitable base oils, VI improvers and PPD is the customer's or user's sole responsibility. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product.

INDUSTRIAL ADDITIVE PACKAGE

INDUSTRIAL GEAR OIL
ADDITIVE PACKAGES



INDUSTRIAL ADDITIVE PACKAGE



INDUSTRIAL GEAR OIL ADDITIVE PACKAGE

QUANTRIX® QA-G337

QUANTRIX® QA-G337 is a premium quality gear oil additive package used to formulate automotive and industrial gear oils with suitable base stocks. QUANTRIX® QA-G337 is designed to provide superior performance of extreme pressure, rust protection, corrosion protection, thermal and oxidation stability.

Features:

- Excellent rust and corrosion protection
- Extreme pressure performance
- Outstanding thermal and oxidation stability

Application:

QUANTRIX® QA-G337 is used in the production of high-quality gear oils meeting the following standard levels:

- API GL-5
- API GL-4
- DIN 51517 Part 3 (CLP)
- ISO 12925-1 CKC
- US Steel 224
- ISO 6743-6 CKC
- AGMA 9005-F16
- GB 5903-L-CKD

Characteristics:

Properties	Test Method	Typical Value
Appearance	Observation	Transparent Liquid
Colour	ASTM D1500	L2.5
Kinematic Viscosity at 40°C, cSt	ASTM D445	8.357
Kinematic Viscosity at 100°C, cSt	ASTM D445	2.20
Density at 20°C, kg/m ³	ASTM D4052	994
Flash Point (PMCC), °C	ASTM D93	82
Phosphorus, wt.%	ASTM D4951	1.5
Nitrogen, wt.%	ASTM D5762	0.8
Sulfur, wt.%	ASTM D4951	33.0

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on the required performance level and the base oil 0.1 – 4.2 wt. % of QUANTRIX® QA-G337 is recommended.

Performance	QUANTRIX® QA-G337 (wt.%)
API GL-5	4.2
API GL-4	2.1
API GL-3	1.4
Industrial Gear Oils	1.5
General EP/anti-wear component	0.1 - 1.0

Handling:

- Store in a dry and well-ventilated storage area. For more details refer to the Drum Storage Guide.
- Maximum storage temperature is 40°C.
- For details of health and safety precautions, please see the related Safety Data Sheet.

INDUSTRIAL ADDITIVE PACKAGE

QUANTRIX® QA-G339

QUANTRIX® QA-G 339 is a high- performance universal gear oil additive package intended to be used in formulating both vehicle and industrial gear oils. This eco-friendly additive, with low odor, provides superior performance such as excellent load carrying and anti-scuffing properties, corrosion protection, thermal and oxidation stability. QUANTRIX® QA-G 339 has good oil solubility in various base oils such as API Group I, II, III and PAOs.

Features:

- Excellent load carrying and anti-scuffing properties
- Outstanding anti-foam and anti-corrosion performance
- Excellent detergency and antioxidant properties
- Good oil solubility
- Low odor
- Cost effective

Applications:

QUANTRIX® QA-G 339 can be used in the production of automobile and industrial gear oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Transparent Liquid
Density at 20°C, kg/m ³	ASTM D4052	995
Kinematic Viscosity at 40°C, cSt	ASTM D445	7.5
Phosphorus Content, wt.%	ASTM D4951	1.6
Sulfur Content, wt.%	ASTM D4951	33
Nitrogen Content, wt.%	ASTM D5291	0.82

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on the required performance level and the base oil, recommended treat rate of QUANTRIX® QA-G 339 is:

Performance Level	Viscosity Grades	Treat Rate, wt.%
API GL-5	SAE 80W-90, SAE 85W-90, SAE 85W-140, SAE 90	3.8
API GL-4	SAE 80W-90, SAE 85W-90, SAE 85W-140, SAE 90	1.9
Industrial Gear Oil, Heavy Load	ISO 68, ISO 100, ISO 150, ISO 220, ISO 320, ISO 460	1.5
Industrial Gear Oil, Medium Load	ISO 68, ISO 100, ISO 150, ISO 220, ISO 320, ISO 460	1.0

Handling:

- Store in a dry and well-ventilated storage area. For more information, refer to the Drum Storage Guide.
- The temperature should not exceed 70°C during oil blending, and 45 °C for storage.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

INDUSTRIAL ADDITIVE PACKAGE

QUANTRIX® QA-EP051

DESCRIPTION : Extreme Pressure agents, Anti wear additives and Friction Modifiers.

Three outstanding components that identify the EP51 Premium.

Compatible with other main components of high performance greases.

MAIN PROPERTIES

PHYSICOCHEMICAL PARAMETER		VALUE RANGE
COLOR		Amber-brown
SPECIFIC GRAVITY (25°C)		1.01-1.04
FLASH POINT °C (°F)		>120 (248)
VISCOSITY (cst a 100°C)		6-12
SULPHUR (S) W%		14-16
PHOSPHOROUS (P)W%		4-6
ZINC (Zn) W%		4-5
Molybdenum (Mo) %W		0.25-0.3

TREAT RATE: Recommended treat rate: 2-4% for the most applications. Use 5% for heavy duty performance.

AVAILABLE IN : 275 IBC containers (Totes), 55 gal drums.

HYDRAULIC

FLUID ADDITIVE PACKAGE

QUANTRIX® QA-HY564

With hydraulic systems forming the base of numerous industrial processes, hydraulic fluids are of great importance in the field of industrial lubricants.

Our flagship product of this range, QUANTRIX® QA-HY564 provides just the right enrichment for your hydraulic fluids, making them resistant to degradation even in the harshest environments. Designed to meet the requirements of modern hydraulic fluids, QUANTRIX® QA-HY564 is a premium anti wear Hydraulic Fluid Additive package that is technologically advanced to provide excellent filterability and impart good air release properties to the hydraulic fluid. It is developed for both high and low pressure hydraulic systems making it suitable for mobile applications too.

Package Highlights

- Meets and exceeds the requirements for various industrial and hydraulic systems including Denison, DIN, General Motors, Ford M-6C32, etc.
- Improved air release properties
- Excellent thermal stability
- Good Filtration
- Superior antiwear

PROPERTIES	TEST METHOD	TYPICAL VALUES
Appearance	Visual	Light brown liquid
Viscosity at 100°C (cSt)	ASTM D445	7.0 - 13
Flash Point (°C)	ASTM D92	110 min.
Phosphorous content (%)	ASTM D4951	3.5 - 5.5
Zinc content (%)	ASTM D4951	4.0 - 6.0

ADDITIVE PACKAGES

QUANTRIX® QA-HY564

Can be used in formulating high-performance hydraulic fluids meeting the following specifications:

- AIST 126 & 127 (US Steel)
- ASTM D6158-10
- DIN 51524 Part 1 & Part 2
- ISO 11158
- Fives Cincinnati Machine
- Parker Denison TP-30533, HF-0, HF-1, HF-2
- General Motors - LS2
- SAE MS 1004
- Eaton/Vickers 35VQ25, M-2950-S, I-286-S
- Ford M-6C32
- B.F. Goodrich 0152
- Racine & variable volume vane
- Bosch 90220
- IPSS-1-09-022
- IS: 10522:1983 (RA:2004)
- IS: 3098:1983

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Transparent Liquid
Kinematic Viscosity at 40°C, cSt	ASTM D445	85
Density at 20°C, kg/m ³	ASTM D4052	1,031
Flash Point (COC), °C	ASTM D92	130 Min.
Phosphorus Content, wt.%	ASTM D4951	4.4
Zinc Content, wt.%	ASTM D4951	5.0
Water Content, wt.%	ASTM D95	0.2 Max.
Mechanical Impurities, wt.%	Internal	0.1 Max.

Note: The properties mentioned above are typical and not considered delivery specifications.

Treat Rate:

Depending on the required performance level and base oil type, 0.6 wt.% for medium-pressure and 0.8 – 1.0 wt.% of QUANTRIX® QA-HY564 for high-pressure hydraulic fluids are recommended.

Handling:

- Store in a dry and well-ventilated storage area. Refer to the Drum Storage Guide for more details.
- Maximum storage temperature is 50°C.
- Maximum blending temperature is 60°C.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

ADDITIVE PACKAGES

QUANTRIX® QA-AW1148

QUANTRIX® QA-AW1148 is a primary Zinc Di-Alkyl Di-Thiophosphate (ZDDP) containing C4 (Butyl) and C8 (Octyl) Alkyl groups. This product, as a multifunctional additive, provides excellent antioxidation, anticorrosion, antiwear and extreme pressure properties.

QUANTRIX® QA-AW1148 is mainly used in the manufacturing of various industrial oils, such as gear oil and hydraulic oil. Moreover, different grades of engine oils can be formulated by using this additive in combination with appropriate detergent and dispersant additives.

Features:

- Excellent antiwear property
- Effective inhibition of oxidation and corrosion
- Good oil solubility
- High compatibility with other additives

Applications:

QUANTRIX® QA-AW1148 is widely used in the formulation of various industrial oils such as hydraulic oils as well as different grades of engine oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Amber transparent liquid
Color	ASTM D1500	2.0 Max.
Kinematic Viscosity at 100 °C, cSt	ASTM D445	11.0
Density at 20 °C, kg/m ³	ASTM D4052	1,105
Flash Point (COC), °C	ASTM D92	180 Min.
Zinc, wt.%	ASTM D4951	9.25
Phosphorus, wt.%	ASTM D4951	7.85
Sulphur, wt.%	ASTM D1552	16.25
Moisture, wt.%	ASTM D95	0.03 Max.
Mechanical Impurities, wt.%	ASTM D473	0.07 Max.

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

Treat Rate:

Depending on the required performance, type of base oil and additives used, 0.5 - 3.0 wt.% of QUANTRIX® QA-AW 1148 is recommended.

Handling:

- Maximum storage temperature is 45°C.
- Maximum handling temperature is 75°C. For more information, refer to the Drum Storage Guide.
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

TURBINE

ADDITIVE PACKAGE

QUANTRIX® QA-5721

QA-5127 is an ashless multifunctional additive package useful for formulating high quality Rust and Oxidation oils when used with high viscosity index base oils. QA-5127 has the essential corrosion inhibitors that provide the rust and yellow metal protection along with high antioxidant characteristics.

Treat Rate

0.45 wt% for light to medium duty applications and 0.7 wt% for premium oxidation performance. QA5127 can be used for the following applications.

Parker Hannifin France HF-1, Cincinnati Machine P-38, P-54, P-55, DIN 51524 Part 1, U.S. Steel 126, MIL-L-17672C, AFNOR E48-600 HL, British Standard BS 489, Cincinnati Machine P-57

Specification	Method	Typical
Specific Gravity @ 1.6/15.6 °C, g/ml	D-4052	0.928
Nitrogen, wt%	Sol002	3.5
Appearance	Visual	Amber liquid
Viscosity @ 100°C, cSt	D-445	8.5

Packaging

QA-5127 is available in totes and in bulk (tank trucks)
Samples are available upon request.

No warranties, express or implied, including warranties of merchantability or fitness for a particular use are made with respect to the products described herein. Nothing contained herein shall constitute permission or a recommendation or inducement to practice any invention covered by a patent without the permission of the patent owner. Customers/users are advised to test the product in advance to make certain it is suitable for their production conditions and use or uses of the product. Seller makes no representation as to which specific base oils, VI improvers or PPD may be suitable for use with QA-5127. Selection of suitable base oils, VI improvers and PPD is the customer's or user's sole responsibility. Seller shall not be liable for and the customer assumes all risk and liability for any use or handling of the product.

METAL WORKING

ADDITIVE PACKAGE

QUANTRIX® QA-SolCut 13 is a high-performance additive package specially designed for formulating water-miscible cutting fluids offering high compatibility with paraffinic base oils. This additive is a combination of high-quality anionic and nonionic emulsifiers, biocide and corrosion inhibitor agents, and other performance components. QUANTRIX® QA-SolCut 13 is compatible with virgin Group I & II base oils with a maximum aniline point of 112°C.

While formulating soluble cutting oils with QUANTRIX® QA-SolCut 13, SN150 paraffinic base oil is highly recommended.

Features:

- Outstanding corrosion protection
- Biodegradable
- Self emulsifiable
- Superb emulsification properties with paraffinic base oils
- Excellent hard water stability
- Superior foaming control

Applications:

QUANTRIX® QA-SolCut 13 can be used in formulating water-miscible cutting fluids for metalworking applications.

Characteristics:

Parameter	Test Method	Typical Value
Colour	Visual	Reddish Brown
Appearance	Visual	Clear Viscous Liquid
Kinematic Viscosity at 100°C, cSt	ASTM D445	27
Specific Gravity at 30°C	ASTM D1298	1.01
Acid Value, mg KOH/g	ASTM D974-04	25 Max.
Amine Value, mg KOH/g	Internal	56
pH (5% in Distilled Water)	Internal	9.9

Note: The properties mentioned above are typical and not considered delivery specifications.

Performance:

Parameter	Test Method	Typical Value
18% w/w Solubility in SN 150 Group I Base Oil	Internal	Clear
5% Emulsion in Tap Water	Internal	Stable
5% Emulsion in 500 ppm Hard Water	Internal	Stable
Cast Iron Corrosion	IS 1115	0/1-1 Max.
Refractive Index of 5% Emulsion in Tap Water	ASTM D1747	5.0 – 6.0
Froth Test of 5% Emulsion in 200 ppm Hard Water	IS 1115	Passes
Heat Stability at 70°C	IS 1115	Stable

Treat Rate:

Recommended treat rate of QUANTRIX® QA-SolCut 13 is 18.0 wt.%. For more details, refer to the related Guideline document.

Handling:

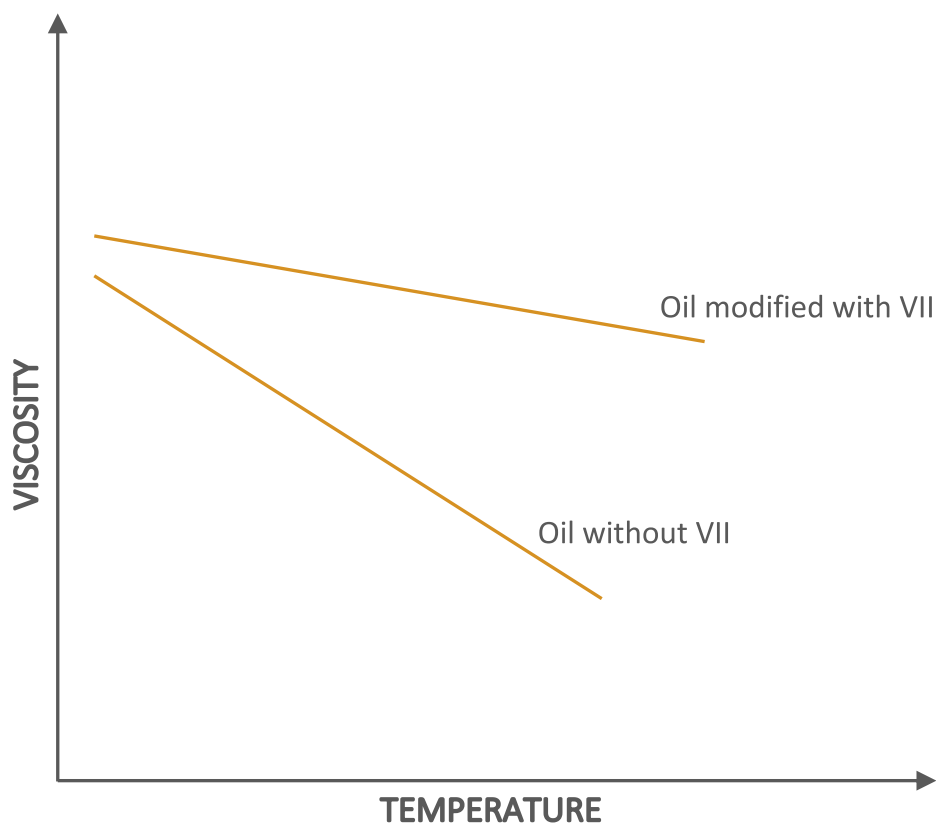
- Store in a dry, cool, and well-ventilated place away from heat and ignition sources. For more information, refer to the Drum Storage Guide.
- For health and safety precautions, refer to the related Safety Data Sheet (SDS).

VII

VISCOSITY INDEX IMPROVERS

Viscosity Index refers to the relation between the viscosity of a fluid and its temperature. A Viscosity Index Improver (VII) improves the viscosity of the fluid at elevated temperatures, when the fluid tends to lose its viscosity. Therefore, higher the viscosity index, lesser is the change in viscosity with change in temperature.

QUANTRIX™ offers VII in liquid, bale and pellet forms. These can be used in both multi-grade and monograde engine oil applications. They impart excellent low temperature properties to passenger car motor oils and heavy-duty engine oils. They also perform very well in a wide range of base oils.





VISCOSITY INDEX IMPROVERS

QUANTRIX® QA-191

QUANTRIX® QA-191 is a Viscosity Modifier used to formulate automotive and industrial oils. This additive has excellent viscosity effectiveness in different base stocks. QUANTRIX® QA-191 presents good low temperature properties when combined with suitable pour point depressant like QUANTRIX® QA-2591.

Features:

- Outstanding thickening power
- Cost effective treat rate
- Pellet form, easy to handle

Application:

- Crankcase oils
- Industrial gear oils
- Automotive gear oils
- Hydraulic fluids

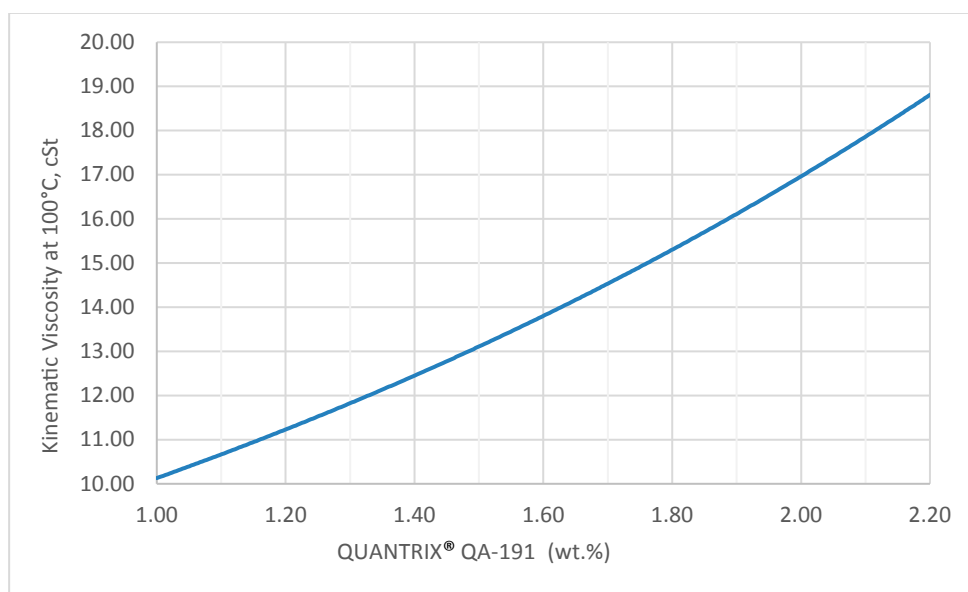
Characteristics:

Parameter	Test Method	Typical Value
Appearance	Observation	Pellet
Shear Stability Index (SSI)	ASTM D6022	25
Pour Point,	ASTM D97	-27

Note: The above-mentioned properties are typical and not to be considered as delivery specifications.

*QUANTRIX® QA-191 dissolved in aramcoDURA 150 with 0.3 wt.% QUANTRIX® QA-2591 PPD.

Performance: Thickening Ability



QUANTRIX® QA-191 dissolved in Base Oil Group I (aramcoDURA 150, K.V. at 100°C = 5.1 cSt)

Handling:

- Store in a dry, clean, and well-ventilated storage area.
- Maximum storage temperature: 40°C
- For the details of health and safety precautions, refer to the related Safety Data Sheet (SDS).

VISCOSITY INDEX IMPROVERS

QUANTRIX® QA-181

QUANTRIX® QA-181 is an ethylene propylene copolymer Viscosity Index Improver used in formulating automotive and industrial oils. This VII in pellet form, present high oil solubility in different base stocks and excellent viscosity effectiveness. QUANTRIX® QA-181 present very good low temperature properties

Application:

- High thickening efficiency
- Improved oxidation stability
- Cost-efficient

Characteristics:

PROPERTIES	TEST METHOD	TYPICAL VALUE
Appearance	Visual	Free flowing pellets
Density (g/cm ³)	ASTM D4052	0.86
Ash Content (%)	ASTM D1416	<0.1
Blend KV (1 wt% in Esso SN150, cSt)	ASTM D445	13.46
Pour Point (1% in SN150 + 0.3% PPD, °C)	ASTM D97	-30
Shear Stability Index (SSI)	ASTM D6278	35
Volatile content (%)	ASTM D1416	<0.1

Note: The above-mentioned properties are typical unless indicated otherwise, these are not considered as delivery specification

Packaging and Handling:

Pellet form copolymer packed in 25kg LLDP bags.
Store in a dry, clean and well-ventilated storage area.
Maximum storage temperature: 50°C
Recommended storage and handling temperature: 40°C – 45°C
Shelf life of 36 months at ambient temperature (10 – 40°C)
For details of health and safety precautions, please see the related Material Safety Data Sheet.

VISCOSITY INDEX IMPROVERS



THER ADDITIVE COMPONENTS

TBN

BOOSTER

QUANTRIX® QA-411H

QUANTRIX®QA-411H is a calcium sulphonate detergent with an outstanding performance. It has been developed to provide excellent detergency and enhanced alkaline retention in a wide variety of applications. This additive boosts lubricant's performance and protects metal surfaces from rust and corrosion at high temperatures by keeping parts free from deposits and neutralizing mineral and organic acids entrained in crankcase lubricants.

QUANTRIX®QA-411H is manufactured using premium quality raw materials, leading to its significantly brighter color and much lower haziness compared to other products from this category. It is highly compatible with both mineral and synthetic base oils (API Group I, II, III, and PAO), and based on our severe performance test results, it has excellent high temperature and hydrolytic stability.

Features:

- Bright and transparent
- Narrow range molecular weight of alkyl groups
- Compatible with mineral and synthetic base oils
- Excellent detergency
- Outstanding TBN retention
- High thermal and hydrolytic stability
- Antirust and anticorrosion protection

Application:

QUANTRIX®QA-411H can be used in a wide range of applications such as high and medium-grade gasoline and diesel engine oils, marine engine lubricants, locomotive engine lubricants, and stationary engine lubricants, etc.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Red Brown and Transparent Liquid
Color (10 wt.% dilution in SN150)	ASTM D1500	L 3.0
Density at 20°C, kg/m ³	ASTM D4052	1,190
Kinematic Viscosity at 100°C, cSt	ASTM D445	89
Flash Point (COC), °C	ASTM D92	150 Min.
Total Base Number, mg KOH/g	ASTM D2896	410
Calcium Content, wt.%	ASTM D4951	15.5
Sulfur Content, wt.%	ASTM D1552	1.55
Moisture, wt.%	ASTM D95	0.2 Max.
Mechanical Impurities, wt.%	ASTM D473	0.1 Max.

Note: The above-mentioned properties are typical and should not be considered as delivery specifications.

Treat Rate:

The treat rate is variable between 0.1 to 5.0 wt.%, depending on the required TBN and the sulphated-ash content limit of the finished lubricant.

Handling:

- Store in a dry, clean, and well-ventilated storage place. The maximum storage temperature is 45°C.
- For the details of health and safety precautions, please refer to the related Safety Data Sheet (SDS).

QUANTRIX® QA-411K

QUANTRIX® QA-411K is calcium sulphonate based detergent additive with an outstanding performance. This product imparts excellent detergency and dispersancy and strong acid neutralization capacity as well as antirust performance to the lubricants.

QUANTRIX® QA-411K has excellent thermal stability, good oil solubility, antifoam property, and hydrolysis stability.

Features:

- Excellent detergency
- Strong acid neutralizing ability
- Antirust performance
- Good hydrolytic stability

Application:

QUANTRIX® QA-411K can be used in a wide range of applications such as medium and high-grade engine oils as well as marine engine oils.

Characteristics:

Parameter	Test Method	Typical Value
Appearance	Visual	Bright and Clear
Color	ASTM D1500	4.5 Dil
Density at 20 °C, kg/m ³	ASTM D4052	1,200
Flash Point (COC), °C	ASTM D92	180 Min.
Kinematic Viscosity at 100°C, cSt	ASTM D445	80
Total Base Number, mg KOH/g	ASTM D2896	405
Calcium Content, wt.%	ASTM D4951	15.2
Sulfur Content, wt.%	ASTM D4951	1.35

Treat Rate:

The recommended treat rate of QUANTRIX® QA-411K is variable between 0.5 to 25 wt.%.

Handling:

Store in a dry, clean, and well-ventilated storage place. For more information, refer to the Drum Storage Guide.

Maximum handling temperature is 80°C.

Long-term storage temperature should not exceed 50°C.

For the details of health and safety precautions, please refer to the related Safety Data Sheet (SDS).

OTHER ADDITIVE COMPONENTS

QUANTRIX® QA-4400

QA-4400 is a highly-overbased, oil-soluble Calcium Sulfonate designed for use in combination with other chemicals for lubricating oils. It has very good solubility in a wide variety of petroleum-based fluids and exhibits good corrosion inhibition properties due to its high molecular weight and polarity.

Typical Properties

Typical Properties	Units	Test Method	Specification
Calcium	wt%	ASTM D 4951	14.0 – 16.0
Kinematic Viscosity @ 100°C	cSt	ASTM D 445	50 - 150
Total Base Number	mgKOH/g	ASTM D 2896	380 - 430
Specific Gravity @ 15.6°C		ASTM D 1298	1.18

Packaging

Bulk tank trucks, iso-containers, totes & drums

ANTIFOAM ADDITIVE

QUANTRIX® QA-1250D

QA-1250D is a Silicone-based antifoam additive in dilute form. It is used as a foam preventative. Extremely small amounts of the fluid effectively controls foam in especially in lubricant oil systems. This product has low toxicity and is essentially odorless. Treat rates required depend on base oil quality and weight of oil being treated, as heavier grades typically produce more foam. Typical treat rates of 50-100 ppm in the finished fluid are required. The active ingredient is pre-diluted in a solvent to aid in dispersion in the medium for proper activity. Higher levels of treat may create haze in the finished fluid.

Properties

Physical Properties*	Results
Color	<15
Specific Gravity @ 15.6°C (60°F)	0.7818
Lb/Gal, @ 15.6°C (60°F)	6.51
Flash (PMCC)	4.0 °C (39.2 °F)
Chemical Properties*	
Acidity	Neutral

Storage & Handling:

*The above characteristics are not specifications and are provided to indicate the typical values measured on the product

The active ingredient in QA-1250D is essentially non-toxic and nonirritating (although temporary discomfort may result if rubbed into the eye). This active ingredient is diluted in solvent. QA-1250D has a flash point lower than 37.7°C (100°F), making it a flammable product.

ANTOXIDANT

QUANTRIX® QA-5067

■ Product Introduction

QA-5067 P,p'-Dinonyl Diphenylamine refers to an outstanding high-temperature amine antioxidant, which provides excellent thermal stability, superior anti-oxidation performance under high temperature, good oil solubility as well as favourable compatibility with other additives; it has synergistic effect when combined with other antioxidants, especially with phenolic ester antioxidants. This product features optimized proportion and control of different alkyl substitute with a lower free amine content. It is widely used in the formulations of various premium internal combustion engine oil, industrial oil applications including thermal oil, high-temp chain oil, hydraulic oil, compressor oil and turbine oil, lubricating grease as well as fuel oils. The recommended treat rate is 0.3-0.5% (m%).

■ Technical Specification

Item	Index	Test Method
Appearance	Light yellow to brown red clear liquid	Visual Inspection
Density (20°C), kg/m ³	920-970	SH/T0604, ASTM D4052
Kinematic Viscosity (40°C), mm ² /s	400-900	GB/T265, ASTM D445
Flash Point (PMCC), °C	≥135	GB/T261, ASTM D93
N Content, m%	3.2-3.8	SH/T0704, ASTM D5762
Water Content, m%	≤0.05	GB/T260, ASTM D95

■ Product Storage/Handling/Transportation/Package

- The product is packed in iron drums with a net weight of 180kg, applicable to various modes of transportation.
- The minimum of storage and transportation temperature shall be not lower than 10°C, and the maximum of that shall not exceed 50°C. The shelf life is 2 years, while the product is not able to expose to cold or exposure for long.
- 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.

GREASES

ADDITIVE PACKAGES AND COMPONENTS

QUANTRIX® QA-12-HSA

QUANTRIX® QA-12-HSA is a vegetable - derived fatty acid that can be used in a wide range of applications such as multi-purpose glycerin-free greases formulations. 12-HSA is in cream-color flakes form with a high melting point. This product is insoluble in water, but soluble in either, alcohol or chloroform. This product, upon saponification with appropriate metal hydroxides such as Lithium Hydroxide and Calcium Hydroxide yields high performance metal-salt soap thickeners. These thickeners impart the below characteristics to the multi-purpose Lithium and Calcium based greases:

- High dropping points
- High water resistance
- Enhanced overall performance
- Excellent heat stability
- Improved texture
- Simplifying grease manufacturing process because of no need for milling and homogenization steps

Features

- High melting point
- Odorless and tasteless
- High compatibility with most resins
- Thickener and Opacifier
- High heat stability
- High water resistance

Applications

QUANTRIX® QA-12-HSA has many applications, including but not limited to:

- Fluid lubricants
- Lubricating greases
- Health and beauty products
- Resin and adhesive

Characteristics

Properties	Test Methods	Typical Values
Appearance	Observation	Cream color flakes
Color Gardner	AOCS Td 1a -64	6 Max.
Acid Value, mg KOH/g	AOCS Te 1a-64	180
Iodine Value, g I ₂ /100 g	AOCS Tg 1a - 64	4 Max.
Saponification Value, mg KOH/g	AOCS Cd 3-25	188
Hydroxyl Value, mg KOH/g	AOCS Cd 3-25	158
Melting Point, °C	AOCS Cc 3-25	75

Note: The above-mentioned properties are typical unless indicated otherwise, these are not to be considered as delivery specification.

Packaging and Handling

- Packed in 25 kg bags.
- Store in a dry, clean, and well-ventilated storage area.
- Shelf life in the original package is at least 2 years if kept at ambient temperatures and at standard storage conditions.
- It is preferable to store this product indoors. If not possible, store under a roofed storage area away from direct sunlight and other sources of heat, radiation, and extreme temperature changes.
- Before handling this product, please read the related Safety Data Sheet (SDS) for details of the health and

QUANTRIX QA-MoS2

QA-MoS2 is a lubricant grade of molybdenum disulfide (MoS₂) available in three grades – Technical, Technical Fine, and Super Fine. Typical MoS₂ content (calculated average) is 98%.

CHEMICAL SPECIFICATIONS

	Maximum % by wt Technical	Maximum % by wt Technical Fine	Maximum % by wt Super Fine
Acid Insoluble	0.50	0.50	0.50
Iron	0.25	0.25	0.25
Molybdenum Trioxide	0.05	0.05	0.15
Water	0.02	0.05	0.15
Oil	0.05	0.40	0.40
Carbon	1.50	1.50	1.50
Acid Number*	0.05	0.25	3.0

* Acid number is determined at time of production. Prolonged storage will result in slight oxidation, which will produce an increase in acid number. The smaller particle size grades are more susceptible to surface oxidation. Acid number is expressed as an absolute value and is the mg of KOH required to neutralize the acid in a one-gram sample.

PARTICLE SIZE SPECIFICATIONS

QA-MoS2 Grade	D50**	D99 (Maximum)**
Technical	16.0 – 30.0 µm	190 µm
Technical Fine	4.0 – 6.0 µm	36.0 µm
Super Fine	0.9 – 1.6 µm	7.0 µm

** L&N Microtrac®

TYPICAL PARTICLE SIZE BY FISHER SUB-SIEVE SIZER AND BULK DENSITY:

Molysulfide® Grade	Fisher Number, µm	Bulk Density (Scott)
Technical	3 to 4	1.3 g/cm ³
Technical Fine	0.65 to 0.80	0.4 g/cm ³
Super Fine	0.40 to 0.45	0.3 g/cm ³

PACKAGING

QA-MoS2 Grade	US Packaging Fiber Drum	Units per pallet	Pallet weight
Technical	200 lb net	9	1800 lb net
Technical Fine	250 lb net	4	1000 lb net
Super Fine	200 lb net	4	800 lb net

QA-MoS2 Grade	Metric Packaging	Units per pallet	Pallet weight
Technical	100 kg Steel drum (lined)	9	900 kg
Technical Fine	100 kg Steel drum (lined)	4	400 kg
Technical Fine	25 kg Valve sack	40	1000 kg
Super Fine	75 kg Steel drum (lined)	4	300 kg

QUANTRIX® QA-LITHIUM HYDROXIDE MONOHYDRATE

QUANTRIX® QA-Lithium Hydroxide Monohydrate is a premium quality raw material used in the manufacture of Lithium based greases. Lithium Hydroxide Monohydrate is a free flowing granular solid.

Characteristics:

Property	Test Method	Typical Value
Appearance	Observation	White powder
Lithium Hydroxide, wt.%	Direct titration	56.5 Min.
Chloride, wt.%	Spectrophotometric method	0.01 Max.
Sulfate, wt.%	ICP	0.03 Max.
Calcium, wt.%	ICP	0.03 Max.
Potassium, wt.%	ICP	0.01 Max.
Sodium, wt.%	ICP	0.02 Max.
Carbon Dioxide, wt.%	Reverse potentiometric titration	0.35 Max.
Iron, wt.%	ICP	0.0015 Max.
Acid Insoluble, wt.%	Gravimetric method	0.008 Max.

Note: The above-mentioned properties are typical and not to be considered as delivery specification.

Packaging and Handling:

- Store in a dry, clean and well-ventilated storage area.
- Before handling this product, please refer to the related Safety Data Sheet (SDS) for details of the health and safety precautions.

QUANTRIX® AZELAIC ACID AZELAIC ACID (EMEROX 1144)

Composition Technical Data

Item	Value	Method / Remarks
Appearance:	white crystals	
Active Matter:	min 88 %	Cognis 609.15
Acid Value:	587-594	Cognis 600.01
Color:	% trans. 440/550 nm (Säure:Methanol 1:3) (Acid:Methanol 1:3)	min. 95/99 Cognis 606.08
Monobasische Säuren Monobasic acids	max 0,05 %	Cognis 600.02
Keto-Säuren Keto-acids	max. 0,05 %	Cognis 609.50

Quality Control Data

(These data are used for quality release and are certified for each batch.)

Item	Value	Method / Remarks
Active Matter:	min 88 %	Cognis 609.15
Acid Value:	587-594	Cognis 600.01
Color:	% trans. 440/550 nm (Säure:Methanol 1:3) (Acid:Methanol 1:3)	min. 95/99 Cognis 606.08
Monobasische Säuren Monobasic acids	max 0,05 %	Cognis 600.02
Keto-Säuren Keto-acids	max. 0,05 %	Cognis 609.50

Registrations

Region	Code		Registration	Reference-Number
European Community	EINECS	listed	yes	2046691
European Community	CAS	listed	yes	123-99-9
USA	TSCA		yes	123-99-9
Australia	AICS		yes	123-99-9
Canada	DSL		yes	123-99-9
Japan	ENCS		yes	(2)-878
Philippines	PICCS		yes	123-99-9
South Korea	ECL		yes	123-99-9

QUANTRIX® AZELAIC ACID (EMEROX 1144)

China yes 123-99-9

Region	Code	Remarks
Switzerland	BAGT listed	611484

Properties & Use

Base product for high-performance greases and esters

Additional Technical Data

Typical Values:

Dibasic Acids (GLC, Cognis-Method 609.15)		
< C ₉	max. 4	%
C ₉	89	%
> C ₉	max. 7	%
Melting Point (ASTM E 324-94)	100-102	°C
Colour, APHA, molten (Pt-Co) (ASTM D 1981)	50	

Typical Values are not part of the specification!

QUANTRIX® QA-EP051

DESCRIPTION : Extreme Pressure agents, Anti wear additives and Friction Modifiers.

Three outstanding components that identify the EP51 Premium.

Compatible with other main components of high performance greases.

MAIN PROPERTIES

PHYSICOCHEMICAL PARAMETER		VALUE RANGE
COLOR		Amber-brown
SPECIFIC GRAVITY (25°C)		1.01-1.04
FLASH POINT °C (°F)		>120 (248)
VISCOSITY (cst a 100°C)		6-12
SULPHUR (S) W%		14-16
PHOSPHOROUS (P)W%		4-6
ZINC (Zn) W%		4-5
Molybdenum (Mo) %W		0.25-0.3

TREAT RATE: Recommended treat rate: 2-4% for the most applications. Use 5% for heavy duty performance.

AVAILABLE IN : 275 IBC containers (Totes), 55 gal drums.

WHERE WE OPERATE





quantrixproducts.com

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