AISIN

JAPANESE PREMIUM QUALITY



AUTOMOTIVE LUBRICANTS

PRODUCT CATALOG

Since its establishment in 1965, Aisin has grown to become a major, leading supplier of automotive systems around the world.
We develop and produce a comprehensive range of products that combine high quality and innovation to bring value to our partners and customers.

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Base oil as the foundation of lubricant quality

	Saturates	Sulfur	VI
Group I	< 90% and/or	> 0.03wt% and	80 ≤ VI <120
Group II	≥ 90% and	≤ 0.03wt% and	80 ≤ VI <120
Group III	≥ 90% and	≤ 0.03wt% and	120 ≤ VI
Group IV	PAO (Poly Alpha Olefin)		
Group V	Base oils which do not belong to the above Group I, II, III, IV		

- Viscosity is a measure of a fluid's resistance to flow.
- As the temperature of the liquid fluid increases its viscocity decreases.
- VI means change of viscosity with changing temperature. A high VI means a small change of viscosity over temperature.

Viscosity Grades : SAE-Engine Oil

SAE J300 Nov. 2007 (SAE: Society of Automotive Engineers)

SAE Viscosity Grade	Low Temp Cranking Vis., Max at Temp, cP at °C	Low Temp Pumping Vis., Max with no yield stress at Temp, cP at °C	High Temp Vis., cSt at 100°C		High Temp High Shear Vis. at 150°C, cP
			Min.	Max.	
0W	6,200 at -35	60,000 at -40	3.8	-	-
5W	6,600 at -30	60,000 at -35	3.8	-	-
10W	7,000 at -25	60,000 at -30	4.1	-	-
15W	7,000 at -20	60,000 at -25	5.6	-	-
20W	9,500 at -15	60,000 at -20	5.6	-	-
25W	13,000 at -10	60,000 at -15	9.3	-	-
20	-	-	5.6	< 9.3	2.6
30	-	-	9.3	< 12.5	2.9
40	-	-	12.5	<16.3	3.5 / 3.7
50	-	-	16.3	< 21.9	3.7
60	-	-	21.9	< 26.1	3.7

5W-30 is satisfied with the specification of 5W and 30 simultaneously.

Performance Classification Gear Oil



Worm gear



Hypoid gear



Spiral bevel gear

GRADE	Type	Application
GL-1	Straight Mineral Oil	Truck manual transmissions
GL-2	Usually contains fatty materials	Worm gear drives, industrial gear oils
GL-3	Contains mild EP additives	Manual Transmission and spiral bevel final drives
GL-4	Equivalent to obsolete Mil-L-2105 specification, usually satisfied with 50% of GL-5 additive level	Manual Transmissions, and Spiral bevel and hypoid gears in moderate service
GL-5	Virtually equivalent to present Mil-L-2105D, Primary field service recommendation of most passenger	Moderate and severe service in hypoid and other tpes of gears. May also be used in manual transmission cars and truck builders worldwide

Viscosity Grades : SAE-Gear Oil

(SAE J306 Oct. 91)

SAE Viscosity Grade	Maximum Temp for Vis. of 150,000cP	Viscosity at 100°C cSt	
		Min.	Max.
70W	-55	4.1	-
75W	-40	4.1	-
80W	-26	7.0	-
85W	-12	11.0	-
80	-	7.0	11.0
85	-	11.0	13.5
90	-	13.5	< 24.0
140	-	24.0	< 41.0
250	-	41.0	-

Viscosity Grades : ISO-Industrial Oil

(ISO: International Organization for Standardization)

ISO Viscosity Grade	Viscosity at 40°C cSt	
	Min.(-10%)	Max.(+10%)
32	28.8	35.7
46	41.4	50.6
68	61.2	74.5
100	90.0	110
150	135.0	165
220	198.0	242
~	~	~
1500	1350.0	1650

Multigrade: 75W-85W, 80W-90, 85W-140 etc.

API's Certification Mark and Service Symbol

Quality motor oils for gasoline- and diesel-powered vehicles can be identified by specific marks. These marks indicate that the oils meet the performance requirements established by both U.S. and international vehicle and engine manufacturers, as well as the lubricant industry. It's important to note that participation in this program is voluntary, and hundreds of companies worldwide are involved. To ensure the integrity of the program, a marketplace sampling and testing program is also in place.



The API Certification Mark also known as "Starburst"

An oil displaying this mark complies with the International Lubricant Specification Advisory Committee (ILSAC) standards for engine protection and fuel economy, specifically the ILSAC GF-6A standard. The ILSAC is a collaboration between U.S. and Japanese automobile manufacturers. It's important to note that oils of the 0W-16 viscosity grade cannot carry this mark. Automobile manufacturers recommend oils that carry the API Certification Mark **"Starburst"**.

Refer to the chart on the following page for detailed descriptions of the current and outdated ILSAC standards for passenger car engine oils. (Cite from API's Motor Oil Guide)



The API Certification Mark also known as "Shield"

An oil that bears this mark complies with the current ILSAC GF-6B engine protection standard and fulfills the fuel economy requirements set by the International Lubricant Specification Advisory Committee (ILSAC). This specific mark is reserved for oils with a viscosity grade of 0W-16. Automobile manufacturers recommend using oils that carry the API Certification Mark, commonly known as the **"Shield"**.

(Cite from API's Motor Oil Guide)
https://www.api.org/products-and-services/engine-oil/eolcs-categories-and-classifications/latest-oil-categories



The API Service Symbol, also known as the "Donut"

1. Performance Level

API categorizes motor oils for gasoline engines under the "S" (Service) categories, while motor oils for heavy-duty trucks and vehicles with diesel engines fall under the "C" (Commercial) categories. For detailed descriptions of the current and obsolete API service categories for gasoline engines and diesel engines, please refer to the Gasoline Engines and Diesel Engines charts on the following pages.

2. Viscosity Grade

SAE oil viscosity is a measurement of an oil's ability to flow at specific temperatures. It is important to follow the recommendations of your vehicle manufacturer regarding the appropriate SAE oil viscosity for your vehicle, as these requirements may vary depending on the vehicle's specifications and operating conditions.



3. Resource Conserving

The term "Resource Conserving" is used to describe oils that are specifically intended for use in gasoline-engine cars, vans, and light trucks. These oils are designed to contribute to the overall fuel efficiency of the vehicle fleet when widely used. By utilizing Resource Conserving oils, there is potential for fuel savings across the entire vehicle fleet.

4. Multiple Performance Levels

Oils that are designed for diesel engine service may also meet the requirements for gasoline engine service. These oils are designated with the "C" category followed by the "S" category. It's important to note that "C" category oils are primarily formulated for diesel engines and may not provide all of the performance requirements recommended by vehicle manufacturers for gasoline fueled engines.



5. "Plus" Classification

API currently offers two PLUS classifications for oils, which are indicated in the lower portion of the API Donut: CI-4 PLUS and SN PLUS. CI-4 PLUS is specifically for oils formulated to provide enhanced protection against viscosity increase and viscosity loss caused by soot in diesel engines. Initially, CI-4 PLUS identified oils that met higher performance standards within the CI-4 category. However, CK-4 and CJ-4 oils now incorporate all the performance requirements of CI-4 PLUS. On the other hand, SN PLUS initially identified API SN oils with improved performance, while API SP oils now encompass all the requirements of SN PLUS.

6. The API Service Symbol with FA-4

FA-4 and the FA-4 Donut represent a specific category of XW-30 oils designed for use in certain high-speed four-stroke cycle diesel engines that meet the on-highway greenhouse gas (GHG) emission standards of the 2017 model year. It's important to note that API FA-4 oils are not interchangeable or backward compatible with API CK-4, CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 oils. To determine if API FA-4 oils are suitable for use, it is recommended to consult the recommendations provided by the engine manufacturer.

Introduction of API and SAE systems

The current and previous ISLAC standars and API Service Categories are listed here. Vehicle owners should refer to their owner's manual before consulting these charts. Oils may have more than one performance level.

For automotive gasoline engines, the latest ILSAC standard or API Service Category includes the performance properties of each earlier category and can be used to service older engines wehere earlier category oils were recommended.

ILSAC STANDARD FOR PASSENGER CAR ENGINE OILS

Name	Status	Service
GF-6A	**Current**	Introduced in May 2020, designed to provide protection against low-speed pre-ignition (LSPI), timing chain wear protection, improved high temperature deposit protection for pistons and turbochargers, more stringent sludge and varnish control, improved fuel economy, enhanced emission control system protection and protection of engines operating on ethanol-containing fuels up to E85.
GF-6B	**Current**	Applies only to oils having an SAE viscosity grade of 0W-16. Introduced in May 2020, designed to provide protection against low-speed pre-ignition (LSPI), timing chain wear protection, high temperature deposit protection for pistons and turbochargers, stringent sludge and varnish control, improved fuel economy, emission control system protection and protection of engines operating on ethanol-containing fuels up to E85.
GF-5	**Obsolete***	Use GF-6A where GF-5 is recommended.
GF-4	**Obsolete**	Use GF-5 where GF-4 is recommended.
GF-3	**Obsolete**	Use GF-5 where GF-3 is recommended.
GF-2	**Obsolete**	Use GF-5 where GF-2 is recommended.
GF-1	**Obsolete**	Use GF-5 where GF-1 is recommended.

**Obsolete on May 1, 2021*

GASOLINE ENGINES (Follow your vehicle manufacturer's recommendation on oil performance levels)

Category	Status	Service
SP	**Current**	Introduced in May 2020, designed to provide protection against low-speed pre-ignition (LSPI), timing chain wear protection, improved high temperature deposit protection for pistons and turbochargers, and more stringent sludge and varnish control. API SP with Resource Conserving matches ILSAC GF-6A by combining API SP performance with improved fuel economy, emission control system protection and protection of engines operating on ethanol-containing fuels up to E85.
SN	**Current**	For 2020 and older automotive engines
SM	**Current**	For 2010 and older automotive engines.
SL	**Current**	For 2004 and older automotive engines.
SJ	**Current**	For 2001 and older automotive engines.
SH	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1996. May not provide adequate protection against build-up of engine sludge, oxidation, or wear.
SG	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1993. May not provide adequate protection against build-up of engine sludge, oxidation, or wear.
SF	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1988. May not provide adequate protection against build-up of engine sludge.
SE	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1979.
SD	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1971. Use in more modern engines may cause unsatisfactory performance or equipment harm.
SC	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1967. Use in more modern engines may cause unsatisfactory performance or equipment harm.
SB	**Obsolete**	**CAUTION:** Not suitable for use in most gasoline-powered automotive engines built after 1951. Use in more modern engines may cause unsatisfactory performance or equipment harm.
SA	**Obsolete**	**CAUTION:** Contains no additives. Not suitable for use in most gasoline-powered automotive engines built after 1930. Use in modern engines may cause unsatisfactory performance or equipment harm.

DIESEL ENGINES (Follow your vehicle manufacturer's recommendation on oil performance levels)

Category	Status	Service
FA-4	**Current**	API Service Category FA-4 pertains to specific XW-30 oils that are specially formulated for use in high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway greenhouse gas (GHG) emission standards. These oils are intended for on-highway applications with diesel fuel sulfur content up to 15 ppm (0.0015% by weight). It is important to consult the recommendations provided by individual engine manufacturers to determine compatibility with API FA-4 oils. The formulation of API FA-4 oils includes a high temperature high shear (HTHS) viscosity range of 2.9cP–3.2cP, which aids in reducing GHG emissions. These oils are particularly effective in maintaining the durability of emission control systems when used in conjunction with particulate filters and other advanced aftertreatment systems. API FA-4 oils are designed to offer enhanced protection against oil oxidation, viscosity loss due to shear, oil aeration, catalyst poisoning, particulate filter blocking, engine wear, piston deposits, degradation of low- and high-temperature properties, and soot-related viscosity increase. It is important to note that API FA-4 oils are not interchangeable or backward compatible with API CK-4, CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 oils. Please refer to the recommendations provided by engine manufacturers to determine the suitability of API FA-4 oils for specific applications. It is not recommended to use API FA-4 oils with fuels containing sulfur content greater than 15 ppm. For fuels with sulfur content exceeding 15 ppm, please consult the recommendations provided by engine manufacturers.
CK-4	**Current**	API Service Category CK-4 describes oils for use in high-speed four-stroke cycle diesel engines designed to meet 2017 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or oil drain interval. These oils are especially effective at sustaining emission control system durability where particulate filters and other advanced aftertreatment systems are used. API CK-4 oils are designed to provide enhanced protection against oil oxidation, viscosity loss due to shear, and oil aeration as well as protection against catalyst poisoning, particulate filter blocking, engine wear, piston deposits, degradation of low- and high-temperature properties, and soot-related viscosity increase. API CK-4 oils exceed the performance criteria of API CJ-4, CI-4 with CI-4 PLUS, CI-4, and CH-4 and can effectively lubricate engines calling for those API Service Categories. When using CK-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval recommendations.
CJ-4	**Current**	For high-speed four-stroke cycle diesel engines designed to meet 2010 model year on-highway and Tier 4 non-road exhaust emission standards as well as for previous model year diesel engines. These oils are formulated for use in all applications with diesel fuels ranging in sulfur content up to 500 ppm (0.05% by weight). However, the use of these oils with greater than 15 ppm (0.0015% by weight) sulfur fuel may impact exhaust aftertreatment system durability and/or drain interval. API CJ-4 oils exceed the performance criteria of API CI-4 with CI-4 PLUS, CI-4, CH-4, CG-4 and CF-4 and can effectively lubricate engines calling for those API Service Categories. When using CJ-4 oil with higher than 15 ppm sulfur fuel, consult the engine manufacturer for service interval.
CI-4	**Current**	Introduced in 2002. For high-speed, four-stroke engines designed to meet 2004 exhaust emission standards implemented in 2002. CI-4 oils are formulated to sustain engine durability where exhaust gas recirculation (EGR) is used and are intended for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, CG-4, and CH-4 oils. Some CI-4 oils may also qualify for the CI-4 PLUS designation.
CH-4	**Current**	Introduced in 1998. For high-speed, four-stroke engines designed to meet 1998 exhaust emission standards. CH-4 oils are specifically compounded for use with diesel fuels ranging in sulfur content up to 0.5% weight. Can be used in place of CD, CE, CF-4, and CG-4 oils.
CG-4	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 2009.
CF-4	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 2009.
CF-2	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 2009. Two-stroke cycle engines may have different lubrication requirements than four-stroke engines, so the manufacturer should be contacted for current lubrication recommendations.
CF	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 2009. Later "C" category oils are usually suitable or preferred for diesel automotive engines for which "CF" oils were specified. Older equipment and/or two-stroke diesel engines, especially those calling for monograde products, may however require "CF" category oil.
CE	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 1994.
CD-II	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 1994.
CD	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered automotive engines built after 1994.
CC	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered engines built after 1990.
CB	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered engines built after 1961.
CA	**Obsolete**	**CAUTION:** Not suitable for use in most diesel-powered engines built after 1959.

SAE VISCOSITY GRADES: PASSENGER CAR MOTOR OIL

Multigrade oils such as SAE 5W-30 and 10W-30 are widely used because, under all but extremely hot or cold conditions, they are thin enough to flow at low temperatures and thick enough to perform satisfactorily at high temperatures. Note that vehicle requirements may vary. **Follow your vehicle manufacturer's recommendation on SAE oil viscosity grade.**

If lowest expected outdoor temperature is	*Typical SAE viscosity grades for passenger cars*
0°C(32°F)	0W-20, 0W-30, 5W-20, 5W-30, 10W-30, 10W-40, 20W-50
-18°C (0°F)	0W-20, 0W-30, 5W-20, 5W-30, 10W-30, 10W-40
Below -18°C (0°F)	0W-20, 0W-30, 5W-20, 5W-30

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AISIN LUBRICANT FAMILY TREE

PAO Ester evoTECH+


0W-30 SP


0W-40 SP


5W-30 SN/CF


5W-40 SN/CF

synTECH+


5W-40 SP


5W-50 SP

Ultra-synTECH+


10W-40 CK-4


15W-40 CK-4

econTECH+


10W-30 CI-4/SL


10W-40 CI-4/SL


15W-40 CI-4/SL


10W-40 SP


20W-50 SP

greenTECH+


0W-16 SP


0W-20 SP


5W-20 SP


5W-30 SP (FULLY)


5W-30 SP (Dexos 1)


5W-30 SP (SEMI)


10W-30 SP

econTECH


15W-40 CF-4/SG


20W-50 CF-4/SG


20W-50 SF/CF


20W-50 SG/CD

gearTECH+


75W-90 GL-5


80W-90 LSD GL-5


80W-90 GL-5


85W-140 GL-5

AISIN

LUBRICANTS



Engine Oil



Gear Oil



Automatic Transmission Fluid



Coolant/Anti-freeze



Hydraulic Fluid



Motocycle Engine Oil



Brake Fluid



Grease



Low SAPs

PAO Ester evoTECH+

0W-30 and 0W-40 (SP)
5W-30 and 5W-40 (SN/CF)

DESCRIPTION

Aisin evoTECH+ Motor Oil with premium performance formulated with 100% PAO (and Ester) and race-proven additive technology for used in passenger car and light truck gasoline engines and passenger car diesel engines under all operating conditions. It is optimized to provide complete engine protection plus ultimate performance. Aisin evoTECH+ Motor Oil features with wear and residues (ash) prevention capability and suitable for vehicles equipped with turbocharges, CRDI, EGR and DPF features.

SUPERIOR PROPERTIES

SAE Grade	0W-30	0W-40	5W-30	5W-40
Density, kg/L @15°C	0.755	0.804	0.803	0.833
Kinematic Viscosity, mm²/s @ 40°C	60.22	85.42	60.23	70.45
Kinematic Viscosity, mm²/s @ 100°C	10.87	14.94	11.65	14.57
Viscosity Index	176	193	173	177
Pour Point °C	-48	-54	-45	-45
Flash Point °C	211	210	222	221
Package (Liters)	1L, 4L, 200L	1L, 4L, 200L	1L, 4L, 200L	1L, 4L, 200L

DISTINCTIVE ADVANTAGE

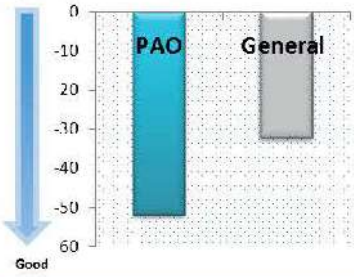
Poly-Alpha-Olefin (PAO)

PAOs, synthetic base fluids manufacture by carefully controlled chemical reaction of alphaolefin, have extreme stability and high performances in cold property and robustness, mainly used for the most premium lubricant products.

Ester

It use to balance the effect of seals, solubilize additives and improve energy efficiency through higher lubricity.

Pour Point
(Temperature below which the oil does not flow by itself)





PAO has high viscosity index between 150 - 250

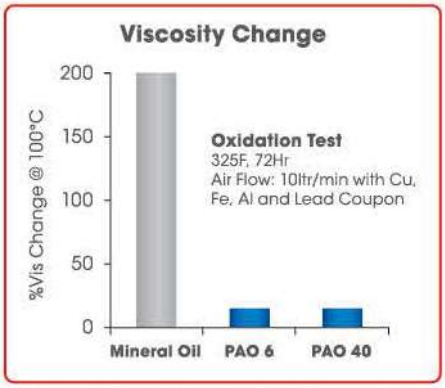
Cold Property

With their excellent cold property, PAOs can be used in extremely cold ambient temperature without oil change.

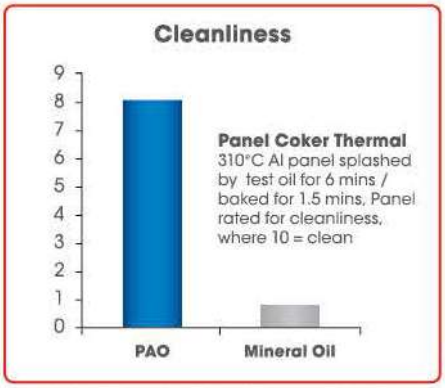
Robustness

PAOs have excellent anti-oxidation stability and low volatility, which allows the oil to maintain its original properties longer and significantly reduced sludge extending the oil drain interval.

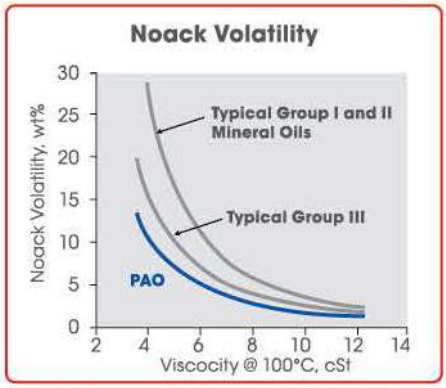
- ***100% PAO (and Ester) and Race-Proven Additive technology***
- ***Wear and residues (ash) prevention***
- ***Suitable for vehicles equipped with turbocharges, CRDI, EGR and DPF features.***



Viscosity increased at thigh temperature is significantly less.



Cleanliness in high temperature is much higher than others.



Low volatility makes oil to be used in longer time.



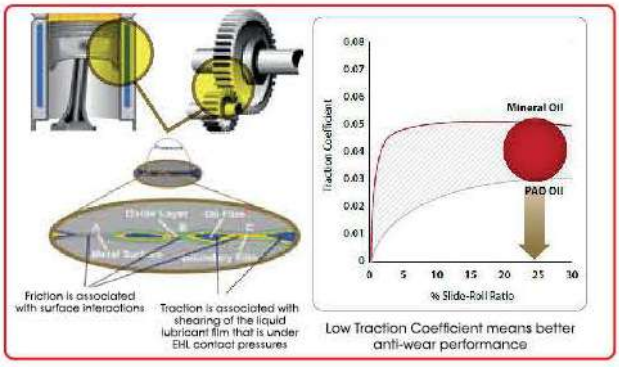
Mercedes C220: 96,540km



Mercedes C220: 96,540km



Mercedes C220: 193,080km



Low Traction Coefficient means better anti-wear performance

Anti-Wear

PAOs have excellent anti-wear performance in extreme pressurized friction thanks to their solid molecular structure.

Field Test

Field test results shows that AISIN PAO+Ester products, formulated with premium additives approved from API, ACEA and OEM recent specification, have excellent performance in low sludge and anti-wear characteristics.

PERFORMANCE STANDARDS

- Recommended for API SP and SN/CF
- ACEA C2/C3 for Aisin evoTECH+ Fully Synthetic 0W-30 (PAO Ester)
- ACEA C3 for Aisin evoTECH+ Fully Synthetic 0W-40 (PAO Ester)
  BMW LL-04, MB 229.31/229.51, VW 502.00/505.00 Recommended

CUSTOMER BENEFITS

- Maximizes engine life
- Maximizes power and performance
- Low oil consumption
- Longer equipment life
- Lower impact emiisions

APPLICATION

Naturally aspirated Gasoline, LPG and Diesel engines in passenger vehicles, RV and SUVs, Light truck (gasoline and diesel) engines; four-stroke gasoline engines in motorcycles and portable power equipment where the manufacturer recommends conventional passenger vehicle motor oils. It is applicable for vehicles equipped with turbo-charges, EGR and DPF features.



Robust
LSPI Protection
Turbocharged Engines

synTECH+

5W-40 and 5W-50 (Both SP)

DESCRIPTION

AISIN synTECH+ Fully Synthetic 5W-40 SP and 5W-50 SP is formulated from VHVI base oils, high performance additive systems and leading-edge viscosity index improver, which meet the requirement of current advanced top-tier engine oil grade of API SN PLUS. It is high-performance, highly shear-stable, multi-grade passenger vehicles motor oil applicable for both gasoline and diesel engines. Aisin synTECH+ 5W-40 SN PLUS minimizes abrupt damage of key engine components (such as piston rings, connecting rods and so on) by prevention of LSPI (Low Speed Pre-Ignition) phenomena in T-GDI engines.

*In the process of getting new API SN PLUS approval from API

SUPERIOR PROPERTIES

SAE Grade	Fully Synthetic 5W-40	Fully Synthetic 5W-50
Density, kg/L @15°C	0.8527	0.8521
Kinematic Viscosity, mm²/s @ 40°C	83.91	113.8
Kinematic Viscosity, mm²/s @ 100°C	14.5	18.81
Viscosity Index	183	184
Pour Point °C	-42	-42
Flash Point °C	216	218
Package (Liters)	1L, 4L, 5L, 200L	1L, 4L, 5L, 200L

DISTINCTIVE ADVANTAGE

- ***Suitable for Gasoline (and diesel) engine's application***
- ***Long Life Interval Service***

APPLICATION

All passenger vehicles and light truck equipped with four-cycle gasoline (and diesel) engines both aspirated, turbo-charged, DOHC, EFI and VVT features.

CUSTOMER BENEFITS

- Prevention & Protection of LSPI (Low Speed Pre-Ignition) phenomena for T-GDI engines.
- Fuel economy
- Engine power and maintainability
- Oil drainage interval
- All-temperature wear resistance

Ultra-synTECH+

10W-40 and 15W-40 (Both CK-4)



Robust
ULSD Protection
Turbocharged Engines

DESCRIPTION

AISIN Ultra-synTECH+ Synthetic Heavy-Duty Diesel (HDD) Motor Oil come with premium performance, high performance and multi-grade for heavy-duty diesel engine oil specifically designed for new low emission 2017 model year on-highway engine using ULSD (Ultra Low Sulphur Diesel). It is also recommended for a wide range of diesel engines requiring the latest API CK-4, ACEA E9 performance lubricants operating under the most severe service conditions.

SUPERIOR PROPERTIES

SAE Grade	Fully Synthetic 10W-40	Fully Synthetic 15W-40
Kinematic Viscosity, mm²/s @ 40°C	114.3	102.9
Kinematic Viscosity, mm²/s @ 100°C	14.9	14.9
Viscosity Index	135	143
Pour Point °C	-36	-40
Flash Point °C	234	228
Package (Liters)	1L, 4L, 5L, 200L	1L, 4L, 5L, 200L

PERFORMANCE STANDARDS

AISIN Ultra-synTECH+ Fully Synthetic HDD Motor Oil 10W-40

- API CK-4, ACEA E9-16
- Meet or exceeds the following specification:
  Cummins CES 20086, Caterpillar CAT ECF-3 Approved, Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, MB 228.31, MTU Type 2.1, Deutz DQC III-10 LA, Detroit Diesel DFS93K222, Ford WSS-M2C171-F1 Recommended.

AISIN Ultra-synTECH+ Semi Synthetic HDD Motor Oil 15W-40

- API CK-4, ACEA E9-16 Approved
- Meet or exceeds the following specification:
  Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, Cummins CES 20086, Caterpillar CAT ECF-3 Approved, MB 228.31, MTU Type 2.1, Deutz DQC III-10 LA, Detroit Diesel DFS93K222, Ford WSS-M2C171-F1 Recommended.

APPLICATION

AISIN API CK-4 is a mixed fleets motor oil recommended for all naturally aspirated and turbocharged four-stroke diesel engines in which the API CK-4 grade is recommended. It can apply for diesel engines equipped with DPF (Diesel Particulate Filter) or SCR (Selective Catalytic Reduction) and in other after-treatment systems where an API CK-4 engine oil is specified.

CUSTOMER BENEFITS

- With outstanding wear protection and ultimate performance reserve to maximize engine life
- It helps to prevent DPFs and SCRs from clogging thus extending the service life of after treatment systems.



Robust
LSPI Protection
Turbocharged Engines

100% VHVI
ecotechnology

greenTECH+

Fully Synthetic:
0W-16 (SP-RC ILSAC GF-6B),
0W-20, 5W-20 and 5W-30 (All SP-RC, ILSAC GF-6A)
Semi Synthetic:
5W-30 and 10W-30 (Both SP-RC, ILSAC GF-6A)

DESCRIPTION

AISIN greenTECH+ Motor Oil is formulated from VHVI base oils, high performance additive systems and leading edge viscosity index improver, which meet the requirement of current advanced top-tier engine oil grade of API SP and ILSAC GF-6A and GF-6B. It is optimized to provide complete engine oil performance, especially fuel efficiency, through friction reduction and enhanced durability. Aisin greenTECH+ Motor Oil optimized to provide complete engine oil performance for cold temperature performance, reducing friction loss and durability.

SUPERIOR PROPERTIES

SAE Grade	Fully Synthetic 0W-16	Fully Synthetic 0W-20	Fully Synthetic 5W-20	Fully Synthetic 5W-30
Density, kg/L @15°C	0.85	0.8493	0.8490	0.8526
Kinematic Viscosity, mm²/s @ 40°C	37.4	42.17	42.6	59.6
Kinematic Viscosity, mm²/s @ 100°C	7.2	8.195	7.54	10.24
Viscosity Index	158	169	146	162
Pour Point °C	-43	-45	-43	-39
Flash Point °C	230	238	232	220
Package (Liters)	1L, 4L	1L, 4L, 200L	1L, 4L, 200L	1L, 3L, 4L, 5L, 200L

DISTINCTIVE ADVANTAGE

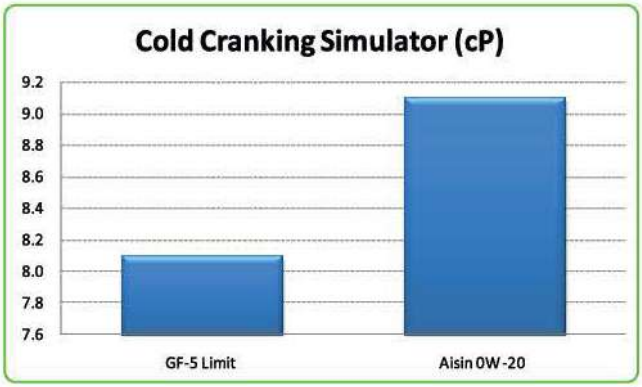
- ***100% synthetic VHVI (Very High Viscosity Index) base oil formulated with premium additives***
- ***Excellent cold temperature performance and fuel efficiency***
- ***For Gasoline (and Diesel) engine application equipped with T-GDI, GDI, DOHC, EFI and VVT features.***
- ***Prevention & Protection of LSPI (Low Speed Pre-Ignition) phenomena for T-GDI engines.***

PERFORMANCE STANDARDS

- 0W-16: API SP / ILSAC GF-6B / Resource Conserve
- 0W-20, 5W-20, 5W-30, 10W-30: API SP / ILSAC GF-6A / Resource Conserve



Improved piston cleanliness protects blow-by gas to increase engine power.



High performance in engine sludge increase engine durability and anti-wear, which provides benefits in car maintenance.

APPLICATION

All passenger vehicles and light truck (four-cycle) gasoline (and diesel) engines with both naturally aspirated and T-GDI, GDI engines in passenger cars including SUV. It is also suitable for Hybrid and Eco-car application. Most importantly, Gas-fuelled (natural gas and LPG) spark ignition engines where conventional passenger car motor oils are recommended.

CUSTOMER BENEFITS

- For Gasoline (and Diesel) engine application equipped with T-GDI, GDI, DOHC, EFI and VVT features.
- Prevention & Protection of LSPI (Low Speed Pre-Ignition) phenomena for T-GDI engines.
- Superior Cold Performance
- Fuel Efficiency
- Saves on maintenance costs

SUPERIOR PROPERTIES

SAE Grade	Semi Synthetic 5W-30	Semi Synthetic 10W-30
Density, kg/L @15°C	0.8526	0.8623
Kinematic Viscosity, mm²/s @ 40°C	59.6	64.89
Kinematic Viscosity, mm²/s @ 100°C	10.24	10.13
Viscosity Index	162	144
Pour Point °C	-33	-42
Flash Point °C	220	216
Package (Liters)	1L, 4L, 200L	1L, 3L, 4L, 5L, 200L



econTECH+

Fully Synthetic: 10W-40 (CI-4/SL)
Semi Synthetic: 10W-30 (CI-4/SL) and 15W-40 (CI-4/SL)
10W-40 (SP) and 20W-50 (SP)

DESCRIPTION

AISIN econTECH+ Motor Oil is formulated from VHVI base oils, high performance additive systems and leading-edge viscosity index improver, which meet the requirement of current advanced top-tier engine oil grade of API SP. It is high-performance, highly shear-stable, multi-grade passenger vehicles motor oil applicable for both gasoline and diesel engines. It is optimized to provide complete engine oil performance, especially fuel efficiency, through friction reduction and enhanced durability.

SUPERIOR PROPERTIES (CI-4/SL)

SAE Grade	Fully Synthetic 10W-40	Semi Synthetic 10W-30	Semi Synthetic 15W-40
Density, kg/L @15°C	0.8612	0.8641	0.8748
Kinematic Viscosity, mm²/s @ 40°C	104.8	78.59	111.8
Kinematic Viscosity, mm²/s @ 100°C	15.58	12.13	14.76
Viscosity Index	158	144	136
Pour Point °C	-42	-42	-33
Flash Point °C	226	210	240
Base Number, mg KOH/g	10.23	9.2	9.45
Package (Liters)	1L, 4L, 5L, 6L, 20L, 200L	1L, 4L, 5L, 6L, 20L, 200L	1L, 4L, 5L, 6L, 20L, 200L



- ***For ultra heavy duty diesel and commonrail vehicle's engine application***
- ***Extended engines service life and service interval***

SUPERIOR PROPERTIES (SP)

Robust LSPI Protection Turbocharged Engines

SAE Grade	Semi Synthetic 10W-40	Semi Synthetic 20W-50
Density, kg/L @15°C	0.8646	0.8743
Kinematic Viscosity, mm²/s @ 40°C	105.1	168.7
Kinematic Viscosity, mm²/s @ 100°C	15.29	18.99
Viscosity Index	160	128
Pour Point °C	-39	-36
Flash Point °C	210	242
Package (Liters)	1L, 4L, 5L, 200L	1L, 4L, 5L, 200L



- ***For Gasoline (and Diesel) engine's application***
- ***Enhanced fuel economy technology***

APPLICATION

Wide range of mixed fleets of European, North American diesel engines (high speed, four-stroke, turbo-charged or naturally aspirated). It is suitable for Commonrail Engines application. AISIN Semi Synthetic econTECH+ motor oil meet or exceeds the following requirements: VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20076, 77, 78, CAT ECF 2, ECF 1-a, Global DHD-1 Recommended .

CUSTOMER BENEFITS

- Prevention & Protection of LSPI
- (Low Speed Pre-Ignition) phenomena for T-GDI engines.
- Enhance Fuel economy
- Engine power and maintainability
- Oil drainage interval
- All-temperature wear resistance

PERFORMANCE STANDARDS

• API CI-4, CH-4, CG-4, CF-4 • ACEA E7 • Meet or exceeds the performance of Volvo VDS-3 and Mercedes-Benz 228.3

econTECH



Semi Synthetic: 15W-40 (CF-4/SG) and 20W-50 (CF-4/SG) 20W-50 (SF/CF) and 20W-50 (SG/CD)

DESCRIPTION

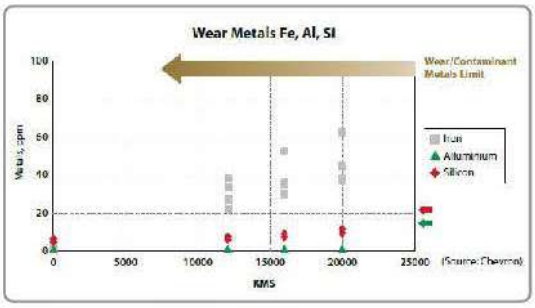
AISIN econTECH motor oil is high quality motor oil, formulated with synthetic technology base oil and high performance additives technology which optimized to provide outstanding protection and lubricity in all passenger vehicles and light truck gasoline and/or diesel engines application. Aisin econTECH is featured with metallo-organic anti-wear additives (MTO) technology.

SUPERIOR PROPERTIES

SAE Grade	15W40 CF-4/SG	20W50 CF-4/SG	20W50 SF/CF	20W50 SG/CD
Density, kg/L @15°C	0.8694	0.867	0.871	0.871
Kinematic Viscosity, mm²/s @ 40°C	112.5	173.5	150.6	150.6
Kinematic Viscosity, mm²/s @ 100°C	14.98	20.29	18.96	18.96
Viscosity Index	138	136	126	126
Pour Point °C	-39	-33	-33	-33
Flash Point °C	252	262	236	236
Base Number, mg KOH/g	10.2	9	-	-
Package (Liters)	1L, 4L, 6L, 20L, 200L	1L, 4L, 6L, 20L, 200L	1L, 3L, 4L, 5L, 6L, 20L, 200L	1L, 3L, 4L, 5L, 6L, 20L, 200L

DISTINCTIVE ADVANTAGE

- ***Designed for diesel and gasoline engines required API CF-4 performance***
- ***Oustanding deposit control for cleaner engine***
- ***Prolong engine life with MTO technology***
- ***Ultra-cleaning power***



APPLICATION

- Mixed fleets of diesel engines (high-speed, four-stroke, turbo-charged or naturally aspirated)
- Commercial road transport including the heavy trucks, buses, stop-and-go vehicles, off-highway vehicles
- Heavy construction equipments including excavator, wheel loader, forklift and dozer
- Small diesel engines in marine service
- Generator sets
- Powershift transmissions

CUSTOMER BENEFITS

- Provides good engine protection
- Trouble-free operation
- Long periods between overhauls



AISIN

Premium Performance Motorcycle 4T Engine Oil

PERFORMANCE STANDARD: API SL, JASO MA / MA2
JASO MA : 15W-40 and 20W-50
JASO MA2 : 20W-40

DESCRIPTION

Premium performance, shear-stable, multi-grade gasoline engine oil specifically designed for use in four-stroke motorcycles and portable power equipment requiring API SL JASO MA/MA2 lubricants, including high output engines operating in severe service.

SUPERIOR PROPERTIES

SAE Viscosity	15W-40	20W-40	20W-50
JASO Standard	MA	MA2	MA
Density, kg/L @15°C	0.8665	0.8747	0.8742
Kinematic Viscosity, mm²/s @ 40°C	117.2	132.7	158.5
Kinematic Viscosity, mm²/s @ 100°C	14.79	15.02	18.21
Viscosity Index	139	115	128
Pour Point °C	-39	-36	-39
Flash Point °C	216	240	240
Package (Liters)	1L	1L	1L

APPLICATION

AISIN MCO is particularly suitable for Japanese high performance motorcycle engines. It is applicable for motorcycle with and without oil immersed clutches, motorcycle with back torque limiters and exhaust catalytic converters. AISIN 4T MCO is applicable to the latest generation, four-stroke scooter engines and four-stroke gasoline engines fitted to portable power equipment, such as generators, mowers, etc.

CUSTOMER BENEFITS

- Prolongs engine life
- Saves on maintenance
- Lively throttle response
- Good all-temperature protection



AISIN

Premium Performance Engine Oil for Scooter

PERFORMANCE STANDARD: API SL, SN with JASO MB
JASO MB : 10W-40 and 15W-40
JASO MB2 : 5W-40 and 10W-40

DESCRIPTION

AISIN High Performance Engine oil for Scooter meeting the requirement of current advanced top-tier engine oil grade of API SN and is optimized to provide complete scooter engine oil performance especially for fuel efficiency, reducing friction loss and durability. It has been formulated from Synthetic Technology and meeting JASO MB performance standard.

SUPERIOR PROPERTIES

SAE Viscosity	Fully Synthetic 5W-40	Fully Synthetic 10W-40	Semi Synthetic 15W-40	Semi Synthetic 10W-40
API and JASO Standard	SN / MB	SN / MB	SL / MB	SL / MB
Density, kg/L @15°C	0.852	0.8649	0.871	0.8645
Kinematic Viscosity, mm²/s @ 40°C	92.53	96.68	113.7	103.6
Kinematic Viscosity, mm²/s @ 100°C	15.07	14.6	14.85	14.7
Viscosity Index	172	157	135	156
Pour Point °C	-40	-42	-39	-39
Flash Point °C	216	210	242	234
Package (Liters)	1L	1L	1L	1L

APPLICATION

It applies to all gasoline fueled vehicles. High performance cars which equipped with DOHC, EFI and VVT as well as four-stroke gasoline engines in motorcycles and sports vehicle is recommended to use AISIN Scooter Oil.

CUSTOMER BENEFITS

- Fuel Economy
- Engine power and maintainability
- Oil drainage interval
- All-temperature wear resistance

AISIN

Japanese Premium Quality Lubricants

Aisin Motor Oil Specification

		SAE Grade	API Grade	Low SAPs: Low Phosphorus and sulphur (low SAPS). Reduce ash formation and increase in DPF service life with 100% synthetic PAO.	Robust LSPI Protection Turbocharged Engines: Minimizes abrupt damage of key engine components (such as piston rings, connecting rods and so on) by prevention of LSPI (Low Speed Pre-Ignition) phenomena in T-GDI engines.	100% VHVI ecotechnology: Equipped with Resource Conserving features Suitable for Hybrid and Eco car application which helps save fuel compared with conventional oils offering the same level of performance.	Robust ULSD Protection Turbocharged Engines: Designed for new low emission 2017 model year on-highway engine using ULSD (Ultra Low Sulfur Diesel). Low Emission with Extra Life.	ACEA Standard	Meet or Exceeds the requirements of
FULLY SYNTHETIC MOTOR OIL	PAO Ester evoTECH+	0W-30	*SP	●				ACEA A5/B5, C2	-
		0W-40	*SP	●				ACEA C3	BMW LL-04, MB 229.31/229.51, VW 502.00/505.00
		5W-30	SN					ACEA A3/B4	BM229.3, VW502.00/505.00
		5W-40	SN					ACEA A3/B4	BM229.3, VW502.00/505.00
	synTECH+	5W-40	*SP		●			-	-
		5W-50	SN					-	-
	greenTECH+	0W-16	*SP		●	●		-	-
		0W-20	*SP		●	●		-	-
		5W-30	*SP		●	●		-	-
		10W-30	*SP		●	●		-	-
		5W-20	SN		●			-	-
	Ultra-synTECH+	10W-40	*CK-4				●	ACEA E9	Cummins CES 20086, Caterpillar CAT ECF-3, Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, MB 228.31, MTU Type 2.1, Deutz DQC III-10 LA, Detroit Diesel DFS93K222, Ford WSS-M2C171-F1 Recommended
SEMI SYNTHETIC MOTOR OIL	greenTECH+	5W-30	*SP		●	●		-	-
	Ultra-synTECH+	15W-40	*CK-4				●	ACEA E9	Volvo VDS 4.5, Mack EOS-4.5, Renault VI RLD-3, Cummins CES 20086, Caterpillar CAT ECF-3, MB 228.31, MTU Type 2.1, Deutz DQC III-10 LA, Detroit Diesel DFS93K222, Ford WSS-M2C171-F1 Recommended
	econTECH+	10W-40	*SP		●			-	-
		20W-50	*SP		●			-	-
		10W-30	CI-4/SL					ACEA E7	VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20076, 77, 78, CAT ECF 2, ECF 1-a, Global DHD-1 Recommended
		10W-40	CI-4/SL					ACEA E7	VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20078, CES 20076, 77, CAT ECF 2, ECF 1-a, Global DHD-1 Recommended
		15W-40	CI-4/SL					ACEA E7	VDS-3, MB 228.3, MAN 3275, MTU Type 2, Mack EO-M Plus, Renault RLD-2, CES 20078, CES 20076, 77, CAT ECF 2, ECF 1-a, Global DHD-1 Recommended
	econTECH	15W-40	CF-4/SG					-	-
		20W-50	CF-4/SG					-	-
		20W-50	SG/CD					-	-
		20W-50	SF/CF					-	-

LEGEND: ● Low SAPS = Low levels of sulphated ash, phosphorus and sulphur (SAPS) ● LSPI = Low Speed Pre-Ignition ● VHVI = Very High Viscosity Index ● ULSD = Ultra Low Sulphur Diesel *NEW API GRADE

AISIN

Premium Quality Automatic Transmission Fluids from One of the World Largest AT Manufacturer



I am Protected by AISIN

Premium lubricant product for transmission, widely used by more than 40 carmakers around the world. AISIN is the world largest AT supplier with 50 years experiences in manufactured AT transmission. Make your trust beyond your trip.



Why choose AISIN ATF?

- Economical and save your gasoline more
- Improve your fuel consumption, save your gasoline more.
- Longest transmission life span



UNIQUENESS OF AISIN ATF

ATF Knowledge

Ever since the development of A/T, the electronic and hydraulic components have become more complicated. Therefore it is very important to service A/T regularly. In general, carmakers suggest changing ATF every 60~80k KM, some carmakers even suggest for lifetime maintenance free. This suggestion has to be viewed from many aspects. With the higher quality living standards and deteriorating traffic conditions, AISIN suggests car owners to change ATF every 2 years or 20,000km. Without proper maintenance for the ATF, it will reduce your car performance, higher fuel consumption, or causing damage to the transmission.

Advantageous of regular ATF maintenance:



Improved shift feel



Improved fuel comsumption



Longer transmission life span

ATF under normal usage





ATF under excessive usage



Mixed with debris

Need to repair transmission (metal debris will cause abrasion)



High temperature (paste-like)

Need to repair transmission (will cause wet clutch slip)



Milky (mixed with water)

Need to repair transmission (water mixed into tranmission)



**** The recommended AT transmission fluid replacement would be 2 years or 20,000km to ensure the reliability and performance of the vehicles.**

High Performance Gear Oil

gearTECH+



80W-90 (GL-4), 75W-90 (GL-5), 80W-90 (GL-5), 80W-90 (LSD GL-5) and 85W-140 (GL-5)

DESCRIPTION

AISIN gearTECH+, GL-5 gear oil is formulated with high quality base oil and additive package to provide good resisting gear wear and scuffing under severe conditions. AISIN gear oil assists smooth shifting in manual transmissions by controlling gazing and coking of friction surface in synchronizing mechanisms. It is ultimate performance with high thermal stability and features with EP automotive gear lubricant.

SUPERIOR PROPERTIES

SAE Viscosity	75W-90 (Non-LSD)	80W-90 (Non-LSD)	80W-90 (LSD)	85W-140 (Non-LSD)
Density, kg/L @15°C	0.869	0.8612	0.8794	0.8968
Kinematic Viscosity, mm²/s @ 40°C	85.6	132.1	144.1	313.5
Kinematic Viscosity, mm²/s @ 100°C	14.60	14.51	14.6	24.85
Viscosity Index	178	110	110	101
Pour Point °C	-42	-33	-36	-21
Flash Point °C	225	208	232	210
Package (Liters)	1L, 4L, 20L, 200L	1L, 4L, 20L, 200L	1L, 4L, 20L, 200L	1L, 4L

DISTINCTIVE ADVANTAGE

- ***Ultimate performance with excellent anti-wear features***
- ***Equipped with Extreme Pressure (EP) features***
- ***Outstanding thermal & oxidation stability***

Very Good Anti-wear Performance

High quality base oil and additive provide good resisting gear wear and scuffing under severe conditions



AISIN Other

Outstanding thermal & oxidation stability

GSC product is superior to other products in oxidation test under 150°C, 96 hours. (Oxidation Test Method : JIS K2514)



AISIN Other

APPLICATION

It is recommended for automotive hypoid gear applications requiring lubricants meeting API Service GL-5, MIL-PRF-2105E, MIL-L-2105D, MIL-L-2105C, MIL-L-2105B or where EP, multi-purpose and/or hypoid type gear oils are specified. It is not recommended for manual transmissions and tranxales where the manufacturer specifies API GL-4 (mild-EP) lubricants, or where the manufacturer advises against the use of API GL-5 (multi-purpose, hypoid) lubricants.



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