NESTE

Product catalog

Neste lubricants
and chemicals

Contents

Neste lubricants

Neste is not only the largest fuel refiner in the Nordic countries but also an important manufacturer of lubricants and base oils.

The Neste lubricant range has developed in accordance with the northern climate. Starting up and using machines in Arctic/cold conditions requires a completely different ability to work in various climactic conditions from lubricants than, for example, in Central Europe. Based on Neste's own base oils, Neste lubricants represent the high end of development both in transport and industry uses.

Our aim in all lubricant development is to provide our customers with the most up-to-date technology, which takes environmental perspectives into account as comprehensively as possible. The result is products that achieve better wear protection, longer oil change interval and fuel savings – from the point of view of the customer.

Low friction and heat resistant NEXBASE® base oils together with effective additives are the best possible foundation for lubricants. Neste's top quality lubricants are primarily based on our own NEXBASE® base oils, which are globally used in the manufacture of synthetic engine and transmission oils.

Neste lubricants have been granted quality certificates complying with ISO 9001, 14001, and OHSAS 18001 standards.

Neste lubricant, car chemical and solvent range covers both the needs of transport and industry. The products listed in this catalog are divided according to the most typical uses. In addition, our product range includes tailored special products for the needs of industry.

Due to our continuous product development product names, specifications and classifications may change.

Basic concepts related to lubricants

Density

Density refers to the bulk density of the substance. When talking about oils, it is usually expressed at the temperature of +15 °C or +20 °C while the unit is kg/m3. The densities of lubricant oils vary between approx. 700–950 kg/m3 depending on the base oil's quality, thickness and additives used.

Viscosity

The thicker the liquid the higher its viscosity. The viscosity of lubricant oils is usually declared in cSt (centistoke)=mm2/s (SI system) or cP (centipoise) = mPas (SI system).

Temperature must always be mentioned when describing viscosity regardless of what unit is used. All oils thin strongly when the temperature rises. Typical viscosity of SAE 10W engine oil in -20 °C temperature may be 2,000 cP, but if it heats up to +100 °C, the viscosity will be as low as 5.2 cSt.

Viscosity index

The Viscosity index (VI) refers to the propensity of liquids to thin as temperature rises. The more the liquid in question thins, the lower its viscosity index. VI of single grade engine oils is approx. 95–110, while that of multigrade oils may exceed 200.

Flash point

Flash point refers to the flammability of fluids. Flash point is the temperature at which the fluid emits so much flammable gas measured with a certain method that they flare up when lit with open fire while the fluid itself does not remain burning.

Ignition temperature

Ignition temperature is the temperature at which the gases evaporate when a fluid is heated in an open fire pot burn for at least five seconds when lit with open fire. The ignition temperature is typically 10–50 °C higher than the flash point.

Pour point

Oil thickens when the temperature drops. At a certain temperature, it no longer flows at its own weight. This temperature is referred to as the pour point. The pour point depends, among other things, on the viscosity of the oil and its chemical structure. In paraffinic oils, thickening is caused by the wax in the oil, which can be distinguished as crystals. The more the oil cools down the larger the crystals grow and eventually form a network obstructing the flow within the oil.

Alkali charge

When the engine is running, acidic compounds caused by the combustion of fuel enter the fuel and these must be neutralized in order to prevent corrosion of metal parts. For this reason, engine oils contain additives to create an alkali charge. Its volume is expressed in terms of total base number (TBN).

Storage and handling of lubricants

The storage location and conditions must be chosen so that water and impurities cannot contaminate the lubricant. The storage location must be sheltered from rain and as little subject to changes in temperature as possible. Changes in temperature may cause condensation in containers that are not tightly shut. It is best to store barrels on their sides so that the fill hole is below the oil level.

Products sensitive to freezing, such as metal working emulsions and detergents must be transported and stored safe from freezing.

Official guidelines and regulations must be followed when handling lubricants, oils and chemical. Check the more detailed product-specific information in material safety data sheets.

Storage of flammable liquids

You can store flammable liquids without a specific permit from rescue authorities inside at maximum the amounts presented in the below chart. Paints, solvents, antifreeze substances, windshield wiper liquids, aerosols, etc. must be included in the allowed storage amounts.

Storage of oil products

You can store flammable liquids without a specific permit from the fire and rescue authorities inside at maximum the amounts presented in the chart below. Paints, solvents, antifreeze substances, windshield wiper fluids, aerosols, etc. must be included in the allowed storage amounts.

Place	Gasoline and kerosene	Diesel oil, fuel oil
Residential, office, accommodation, meeting, etc. facilities	25 liters total	50 liters total
Storage, work or maintenance facilities of the above buildings (fire resistant compartmentalization must be in place)	100 liters total	200 liters total
Basements of semidetached, terraced or apartment buildings and outside storage facilities	None	None
Garages, car repair shops (fire resistant compartmentalization must be in place)	In addition to the vehicle tank, at maximum 60 liters in 25-liter containers	In addition to the vehicle tank, a total of 200 liters
Other storage and similar buildings (fire resistant compartmentalization recommended)	As outside, according to comparison figures	As outside, according to comparison figures

It is recommended that fuels are stored in a cool place and a closed container shielded from sunlight. Fuels that have been storage for several years may cause problems for the engine. For example, gasoline may only be stored for a few months. An excellent alternative is Neste small-engine gasoline, which has a considerably longer storage life.

You may only use type-approved containers complying with the regulations for transport and storage of fuels. More information is available, for example, in the Finnish Petroleum Federation Palavia nesteitä koskeva säännöstö (“Regulations on flammable liquids”) (www.oil.fi).

Private individuals' fuel transports

A private individual may transport gasoline, kerosene, diesel fuels or other corresponding fuels for private, household or sports hobby purposes in recyclable resale containers at maximum 60 liters in one container and at most 240 liters in one transport unit.

Transport unit refers to a passenger vehicle, van, trailer, etc.

In addition, it has been stated that leakage of the contents must be well-prevented in normal transport circumstances!

In a bus as luggage, a private individual may carry fuels in recyclable containers approved for fuels up to a maximum of 5 liters.

The passenger must also inform the driver specifically about the fuels before the start of the journey.

However, fuels can also be carried in a bus as cargo, but then it is considered cargo and requires cargo-specific procedures and marking.

As cargo, you can carry in a bus at maximum 100 liters of fuels of which 60 liters can be gasoline.

The vehicle fuel tank is not included in the above amounts.

There may be clarifications to the regulations and statutes, so it is recommended that the most up-to-date information is checked at (www.lvm.fi) and (www.trafi.fi).

Companies

Companies must check the regulations from a body that is aware of the regulations related to storage and transports. This will ensure that they have the latest up-to-date information about the regulations.


NESTE OIL
Neste City Pro C2
5W-30

Engine oils

How to select the right engine oil

Correct viscosity

(SAE classification)

Engine must start also in temperatures way below freezing and oil must reliably lubricate the engine also in high temperatures and under heavy burden. In winter, using an engine-block heater raises the oil temperature only by a couple of degrees, so you should select the oil according to the outside temperature unless you are using a special oil heater.

Correct performance

(API and/or ACEA classifications as well as specifications by engine manufacturers)

The quality of oil affects the oil change interval. The properties of high quality engine oil will last longer and enable the long oil change intervals recommended by the car manufacturer. Car manufacturers declare the minimum requirements for engine oil as well as viscosity classes in the owner's manual of the vehicle.

SAE class	Viscosity cP	Pumpability temperature	Viscosity cSt/100 °C		HSHT viscosity 150 °C 106 1/s
	Max.	Max.	Min.	Max.	
0W	6200 / –35 °C	–40 °C	3,8	–	–
5W	6600 / –30 °C	–35 °C	3,8	–	–
10W	7000 / –25 °C	–30 °C	4,1	–	–
15W	7000 / –20 °C	–25 °C	5,6	–	–
20W	9500 / –15 °C	–20 °C	5,6	–	–
25W	13000 / –10 °C	–15 °C	9,3	–	–
20	–	–	5,6	9,3	2,6
30	–	–	9,3	12,5	2,9
40	–	–	12,5	16,3	2,9–3,7*
50	–	–	16,3	21,9	3,7
60	–	–	21,9	26,1	3,7

*2,9 (0W/40, 5W/40, 10W/40)
3,7 (15W/40, 20W/40, 25W/40, 40)

European ACEA classification for engine oils

A/B **Gasoline and diesel engine oils for passenger cars and vans**

A1/B1 Low-friction thin special oils. Warning: Do not suit all cars. Check suitability from the vehicle manual.

A3/B3 Top quality oils suitable for general use in high-powered engines, prolonged change intervals and demanding conditions.

A3/B4 like class A3/B3, but better suited for some direct injection diesel engines. Can be used in cars with the requirement A3/B3.

A5/B5 Top quality low friction thin special oils for prolonged changed intervals. Warning: Do not suit all cars. Check suitability from the vehicle manual.

C **Gasoline and diesel engine oils better suited for catalysts and exhaust particle filters of passenger cars and vans**

C1 Low-friction thin special oils. Prolong the age of catalysts and diesel particle filters. Contain more sulfur and phosphorus (Low SAPS) than A1/B1 oils or C2, C3 and C4 oils. Low ash generation. Warning: Do not suit all cars. Check suitability from the vehicle manual.

C2 Low friction special oils, but sulfur, phosphorus and ash limits (Mid SAPS) higher than in C1 class. Warning: Do not suit all cars. Check suitability from the vehicle manual.

C3 Top quality oils that prolong the age of catalysts and diesel particle filters. Contain less sulfur and phosphorus (Mid SAPS) than A3/B4 oils. Low ash generation. Warning: Do not suit all cars. Check suitability from the vehicle manual.

C4 Top quality oils that prolong the age of catalysts and diesel particle filters. Contain less sulfur and phosphorus (Low SAPS) than C2 and C3 oils. Low ash generation. Warning: Do not suit all cars. Check suitability from the vehicle manual.

E **Diesel engine oils for heavy equipment**

E2 Diesel engine oils for normal use with normal change intervals. Compare with above ACEA E2 class.

E4 Top class special oils, for example, for Mercedes-Benz, MAN, DAF diesel engines for long change intervals. Suitable for Euro 1, 2, 3, 4 and 5 (SCR/EGR) engines. Not for cars equipped with exhaust particle filters. Check suitability from the vehicle manual.

E6 Top class (Low SAPS) engine oils for most heavy equipment diesel engines for long change intervals. Well suited for vehicles equipped with diesel particle filters (DPF) and when using low-sulfur fuel (max. 50 ppm). Check suitability from the vehicle manual.

E7 Top class special oils for diesel engines and long change intervals. Suitable for Euro 1, 2, 3, 4 and 5 (SCR/EGR) engines. Not for cars equipped with exhaust particle filters. Check suitability from the vehicle manual.

E9 Top class (Mid SAPS) engine oils for most heave equipment diesel engines for long change intervals. Well suited for vehicles equipped with diesel particle filters (DPF) and when using low-sulfur fuel (max. 50 ppm). Check suitability from the vehicle manual.

API classification

The American API classification comprises gasoline engine S classes, such as API SL, and diesel engine C classes, such as CI-4.

Mixing oils

Oils used for the purpose and meeting the same quality specifications can usually be mixed together regardless of whether they are single grade or multigrade oils. If a modern engine oil with extremely washing quality is applied to the engine where an older class slightly washing oil has been used, it is recommended that the first change interval is shortened to, for example, 1,000 kilometers or the engine is cleaned in some other way.

Oil change intervals

Oil must always be changed at the latest after the number of kilometers driven indicated by the car manufacturer has been reached. The maximum change interval is shortened by, for example:

- driving in town and short distances
- driving in winter and cold engine
- dusty conditions
- too high temperatures

Even though oils have developed strongly and endure the long change intervals allowed by engine manufacturers, the cheapest way to prolong the life of an engine is to change oil at sufficiently regular intervals.

Oil consumption

Even an engine that is in good order naturally consumes some oil. This is compensated by fuel dilution, which can be up to 10% especially in gasoline engines during winter and short trips. This will make the oil level rise after which, when driving for longer, the level can quickly drop as oil thinned by gasoline is burnt and gasoline evaporates.

Oil consumption is most increased by driving at full throttle and high revs with recurrent engine braking.

Synthetic passenger car engine oils

Neste City Pro

API SN/CF (0W-40)
ACEA A3/B4 (0W-40)
API SN/CF (5W-40)
ACEA C3 (5W-40)

Fully synthetic top quality oil for lubricating gasoline and diesel engines of modern passenger cars and vans. Year-round, best cold properties. Lubricates immediately after a cold start and also in heavy conditions and high temperatures. Keeps oil consumption low and the engine clean. Exceeds quality requirements for, among others, MB 229.3, MB 229.5 (0W-40), MB 229.31 (5W-40), BMW LL-01 (0W-40), BMW Longlife -04 (5W-40), VW 502.00 and 505.00, Porsche A40. Neste City Pro 5W-40 also meets Renault RN0700, RN0710 and GM dexos 2 performance levels.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0134	0W-40	860	80	14,0	181	-54	<-40
0135	5W-40	853	87	14,2	170	-51	<-35

Neste City Pro LL

API SL/CF
ACEA A3/B4

Fully synthetic top quality oil for **Opel** and **Saab** vehicles for long change intervals. Complies with GM-LL-A-025 and B-025 requirements. Saves fuel. An excellent oil also for other makes in compliance with API and ACEA classes. VW 502.00/505.00, MB 229.5, BMW Longlife -01.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0133	5W-30	855	67	11,6	170	-42	<-35

Neste City Pro W Long Life III

ACEA C3

Fully synthetic top quality oil for new **VW, Audi, SEAT** and **Skoda** cars, with the requirement VW 504.00 gasoline engines or VW 507.00 diesel engines for long change intervals with maintenance interval detector. Also well-suited for older cars, such as VW 503.00/506.00 and 506.01, 500.00, 501.01, 503.01, 505.00, Mercedes Benz Approval 229.51, BMW Longlife-04. Check suitability from the vehicle manual.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0138	5W-30	853	69	11,8	170	-42	<-40

Neste City Pro A5/B5

API SL/CF
ACEA A5/B5

Fully synthetic, thin top quality oil for new **Volvo** passenger cars. Check suitability from the vehicle manual. Suitable for all cars with ACEA A5/B5 requirement.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0137	0W-30	855	54	9,7	169	-54	<-40

Neste City Pro

ACEA A1/B1
Volvo VCC RBSO-2AE

Fuel-saving fully synthetic engine oil for cars for which thin SAE 0W-20 or 5W-20 engine oils are recommended. Check product suitability from the vehicle manual.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0130	0W-20	844	46	8,7	170	-45	<-40

Neste City Pro F

API SN
ACEA A1/B1
Ford WSS-M2C-948-B

Fully synthetic fuel-saving engine oil developed specifically for new Ford EcoBoost engines, where the requirement is Ford WSS-M2C-948-B -classified engine oil.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0132	5W-20	852	42	7,8	155	-39	<-35

Neste City Pro C2

API SN/CF (5W-30)
ACEA C2

Fuel-saving fully synthetic engine oil specifically for **Toyota, Honda, Mitsubishi, Subaru, Citroën** and **Peugeot** cars using diesel particle filters and the exhaust after-treatment system requires the use of ACEA C2 class oil with low sulfate ash, phosphorus and sulfur content. Renault RN0700 performance level and PSA B71 2290 approval (5W-30). PSA B71 2312 approval (0W-30).

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0139	5W-30	852	57,5	10,3	170	-39	<-35
0140	0W-30	842	55	9,65	162	-51	<-40

Neste City Pro C4

ACEA C4

Fully synthetic (Low SAPS) engine oil, when the operation of the diesel particle filter (DPF) and exhaust after-treatment system requires that ACEA C4 class oil is used. Developed especially for cars complying with Nissan (Euro 5) emission norm and Renault (Renault RN0720 performance level) and Suzuki cars using diesel particle filters. MB 229.51, MB 229.31 and MB 226.51.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0140	5W-30	853	70	12	170	-42	<-35

Neste City Standard

API SM/CF
ACEA A3/B4-04

Synthetic gasoline and diesel engine multigrade oil for year-round use. Synthesis improves the cold resistance and pumpability, reduces oil consumption and decreases the formation of carbon build-up and settling in pistons and valves. Exceeds quality requirements: VW 500.00 and VW 505.00, VW 505.01 for unit injector diesels, MB 229.1

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0441	5W-40	858	88	14,1	167	-45	<-35

Neste City Standard

API SN/CF
ACEA A3/B4

Synthetic gasoline and diesel engine multigrade oil for year-round use. Synthesis improves the cold resistance and pumpability, reduces oil consumption and decreases the formation of carbon build-up and settling in pistons and valves. Exceeds quality requirements: VW 502.00 and VW 505.00, MB 229.3.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0442	10W-40	857	90	14,0	160	-42	<-30

Neste City Standard

API SL/CF
ACEA A5/B5, ACEA A1/A5
Ford WSS-M2C913-D

Synthetic, low friction and low viscosity engine oil specifically for Ford engines for which oil complying with Ford WSS-M2C913-D, Ford WSS-M2C913-C, Ford WSS-M2C913-B, M2C913-A or M2C912-A1 specification is recommended. Check suitability from the vehicle manual.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0445	5W-30	853	55	9,8	166	-45	<-35

Neste 1

API SL/CF
ACEA A3/B4

Fully synthetic year-round multigrade oil for gasoline and diesel engines. Oil with good cold properties designed for Finnish climate offers excellent protection and performance also in extreme conditions. Complies with Volkswagen's VW 502.00/505.00 and BMW Longlife-01 performance requirements.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0520	5W-30	854	71	11,7	160	-42	<-35

Neste 1

API SL/CF
ACEA A3/B4

Synthetic multigrade engine oil for year-round gasoline and diesel engine use. Especially well-suited for the harsh winter conditions in Finland and simultaneously for continuous burdening hot use. Lowers oil consumption.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0150	5W-50	850	104	18,1	194	-45	<-35

Neste Premium

API SL/CF, ACEA A3/B4 (SAE 5W-40)
API SN/CF, ACEA A3/B3 (SAE 10W-40)

Semi-synthetic multigrade engine oil for year-round gasoline and diesel engine use. Keeps oil consumption low, lubricates in cold conditions, prevents engine wear and is especially well-suited for engines that have been used a great deal.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0530	5W-40	855	85	13,9	169	-45	<-35
0540	10W-40	872	94	14,1	156	-39	<-32

Mineral oil -based passenger car engine oils

Neste Super

API SJ/CF

Super class multigrade oil for gasoline engines and naturally aspirated diesels. Thanks to its wide viscosity range, SAE 10W-40 is well-suited for year-round use in reasonable conditions.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0640	10W-40	866	97	14,1	149	-36	<-30

Neste Special

API SF/CC (SAE 10W-30)
API SG/CF-4 (SAE 20W-50)
API SG/CF-4 (SAE 30)

Affordable engine oils for gasoline and naturally aspirated diesel engines. SAE 10W-30 is suited for year-round use in normal temperatures, others are recommended to be used according to the conditions. For lawnmowers Special SAE 30.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
0715	10W-30	852	64	10,1	144	-36	-31
0725	20W-50	887	178	18,2	131	-21	-20
0731	30	885	95	11,3	105	-27	<-20

Heavy equipment diesel engine oils

Neste Turbo E6

ACEA E6/E7/E9

Fully synthetic oil suited for modern high-powered diesel engines for extremely long change intervals. Works well in freezing temperatures but also in high operating temperatures in the most demanding use. Low ash (Low SAPS) oil with low sulfur and phosphorus content. Especially for Euro 4 and 5 vehicles equipped with diesel particle filters. Complies with, for example, Mercedes Benz Approval 228.51, MAN M 3477 and MAN M 3277 CRT, MAN M 3271-1, Volvo VDS-3, Volvo CNG, Renault RVI RXD, RLD-2, RGD, Jaso DH-2 and Scania Low Ash requirements.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1242	10W-40	861	91	13,8	155	-42	<-30

Neste Turbo NEX

ACEA E9
API CJ-4/SN
Mercedes-Benz 228.31
MAN M3575
MTU Type 2.1
Volvo VDS-4, VDS-3
Mack EO-O Premium Plus
Renault Trucks RLD-3
Cummins CES 20081
Caterpillar ECF-3

Engine oil complying with API CJ-4 and ACEA E9 requirements for diesel engines equipped with modern exhaust after-treatment equipment. Manufactured from top quality Finnish NEXBASE® base oil manufactured by a globally leading base oil manufacturer Neste Oil. Developed to meet the most recent requirements of car manufacturers, especially suited for Volvo diesel engines requiring Volvo VDS-4 class oil.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1121	10W-40	860	94	14	152	-42	<-30
1122	15W-40	862	105	14,6	144	-39	<-25

Neste Turbo Super

API CF, ACEA E4/E7

Synthetic oil suited for modern high-powered diesel engines for extremely long change intervals. Works well in freezing temperatures but also in high operating temperatures in the most demanding use. Complies with, for example, Scania LDF-2 (10W-40), Scania LDF (5W-30), Mercedes Benz Approval 228.5, Volvo VDS-3, MAN 3277, MTU Type 3. Neste Turbo Super 10W-40 is synthetic and Neste Turbo Super 5W-30 fully synthetic oil.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1040	10W-40	867	89	13,5	152	-39	<-30
1030	5W-30	860	72	12	165	-54	<-35

Neste Turbo LXE

API CI-4/SL, CH-4,
CG-4, CF-4
ACEA E7, E5, E3
MB 228.3
Volvo VDS-3, Volvo VDS-2
MAN M 3275,
Mack EO-N, EO-M Plus
Cummins CES
20,071/-2/-6/-7/-8
Renault RVI RLD, RLD-2
Global DHD-1
Caterpillar ECF-2, ECF-1-a
MTU Type 2
Deutz DQC III-10

Multigrade diesel engine oils developed for professional heavy equipment for truck, bus and work machine diesel engines as well as gasoline and diesel engines of passenger cars and vans. Neste Turbo LXE 10W-40 is a top quality synthetic diesel oil with good cold properties for year-round use. Neste Turbo LXE 10W-30 is partly synthetic and Neste Turbo LXE 15W-40 mineral oil -based engine oil suitable for diverse uses. Keeps the engine clean, protects it from wear and keeps the oil consumption low.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1246	10W-40	867	100	14,3	147	-42	<-30
1232	10W-30	874	77	11,7	145	-42	<-30
1245	15W-40	870	106	14,3	138	-36	<-25

Neste Turbo S

API CF, CE, CD/SF

Fully synthetic oil for charged diesel engines in heavy operating conditions. Effectively prevents the formation of carbon build-up, wear and burnishing of cylinders. Being fully synthetic, the oil works well in freezing temperatures and provides extremely efficient lubrication in high operating temperatures. For Volvo truck gearboxes.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1041	15W-40	875	91	14,0	142	-42	-33

Neste Diesel

API CG-4, CF-4, CF, CE,
CD/SF
ACEA E2

Multigrade oils suited for the lubrication of heavy charged diesel engines. 10W-30 is extremely well-suited for winter use and it provides good fuel economy while 15W-40 is a thicker oil for hot summer use.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1430	10W-30	865	70	10,6	138	-36	<-30
1440	15W-40	885	107	14,1	134	-33	<-25

Neste Diesel

API CF/CF-2,
CD/SF

Single grade oils for lubrication of heavily burdened charged and naturally aspirated diesel engines. Effectively prevent formation of carbon build-up, wear and formation of sludge. Exceed quality requirements: Allison C-3, Caterpillar TO-2, MILL-2104D.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1611	10W	877	38	6,5	122	-39	-33
1621	20W-30	872	99	11,9	111	-33	<-20
1631	30	881	105	12,3	108	-33	-

Neste Farm Universal

ACEA E3
API CG-4, CF-4/SF
API GL-4

A general oil for agricultural equipment suited for gasoline and diesel engines, most gearboxes, hydraulic systems and rear axles equipped with wet brakes. Exceed quality requirements: Allison C4, Caterpillar TO-2, MF1144 SMR SH68, wet brake requirements of various manufacturers.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C	Pumpability limit temperature °C
1832	10W-30	881	68	10,5	162	-39	-37

Oil recommendations for your vehicle are available online!

You can conveniently search for products suitable for your vehicle with the registration number of your vehicle. Registration number search is available for passenger cars and vans registered in the Finnish road traffic register. If you cannot find the information with your registration number, use the search function. With this service it is easy for you to find the Neste Oil lubricants and chemicals best suited for your vehicle. The service provides recommendations for passenger cars, vans, trucks and buses as well as agricultural machinery.

www.neste.com/lubrecommendations

Motorcycle engine oils

Neste MC Pro 10W-40

API SN
JASO MA-2

Fully synthetic engine oil for modern motorcycles. The latest additive technology combined with synthetic base oil ensure effective lubrication even at high temperatures. Moreover, the improved heat-resistance of the additives ensure trouble-free operation of catalyst and long use life even in hard riding.

Neste MC Pro 10W-40's friction properties comply with JASO MA-2 standard. This ensures the accurate and trouble-free operation of the wet clutch all through the oil change interval.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Pour point °C
1242	10W-40	861	91	13,8	155	-42

Two-stroke engine oils

Neste 2-T Super Racing

API TC ++, JASO FC, ISO EGD
Husqvarna 266,
Piaggio Hexagon

Fully synthetic, low ash, low smoke two-stroke engine oil for snowmobiles, motorcycles, chainsaws, etc. Not for go-karts. Ester oil that does not contain castor oil or other vegetable oils. Suitable for competition use, oil injection and premix lubrication. Engine manufacturer's requirements must be followed.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Flash point (PM) °C	Pour point °C
1935	875	54	9,4	84	-48

Neste 2-T Super Bio

API TC +, JASO FC,
ISO EGD, Husqvarna 346

Biodegradable fully synthetic, low ash and low smoke two-stroke oil for snowmobiles, motorcycles, chainsaws, etc. Ester oil that does not contain castor oil or other vegetable oils. Suitable for oil injection and premix lubrication. Engine manufacturer's requirements must be followed.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Flash point (PM) °C	Pour point °C
1936	895	39	7,8	90	-42

Neste 2-T Super

TSC-3, API
TC

Synthetic two-stroke engine oil for modern, high-powered and fast running two-stroke engines. Suitable both for premix oil and oil injection systems year around. Contains approx. 18% of solvent, which improves blending capacity with fuel

Product number	SAE	Density kg/m³ +15 °C	Flash point (PM) °C	Pour point °C
1930	50 (oil part)	858	100	-42

Neste 2-T Marine

NMMA TC-W3, API
TD

Two-stroke engine oil with cleansing and anti-corrosion additives that burns without ash residue. Complies with the requirements of TC-W3 outboard motors and can be used at a low oil-fuel ratio in premix as well as in oil injection outboard motors in compliance with the manufacturer's instructions. Neste 2-T Marine contains approx. 20% of solvent which improves the blending capacity with fuel.

Product number	Density kg/m³ +15 °C	Flash point (PM) °C	Pour point °C
1915	872	58	<-45

Gearbox and
drive gear oils

Gearbox and drive gear oils

SAE viscosity classification for gearbox oils

- SAE classification determines the viscosity of gearbox and drive gear oils without taking any other properties into account.
- Winter use classes are SAE 70W, 75W, 80W and 85W.
- Summer use classes are 90 and 140.

SAE class	Maximum temperature 150,000 cP Viscosity	Viscosity cSt/100 °C	
		Minimum	Maximum
70W	–55 °C	4,1	
75W	–40 °C	4,1	
80W	–26 °C	7,0	
85W	–12 °C	11,0	
90		13,5	24,0
140		24,0	41,0

API performance classification for gearbox oils

- GL-1 without EP (Extreme Pressure) additive, low surface pressure
- GL-4 with EP additive, for synchronized gearboxes
- GL-5 approx. two times the EP additive when compared to GL-4, for hypoid differentials

Neste Hypoidi TDL S

API GL-4/GL-5
API MT-1

Gearbox and drive gear oil complying with both API GL-4 and GL-5 requirements and is a TDL (Total Drive Line) oil. For power transmission of MAN trucks. MAN 341 Typ Z2, MAN 342 Typ M3, MAN 341 Typ E3, (M 3343 Typ S), Mercedes Benz 235.8, Scania STO 1:0, SAE J2360, Volvo 97312, Mack GO-J, ZF TE-ML 02B, 05B, 07A, 12B, 16F, 17B, 19C.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C
2408	75W-90	868	107	15,3	152	192	-54	<-45

Neste Hypoidi S

API GL-5

Fully synthetic gearbox and drive gear oils for year-round use. Excellent in retaining their properties in extreme cold while lowering friction and fuel consumption. SAE 90 or 140 summer classifications and powerful EP, in other words extreme pressure additives, guarantee lubrication also in summer use. Ideal oils for year-round use in even the most demanding climate conditions. Exceed quality specification MIL-L-2105D. SAE 75W-90 primarily for passenger cars and vans, SAE 75W-140 for heavy equipment.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C	Cold viscosity cP/-40 °C
2009	75W-90	886	86	14,7	180	220	-54	-55	30000
2014	75W-140	857	172	25	181	220	-48	<-45	110000

Neste Hypoidi LS

API GL-5

Special hypoid oil for lubrication of differential gears equipped with a friction lock. Complies with, for example, the MIL-L-2015D specification. Locking differential oil.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C
2428	80W-90	890	125	14,1	113	215	-36	<-35

Neste Hypoidi LF

API GL-5

Synthetic year-round fuel-saving drive gear oils with EP additive for differential gears of passenger cars, trucks and buses as well as gearboxes of earthmovers and forest machines. In addition to drive gears can be used in manual gearboxes if the use of GL-5 level oils has not been specifically prohibited. SAE classification 80W(77W)-90 indicates the superiority of Neste Hypoidi LF compared to SAE 80W-90 oils. The viscosity of the oil in freezing temperatures is in a class of its own compared to mineral and partly synthetic oils. SAE 80W-140 strength is meant for year-round use in the drive gears and gearboxes of some heavily burdened trucks and earthmovers. Exceed quality specification MIL-L-2105D.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Tunneling point °C	Cold viscosity cP/-40 °C
2424	80W(77W)-90	850	87	14,3	170	210	<-35	11000/-26
2426	80W-140	850	177	25,2	176	225	<-35	28000/-26

Neste Hypoidi MP

API GL-5

Drive gear oils with extreme pressure, EP, additive for differential gears of passenger cars, trucks and buses as well as gearboxes of earthmovers and forest machines. Can also be used in manual gearboxes if the use of GL-5 level oils has not been specifically prohibited. SAE 80W-90 is a multigrade oil for year-round use. SAE 80W-140 is a synthetic heavy equipment drive gear and gearbox oil with good cold viscosity and excellent lubrication and wear resistance capability in heavy use. Exceed quality specification MIL-L-2105D, MB-Approval 235.0 (SAE 90).

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C	Cold viscosity cP/-40 °C
2419	80W-90	897	128	14,0	107	224	-30	<-35	90000/-26
2214	80W-140	856	190	25,7	170	218	-39	<-35	38000/-26

Neste Gear S

API GL-4

Fully synthetic gearbox oil for transmissions with quality requirement API: GL-4 (e.g. ZF). Excellent endurance in extremely cold temperatures but retains its lubricating capability also in summer use. EP additives enhance wear resistance while anti-corrosion substances protect the gears and bronze parts of the synchro mechanism. Exceeds quality specification MIL-L-2105. SAE 75W-80 MAN 341 Type E-3, MAN 341 Type Z-4, ZF TE-ML 01L, ZF TE-ML 02L, ZF TE-ML 08, ZF TE-ML 16K, Volvo 97305

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C	Cold viscosity cP/-40 °C
2108	75W-80	860	56	9,5	155	234	-42		
2109	75W-90	843	84	14,5	181	230	-63	-55	29000

Neste Gear EP

API GL-4

EP gearbox oils for year-round use in passenger cars, trucks and buses when the performance requirement is API GL-4, for example ZF gearboxes. EP additives enhance wear resistance but do not interfere with the functioning of synchronization. Exceed quality specifications MIL-L-2105, ZF TE-ML 02A, 16A, 17A, 19A (80W-90).

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C
2508	80W-90	893	127	13,7	103	230	-30	<-35

Neste Gear

API GL-1

Multigrade gearbox oil with anti-corrosion and foaming additives but no EP additives. It helps synchronization to work flawlessly in gearboxes, where the use of EP oils is prohibited.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Tunneling point °C
2509	80W-90	886	138	14,0	100	270	-30	<-35

Neste Gear MJ

API GL-4

Multigrade gearbox-hydraulics oils especially for tractors with gearbox, drive gear and hydraulics in same oil sump and equipped with wet disc brakes. All Gear MJ grades meet API GL-4, Allison C3 and C4, Caterpillar TO-2 and Massey Ferguson MF 1143 quality requirements. In addition, Gear MJ oils meet other Massey Ferguson, Case, Ford and John Deere requirements depending on their respective viscosities. Check the correct grade from a separate product information sheet at www.neste.fi.

Product number		Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	SAE correspondence
2541	MJ	880	80	10,5	116	225	-36	15W-30
2546	MJ 46	881	44	8	156	228	-39	5W-20
2238	MJ Super	867	64	10,8	160	226	-39	5W-30

Neste Gear TO-4

API GL-4

Neste Gear TO-4 oils are special gearbox oils, which meet the most recent Caterpillar TO-4 and Allison C4 quality requirements. They provide the gearbox operation with correct friction properties, steady operation of brakes and reduce the wear of gears and other power transmission parts. Neste Gear TO-4 is suitable for use with metallic and paper type friction materials.

Product number	SAE	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
2241	10W	880	35	6	113	220	-36
2243	30	892	92	10,73	100	250	-33

Automatic transmission oils

Neste ATF Multi

Advanced fully synthetic automatic transmission oil. Developed to especially ensure the power transmission in modern automatic transmissions with the latest GM Dexron requirements. Suitable for use also in power steering, hydraulic systems and older automatic transmissions with Dexron or Mercon requirement. Complies with Dexron IID, IIE, III, IIIH, VI requirements and many OEM approvals: BMW, Chrysler, Ford, Honda (not CVT), Hyundai, KIA, Mercedes-Benz, Mitsubishi, Nissan, Subaru, Toyota / Lexus (not hybrids). Check the more detailed suitability from the product information sheet.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity cP/ -40 °C
2940	843	28,5	6,0	163	202	-42	10600

Neste ATF-S

Fully synthetic Dexron IIE -type automatic transmission oil for extremely heavy conditions. Endures freezing temperatures and high operating temperatures extremely well. Complies with Dexron IIE, Allison C3 and C4 as well as Ford M2C-138 CJ, M2C-166 H, Ford Mercon, Caterpillar TO-2 Voith DIWA G 607, G 1363, ZF TE-ML 14 and Mercedes Benz 236.8 requirements. Oil color is red.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity cP/ -40 °C
2010	841	35	7,5	190	230	<-55	10000

Neste ATF-X

Synthetic automatic transmission oil. Exceeds quality requirements: GM Type A Suffix A, GM Dexron IIIG. Allison C3 and C4, Ford M2C-138 CJ, M2C-166 H, Ford Mercon and Voith DIWA. Oil color is red.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity cP/ -40 °C
2930	863	37	7,7	183	208	<-51	18000

Hydraulic oils

Hydraulics are nowadays found in almost all machinery and vehicles used in land construction, forestry, construction or moving and transporting goods. Many earthmovers, diggers, forest machines, etc. are fully hydraulic and almost all trucks have a hydraulic lift, skip, bogie hoist or, at the very least, power steering.

The oil used in a hydraulic system must have the right viscosity, right additives, it must be clean and water-free and it must be uncontaminated by oxidation. Some hydraulics manuals say that up 90% of damage to hydraulics are caused by the oil used. Damages may also be caused by other reasons. These include water, dirt or even sand that has gotten into the oil. Also wrong type of topping up oil or neglecting the periodic change of oil and filters may cause serious damage. Carefully following the manufacturer's instructions ensures the long life and flawless operation of a hydraulic system.

Hydraulic equipment manufacturers determine performance according to various standards. Standards in various countries are very much alike.

Approximate comparison of most well-known hydraulic oil classifications (DIN, ISO, SS)

Hydraulic use	DIN 51524 Osa 1 = HL Osa 2 = HLP Osa 3 = HVLP	ISO 6743-4 HV HM HL	SS 155434	Oil additives, performance
Modern hydraulics used outside, e.g. vehicles year around Pressure > 100 bar	HVLP	HV	AV	Corrosion, oxidation and wear prevention + enhancers of the viscosity index (VI) VI >= 140
Modern hydraulics operated indoors Pressure > 100 bar	HLP	HM	AM	Corrosion, oxidation and wear prevention VI >= 90
Older simple systems Indoor use Pressure < 100 bar	HL	HL	-	Corrosion and oxidation prevention VI >= 70

The correct viscosity for the temperature area is possibly the most important property of an hydraulic oil. This is emphasized in outdoor use due to the fluctuating temperature, which is why most oils for outdoor use are multigrade oils. On start up, oil must flow through the suction pipes to the pump fast enough. If the flow is too slow, the pump will suck in a partial vacuum and starts to cavitate. Recurrent cavitation will damage the pump. Various pumps have different suction capacity and suction pipes in various systems differ from each other. Consequently, there is no generally valid viscosity value but the limit is usually at maximum 1,000–1,500 cSt, which seems to be reasonably realistic value. If the heat-up operation can be performed carefully at low revs, the above value can sometimes be exceeded considerably.

During operation, the oil will thin as it heats up. If it thins too much, the performance of the system will start to suffer due to internal leakages, valves start to stick due to insufficient lubrication and excess wear can occur in the pump.

Minimum viscosity from the perspective of wear is usually considered 10 cSt and from the perspective of performance approx. 14 cSt. Some slowly revolving hydraulic motors require an oil with at least 20 cSt viscosity to function effectively.

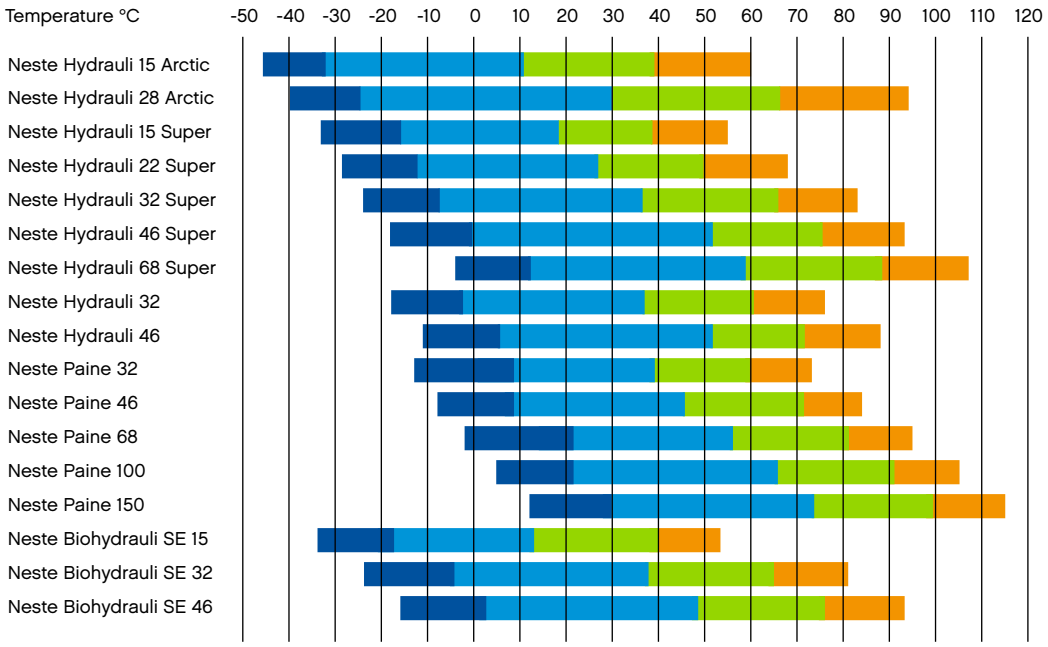
Optimum viscosity

The best viscosity range for continuous operation is approx. 16 to 36 cSt. This will ensure that internal leakage does not occur, which means that the system performance is good, lubrication capability is good and prevents the wear of parts, and the thickness of the oil does not yet cause extra flow resistance.

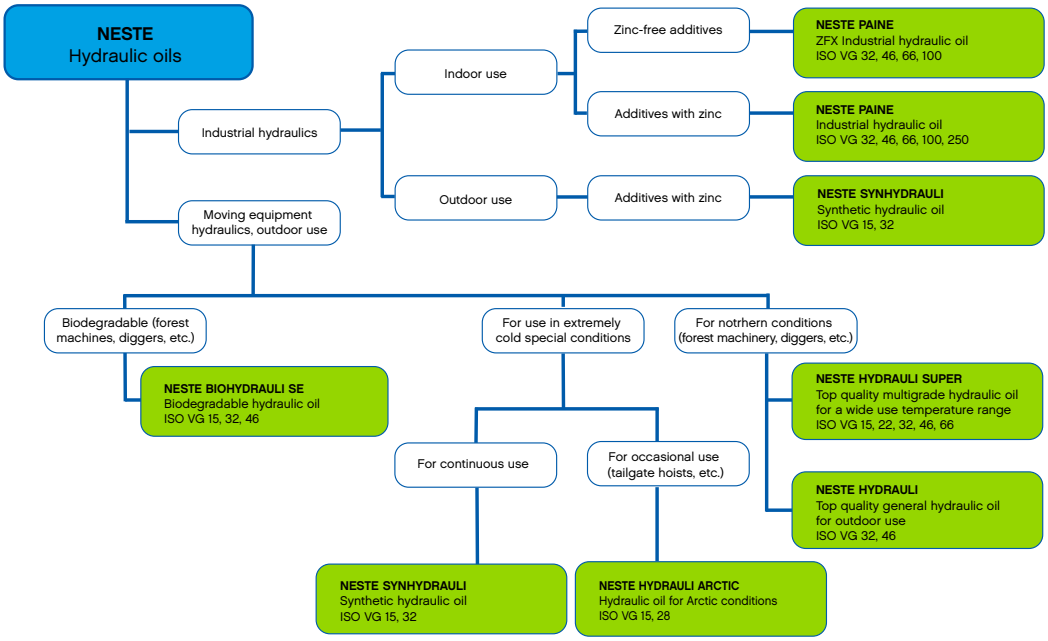
Typical temperature areas

- The lowest allowed operating temperature for a displacement pump (corresponds to viscosity 300–1,000 cSt*)
- The lowest allowed operating temperature for a gear pump (corresponds to viscosity 36–300 cSt*)
- Optimal operating temperature (corresponds to viscosity 16-36 cSt*)
- The highest allowed operating temperature (corresponds to viscosity 10-16 cSt*)

* Viscosity limits are indicative. Check the values recommended by the hydraulics manufacturer.



Selection chart for hydraulic oils



Vehicle hydraulic oils

Neste Hydrauli Arctic

Oils in the Neste Hydrauli Arctic range are multigrade special hydraulic oils for outdoor use with extremely good resistance to freezing conditions. Hydrauli 15 Arctic is an oil suited to arctic conditions and it has exceptionally good cold viscosity which ensures the flawless operation of machinery in freezing temperatures down to -40 °C. Hydrauli 28 Arctic is an oil which can de used on an exceptionally wide temperature range that is also suitable for extreme cold conditions.

Neste Hydrauli Arctic is the right choice especially, when the hydraulic system is used only occasionally and the oil temperature at start-up is very low. Typical use targets for Neste Hydrauli Arctic series products include tailgate hoists, garbage truck hydraulics and deck hydraulics on ships.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity mm²/s(cSt)/-30 °C
3248	15	880	15	5,2	341	118	-59	330
3249	28	881	28	9,2	342	110	-54	600

Neste Multihydrauli

Neste Multihydrauli is a special hydraulic oil for Multilift equipment. It endures low temperatures excellently and prevents wear. It is also suitable as a general oil for surface structures of vehicles.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity mm²/s(cSt)/-30 °C
3224	22	901	22	5,3	189	160	-54	675

Neste Hydrauli Super

Neste Hydrauli Super series oils are outdoor use top quality Super-class multigrade oils with a wide operation temperature range.

Due to their good freeze endurance, Neste Hydrauli 15 and 22 Super are excellently suited for winter use. Neste Hydrauli 32 Super is for year-round use. For heavy summer use, Neste Hydrauli 46 and 68 Super are the right choices. Neste Hydrauli 46 Super is also suited for winter use just as long as preheating is taken care of and the temperature is not too much below freezing.

Neste Hydrauli Super series products are used, for example, in the hydraulics for diggers, forest and earth-moving machines, forklifts and hoists.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity mm²/s(cSt)/-30 °C
3201	15	838	15	4,0	179	200	-51	565
3251	22	853	22	5,1	168	192	-48	664
3230	32	842	32	7,0	190	196	-45	1100
3253	46	849	46	9,1	185	206	-45	2150
3254	68	862	68	11,2	157	227	-42	4930

Neste Hydrauli

Neste Hydrauli is a high quality general hydraulic oil for outdoor use. Neste Hydrauli 32 is for year-round use. Neste Hydrauli 46 is recommended for demanding continuous outdoor hydraulics. Neste Hydrauli series products are typically used in diggers, forest and earth-moving machinery, forklifts, etc.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity mm²/s(cSt)/-30 °C
3206	32	859	32	6,2	144	215	-39	1490
3207	46	862	46	7,9	146	221	-39	3000

Synthetic biodegradable hydraulic oils

Neste Biohydrauli SE

Neste Biohydrauli SE series oils are fully synthetic top quality hydraulic oils, which degrade rapidly in the nature. They do not thin in use, which gives them a long use life. In addition, their high viscosity index gives them a wide operation temperature range. Neste Biohydrauli oils are recommended especially for forest and earth-moving work in groundwater area, in work on waterways, water purification plants, forest machinery, ships and port equipment.

Neste Biohydrauli SE series oils comply with the requirements Svensk Standard SS 15 54 34 BV Miljöanpassad. Their biodegradability is over 80% (OECD 301F).

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C	Cold viscosity mm²/s(cSt)/-30 °C
3210	15	924	15	3,8	155	>200	-39	580
3235	32	910	32	7,1	193	>200	-42	1100
3243	46	919	46	9,1	191	>200	-45	1400

Industrial hydraulic oils

Neste Paine

Neste Paine series oils are used in industrial hydraulic power transmission systems. Additives used in them provide effective protection against wear, corrosion, oxidation and foaming. They are suitable for various industrial pump and engine types. Other use targets include gearboxes, air compressors, mist lubrication equipment, etc. The oils comply with DIN 51524-2 HLP requirements.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3111	32	873	32	5,5	106	214	-33
3119	46	876	46	6,8	104	222	-30
3129	68	881	68	8,9	102	238	-27
3139	100	885	100	11,4	100	244	-27
3149	150	890	150	15,3	103	252	-27

Neste Paine ZFX

Ash-free high quality industrial hydraulic oil. Excellent wear prevention and filterability properties. Complies with the new Denison HF-0 specification, which entails a demanding T6H20C hybrid pump test. Neste Paine ZFX is a high performance oil for various industrial hydraulic systems.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3121	32	872	32	5,3	101	208	-27
3122	46	876	46	6,8	104	220	-27
3123	68	881	68	8,9	103	240	-24
3124	100	885	100	11,3	98	252	-18

Synthetic hydraulic oils

Neste Synhydrauli

Neste Synhydrauli oils are suitable as year-round oils in demanding conditions. Excellent cold and oxidation resistance make them ideal for hydraulic systems operated in varying temperatures.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3203	15	834	15	3,9	169	142	-63
3286	32	836	32	6,3	152	226	-60

Lubricating greases

Lubricating greases are mineral and synthetic oils thickened with various thickeners and soaps. In addition, lubricating greases may contain various additives to improve their lubricating and EP properties as well as corrosion prevention.

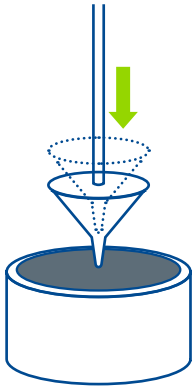
Depending on the demands of the lubrication target, you may choose a lubricating grease with optimal operating temperature, lubricating properties and penetration/viscosity.

Neste lubricating greases are lithium and calcium -based greases containing complex thickeners covering even demanding use targets in traffic and industry.

Penetration

The hardness of a lubricating grease is determined with a test where a metal cone is left to freely sink into the grease at a standard temperature (25 °C) after which the result is given in tenths of millimeter. The higher the NLGI number a grease has, the thicker the grease.

NLGI number	Penetration limits
000	445–475
00	400–430
0	355–385
1	310–340
2	265–295
3	220–250
4	175–205
5	130–160
6	84–115



Thickeners

Performance of a lubricating grease is dependent on the common effect of base oil and additives as well as the properties of the thickener chosen. Typical properties of thickeners:

Lithium

- excellent mechanical strength
- fair water resistance
- good temperature resistance

Lithium complex

- excellent mechanical strength
- good water resistance
- good temperature resistance
- suitable for long maintenance intervals

Calcium (water-free)

- excellent mechanical strength
- good water resistance
- average temperature resistance

Miscibility

	Lithium	Lithium complex	Calcium	Calcium complex	Sodium
Lithium		Yes	Yes	No	No
Lithium complex	Yes		No	No	No
Calcium	Yes	No		No	No
Calcium complex	No	No	No		No
Sodium	No	No	No	No	

Vehicle lubricating greases

Neste MP Grease

DIN 51502: K2K-30
ISO 6743-9:1987 :
ISO-L-XCCIA2

Vehicle chassis and wheel bearing grease. Endures well high temperatures and prevents corrosion caused by water. Attaches well to metal surfaces and prevents wear of bearings. Suitable for year-round use.

Product number	N.L.G.I.-hardness	Density kg/m³ +25 °C	Thickener type	Drop point °C	Operating temperature range °C
7010	2	930	Lithium	190	-30...+120

Neste Molygrease

DIN 51502: KPF2K-30
ISO 6743-9:1987 :
ISO-L-XCCIB2

Special grease containing molybdenum disulfide for heavily burdened sleeve bearings of vehicles and work machinery. Endures well hard and strike-like loads experienced, for example, by digger joints. Stays well in the lubrication point and prevents corrosion. Suitable for year-round use.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7025	2	933	Lithium	188	-30...+110

Neste Superlix EP 2

DIN 51502: KP2N-30
ISO 6743-9:1987 :
ISO-L-XCDIB2

Lithium complex -based multi-use special grease used when the performance of normal greases is insufficient. Difference in performance compared to lithium-based greases is evident as improved performance in demanding conditions. Can provide lubrication in very high temperatures and when the lubrication point is subjected to vibration or strike-like loads.

Recommended in vehicle use in wheel bearings and lubrication of cardan shafts and all lubrication needs in the chassis. In industrial use, the grease is suited for lubrication of sleeve and roller bearings when the properties of lithium-based grease are not enough. Especially well-suited for lubricating bearings in electric motors.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7253	2	930	Lithium complex	260	-30...+150

Neste OH Grease

DIN 51502: KP2K-30
ISO 6743-9:1987 :
ISO-L-XCCIB 2

Red grease made from thick mineral oil and water-free calcium thickener, the special properties of which are excellent sticking and water resistance. It contains excellent EP additives, which prevent the wear of the lubricated points in hard and strike-like loads.

Recommended for the lubrication of cam pins of earth-moving agricultural and forest machinery as well as lubrication points in vehicle chassis. Also suited for slowly rolling sleeve and roller bearing lubrication. Not recommended for lubrication of vehicle wheel bearings.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7026	2	930	Calcium, water-free	150	-30...+120

Neste Center Grease 00 EP

DIN 51502: GB 00 N-30
ISO 6743-9:1987 :
ISO-L-XC DEB 00

For grease-operated centralized lubrication systems in vehicles year around. Center lubrication grease is easy to pump through the thing pipes of lubrication systems also in freezing temperatures. It provides good corrosion protection to the lubrication target and sticks powerfully on metal surfaces.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7410	00	930	Lithium complex	250	-30...+150

Neste Semilix

DIN 51502: KP1.5N-35
ISO 6743-9:1987 :
ISO-L-XCDIB1.5

Partly synthetic special grease for vehicle wheel bearings. Works at wide temperature range. Effectively prevents wear and corrosion. Especially for heavy vehicles.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7017	1,5	910	Lithium complex	>250	-35...+150

Industrial lubricating greases

Neste Avora

DIN 51502: KPGOG0.5N-30
ISO 6743-9:1987 :
ISO-L-XCDIB0.5

Lubrication grease for open gears and steel ropes. Forms a viscous film that endures wear well. Works also in low temperatures and as protection for targets susceptible to water. Available also as aerosol (Neste Avora-Aerosol).

Product number	N.L.G.I.-hardness	Thickener type	Drop point °C	Operating temperature range °C
7110 **7859 (Aerosol)**	0,5	Lithium-calcium complex	>220	-30...+150

Neste Allrex M

DIN 51502: KPF2K-30
ISO 6743-9:1987 :
ISO-L-XCCIB2

Lithium-based EP grease containing molybdenum disulfide for lubricating roller bearings of frame saws.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7015	2	930	Lithium	190	-30...+120

Neste Allrex EP

EP 0: DIN KP0G-30,
ISO-L-XCCFB0
EP 1: DIN KP1K-30,
ISO-L-XCCFB1
EP 2: DIN KP2K-30,
ISO-L-XCCIB2
MAN 283 Li-P, MB 267.0 performance levels
EP 3: DIN KP2.5K-30,
ISO-L-XCCIB2.5

Neste Allrex EP greases are general greases enduring great surface pressure-with better than normal load-bearing resilience. Operating temperature range cover high and low temperatures and mechanical strength and water resistance are good. Moreover, they provide protection against oxidation and corrosion. Neste Allrex EP 0 is half-running grease, which is suited for gear transmissions and centralized lubrication systems. It is also well-suited for grease lubrications of machines operated outdoors especially in winter. Neste Allrex EP 1 is a soft, easily pumpable grease for outdoor use.

Neste Allrex EP 2 is suited for most grease-lubricated targets and also for heavily loaded lubrication targets with strike-like loads. Neste Allrex EP 3 is a quite stiff grease, which sticks to hot lubrication points better than other greases.

Product number		N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7020	**EP 0**	0	920	Lithium	182	-40...+100
7021	**EP 1**	1	930	Lithium	188	-30...+120
7022	**EP 2**	2	950	Lithium	198	-30...+120
7023	**EP 3**	3	940	Lithium	200	-30...+130

Neste Templex

Lithium complex -based pliable grease suited for lubricating hot targets. Used in both sleeve and roller bearings with heavy loads. Neste Templex resists moisture well and protects the lubricated part from rusting.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7013	1,5	930	Lithium complex	285	-20...+175

Neste Couprex

DIN 51502: GOG1G-0
ISO 6743-9:1987 :
ISO-L-XABIB1

For lubricating industrial gear clutches in all conditions. The thickener and the oil form a substance that does separate easily. Contains molybdenum disulfide.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7012	1	940	Litium-PE-kompleksi	>150	-0...+120

Neste Semilix

Multi-use, partly synthetic lubricating grease with a wide operating temperature range. Contains additives preventing wear and corrosion.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7017	1,5	910	Lithium complex	>250	-35...+150

Neste Synlix

DIN 51502: K2N-40
ISO 6743-9:1987 :
ISO-L-XDDIB2

Lubricating grease manufactured from synthetic base liquid for extremely demanding lubrication targets. Good heat, moisture, cold and wear resistance.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7018	1,5	900	Lithium complex	>250	-40...+150

Neste Synlix LT

DIN 51502: KPHC2K-55
ISO 6743-9:1987 :
ISO-L-XECIB2

Lubricating grease manufactured from synthetic base liquid and lithium complex thickener especially for cold conditions.

Product number	N.L.G.I.-hardness	Density kg/m³ +20 °C	Thickener type	Drop point °C	Operating temperature range °C
7019	2	900	Lithium complex	>260	-54...+120

Neste Keidi W, S

Half-running lubricant containing petrolatum with a low drop point. Used in sawmill guide track lubricator lubrication. S = summer use and W = winter use.

Product number	Density kg/m³ +15 °C
7156 (S)	886
7159 (W)	884

Industrial lubricants

Important to take into account when choosing a lubricant

- Equipment manufacturer's recommendations
- Operating temperature/fluctuations
- Viscosity
- Load and/or pressure
- Running speed/speed of rotation
- Lubrication method/lubrication system
- System volume
- Nature/Environment/User

Also pay attention to

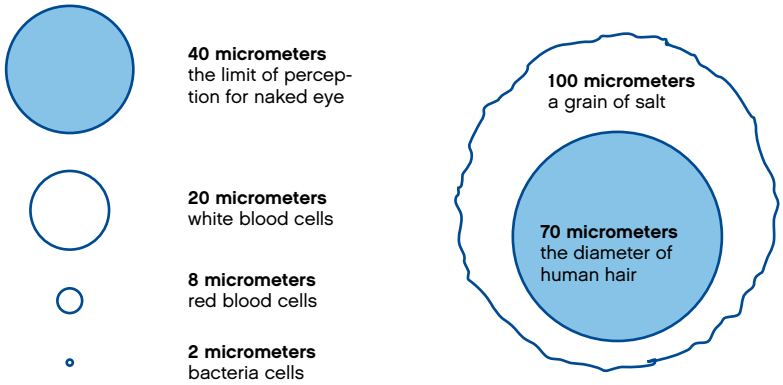
- Whether the oil system has been emptied properly
- Oil filtering at topping up stage
- Be aware of over or under-filling the system
- Using the right product
- Impurities, contaminations
- Not forgetting to check/change oil filters
- Breather air filter
- Access of water into system, removal of water
- Regular monitoring of oil condition
- Leaking seals/condition of seals

Oil purity

The importance of purity to lubricant system cannot be overstated. Even a small amount imperceptible dirt may paralyze even a large system and cause costly repairs. Free play in, for example, pumps and valves may be approx. 1 to 15 m (one thousandth of millimeter), which means that hard dirt particles the size of free play, for example sand dust (silicon) or metal particles are the worst. They may jam the valves when getting lodged in the free play and by scraping precision mechanical metal surfaces. The following table presents typical free play found in lubrication systems.

Component type	Free play micrometers
Gear pump	
gear tip – housing	0,5 – 5
gear - side plate	1 – 1
Vane pump	
vane tip – ring	– 1
vane – side plate	10 – 30
Displacement pump	
piston – cylinder	10 – 30
baffle plate – cylinder group	
Directional control valve	
high pressure	2 – 10
low pressure	10 – 30

Below figure presents particle sizes drawn in the same scale. The worst particles from the perspective of a lubrication system are hard 1 to 20 micron particles invisible to naked eye.

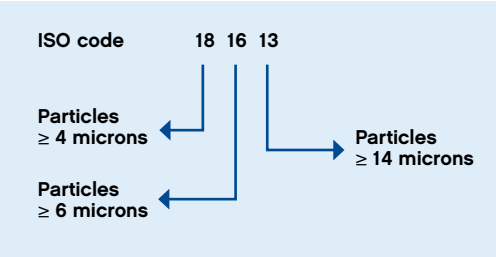


Entry of dirt, for example, in circulation lubrication or hydraulic system is prevented by flushing it before commissioning with new filtered hydraulic oil. If possible, the system is filled through its own filters or a separate filter unit. All maintenance and repair work must be performed in clean and dust-free facilities. Opened parts of the system must be carefully covered from outside dirt and dust. However, dirt will accumulate in the system during running no matter how well it is covered. For example, hydraulic cylinder arms bring in outside impurities through the seals. The 'natural' wear of the system creates metallic particles and fine-grained dirt causes "sand-blasting-like" wear when it, for example, hits the walls at pipe turns and spindle edges at a fast speed. Therefore, it is important to remove dirt continuously to retain sufficient cleanliness level.

In order to remove dirt, it is necessary to use appropriate filters and ensure that they are in good condition. Instructions are provided by the equipment manufacturer. The container's breather vent must have as fine of filter as the main filters of the system. During oil change, the sediment collected at the bottom of the container will be removed if it is possible. When needed, the whole system will be flushed with oil normally used in the system.

ISO 4406 method will be used for indicating the purity of the lubricating oil. The classification is based on calculating the number of particles included in an oil sample, either by a microscope or an automatic calculator. In the ISO method, particles are divided in three different size groups; ≥ 4 µm, ≥ 6 µm ja ≥ 14 µm.

Range Number	Micron	Actual Particle Count Range (per ml)
18	≥ 4	1.300 – 2.500
16	≥ 6	320 – 640
13	≥ 14	40 – 80



Oil condition monitoring

Monitoring the condition of oil is a crucial part of securing the operation of production equipment and the more critical the monitoring target is, the more important it is. Condition of lubrication systems is monitored with oil analyses, which provide information about the condition of the system. Preventive maintenance measures can be undertaken immediately during production turnarounds. Regular oil analysis prevents unmanaged turnarounds.

The location of our technology center in Finland gives us good opportunities to provide fast service that takes the needs of industry into account.

Circulation lubrication

Circulation lubrication systems are used when a large number of bearings and gears are to be lubricated in a centralized manner. Circulation lubrication is also capable of handling the cooling of lubrication targets. In addition, it gives the opportunity to control the oil condition well.

Circulation lubrication is most typically used in forest industry (paper, carton and pulp machines, thermomechanical pulp refiners, sanders, rollers, etc.). Turbines and steel industry use large-scale circulation lubrication systems. Printing presses are also circulation-lubricated.

Viscosity of the circulation lubrication oil plays the decisive role in the service life of bearings. The rule of thumb is; the lower the running speed, the higher the viscosity of bearings.

A great deal is demanded from the oil in circulation lubrication, since the system needs to function at varying temperatures and remove outside impurities such as wear particles, oxidation products, water and air bubbles.

Circulation lubrication oil must have good anti-corrosive properties. For example, ASTM D665 -test B, which is performed with synthetic salt water, provides a good understanding of an oil's capability to protect lubricated surfaces from rust.

The time spent on air release is mostly affected by the oil viscosity. Additives used also have a role but not as significant as viscosity. When put under pressure air in the oil may cause cavitation in the pump and pressure strikes in the pipes. Moreover, bearings do not have an oil film at the air bubble. For this reason, good air release properties and selection of the right viscosity class are crucial.

Foaming of oil is different from air in the oil. When oil foams, the difference between foam and clear oil is clearly visible, whereas oil containing air is cloudy. Circulation lubrication oils have effective foam prevention additives, which work even in small doses.

The separation time of oil and water is crucially affected by oil density. The closer the oil density to water density, the worse the separation of oil and water. If a container has been measured large enough, water will sink to the bottom of the container. The thinner the oil, the more effective the separation.

A circulation lubrication system must be flushed before commissioning. Thin mineral or synthetic oils are usually used as purging oils, for example products in Neste Kierto line are well-suited for system flushing.

Classifications of industrial lubricants

At international level

- ISO

National standardization organizations, such as

- ASTM (USA)
- DIN (GERMANY)
- BSS (UNITED KINGDOM)
- AFNOR (FRANCE)
- SS (SWEDEN)

Many large equipment manufacturers also set their own quality and performance requirements (specifications). E.g.

- SKF (Bearings)
- FAG (Bearings)
- Parker Denison (Hydraulics)
- EATON VICKERS (Hydraulics)
- Bosch Rexroth (Hydraulics)
- DAVID BROWN (Gears)
- Flender (Gears)
- CINCINNATI MILACRON (Hydraulics)

In addition, some industrial organizations have prepared their own standards and set quality/performance requirements for lubricants, including

- AGMA (American transmission manufacturers)
- US STEEL
- GERMAN STEEL INDUSTRY
- VDMA (German equipment manufacturers)

Turbine oils

Neste Turbine

Neste Turbine series is aimed at turbine systems. They are recommended for lubrication of electric motors, air compressors, fast cog wheel gears, steam and water turbine's hydrostatic systems. Neste Turbine oils have an excellent oxidation and heat resistance and long service life.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3000	32	872	32	5,6	114	222	-33
3010	46	873	46	6,8	102	234	-36
3024	68	877	68	8,8	102	254	-27

Neste Turbine GT ja Turbine GT EP

Oils in Neste Turbine GT product range are developed especially for gas turbines. They are manufactured from high quality aromate-free base oils and additives against ash generation, which ensures long service life even at high temperatures.

Neste Turbine GT series oils are also suited for lubrication of bearings in water and steam turbines. Neste Turbine GT EP series oils are used in turbine systems, where the gear reducer is in the same oil system as turbine bearing lubrication.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3096	32	838	32	5,8	127	244	-12
3093	32 EP	838	32	5,8	127	244	-12
3097	46	847	46	7,8	138	234	-24
3094	46 EP	847	46	7,8	138	234	-24
3098	68	842	68	10,7	146	240	-18
3095	68 EP	842	68	10,7	146	240	-18

Paper machine oils

Neste Paperikone D

Oils in Neste Paperikone D series are circulation lubrication oils for paper machines. They are suited for conditions demanding good wear and heat resistance.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3050	150	888	150	14,7	97	257	-12
3065	220	894	220	18,9	96	270	-12

Neste Beta ZFX

Neste Beta ZFX paper machine oils are based on eco-friendly metal-free additive technology. Their additives prevent the formation of carbon build-up and settling in hot bearings and reduce wear. Neste Beta ZFX oils have now better than before paper chemical tolerance.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3031	68	881	68	8,9	103	224	-9
3032	100	885	100	11,3	97	238	-6
3033	150	890	150	14,6	93	234	-6
3034	220	895	220	19,1	93	232	-6
3036	460	900	470	31	96	234	-6

Synthetic paper machine oils

Neste Lamda ZF

Neste Lamda ZF oils are synthetic paper machine circulation lubrication oils with an especially wide operating temperature range. Due to being synthetic, Neste Lamda ZF are extremely good at tolerating extremely high temperatures. Neste Lamda ZF series oils provide excellent filterability, tolerance of paper chemicals and wear protection.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3043	68	840	68	11,0	154	266	-57
3052	100	842	100	14,3	147	242	-51
3053	150	842	150	20,2	156	236	-51
3064	220	844	220	30,0	178	268	-51

Circulation lubrication and machine oils

Neste Kierto

Neste Kierto series oils are circulation lubrication and single lubrication oils for various lubrication targets in industry. They can be used in reasonable operating conditions and when there is no need for special pressure resistance and the lubrication target is not susceptible to moisture.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3309	22	867	22	4,4	109	208	-33
3319	68	878	68	8,8	102	240	-33
3329	150	890	150	14,8	98	243	-33
3339	320	896	320	23,0	96	296	-18

Neste Sitko

Neste Sitko lubrication oils are suitable for lubricating sawmills, conveyors, log hoists, sliding surfaces, etc. Due to their good sticking properties, they will stay on vertical surfaces without running. Neste Sitko 68 is the winter quality and Neste Sitko 220 the summer quality.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3659	68	876	68	9,2	112	251	-33
3669	220	889	220	19,3	99	296	-15

Spindle bearing oils

Neste Kara

Neste Kara oils are extremely thin spindle bearing oils for fast rotating machine tools and other targets requiring very thin lubricating oil. Neste Kara oils contain additives preventing wear and foaming.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity kinem mm²/s 40 °C	Flash point (COC) °C
3106	10	837	10	152

Industrial gearbox oils

Neste Vaihteisto EP

Neste Vaihteisto EP series oils are industrial gearbox oils with EP additives. Neste Vaihteisto EP oils have excellent oxidation, pressure and wear resistance even at high temperatures, which gives them a long service life. Neste Vaihteisto EP oils do not foam and have good corrosion and water separation capability. Neste Vaihteisto EP products are used in heavily loaded and high-temperature industrial cog wheel and worm with pressure resistance requirement exceeding FZG 12.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3409	68	880	68	8,8	102	242	-33
3419	100	883	100	11,4	100	247	-30
3429	150	886	150	14,9	98	262	-21
3439	220	892	220	19,0	97	226	-24
3449	320	898	320	24,2	96	256	-12
3459	460	902	460	31,1	98	278	-15
3472	680	902	680	41,7	102	268	-12

Synthetic industrial gearbox oils

Neste Vaihteisto SEP

Neste Vaihteisto SEP series oils are synthetic industrial gearbox oils with extreme pressure (EP), oxidation prevention and anti-corrosive additives. They have good cold flow properties and excellent resistance to high operating temperatures. They decrease friction more effectively and lubricate better than normal mineral oils and consequently decrease transmission power losses. FZG load rate is over 12.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3479	100	840	100	14,7	152	220	-55
3481	150	848	150	20,1	155	266	-48
3484	220	849	220	26,5	158	238	-48
3489	320	850	320	36,2	160	250	-48
3496	460	852	460	47,0	160	280	-39

Quenching Oil

Neste Quenching Oil F

Neste Quenching Oil F is a high quality quenching oil, which is especially suitable when the aim is fast quenching with minimal shape changes. Additives used improve the touch between the object to be quenched and the oil and give the oil top class heat and oxidation resistance.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
4068	842	16,0	3,7	114	208	-27

Synthetic foodstuff quality lubricating oils

Nexlube AW

Nexlube AW oils are fully synthetic lubricating oils approved by food authorities and complying with purity requirements in pharmacopoeia. They have excellent cold use properties and extremely good resistance at high temperatures. Nexlube AW oils have additives approved by FDA. Therefore, they are well-suited for use in food, cosmetics and pharmaceutical industries, where the lubricant can get into contact with the product.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
4611	32	831	32	6,2	146	240	-57
4613	68	837	68	11,3	160	238	-54

Guide oils

Neste Johde

Neste Johde series oils are for lubrication of machine tool, such as planes, grinders, millers and lathes, guides as well as slide surfaces. The oils can be used for eliminating stick slip occurring in machine tools to ensure start up without a hitch. This will ensure very good surface quality to the object being worked on and reduce the need for power, which in turn will increase the productivity of the machine.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3809	32	872	32	5,5	109	222	-39
3819	68	880	68	9,0	106	244	-24
3839	220	893	220	19,9	104	246	-21

Heat transfer oils

Neste Lämmönsiirto M and N

Neste Lämmönsiirto M and N oils are heat transfer oils with good heat resistance, oxidation resistance and heat-dynamic properties. Their operating range in closed heat transfer systems is -10–+320 °C.

Product number		Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3371	**M**	826	19	4,1	116	220	-21
3370	**N**	870	31	5,4	106	226	-24

Neste Lämmönsiirto S 8

Neste Lämmönsiirto S 8 is a fully synthetic heat transfer oil with a lower steam pressure and higher flash point than normal oils. It is excellent in tolerating continuous high temperatures and does not create carbon build-up or sludge in system parts. It is also recommended when startup takes place in low temperatures. Suitable operating temperature range in circulation pump systems is -40–+320 °C.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3378	833	47	7,8	136	262	-57

Air compressor oils

Neste Kompressori

Neste Kompressori series is used in local compressors and vacuum pumps when good oxidation resistance and low carbon build-up are required from the lubricating oil. Neste Kompressori oils contain additives against ash generation and have good oxidation resistance.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3513	68	874	68	8,8	102	254	-24
3519	100	882	100	11,3	98	268	-24
3529	150	885	150	14,7	96	280	-21
3532	220	897	220	19,3	99	270	-24

Synthetic compressor oils

Neste Kompressori S

Neste Kompressori S series oils are synthetic compressor oils with excellent cold properties and high viscosity index. They contain additives against ash generation, wear, foaming and corrosion. Due to the good inherent oxidation resistance of the base oil, the formation of carbon build-up is prevented and oil change intervals lengthened.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3494	32	845	32	6,1	140	238	-60
3498	46	848	46	7,9	141	254	-57
3497	68	838	68	10,6	144	260	-60

Air tool oil

Neste Ilmatyö

Neste Ilmatyö oils have been developed to comply with special requirements of air tool lubrication. Neste Ilmatyö oils have a good sticking ability and pressure resistance in addition to which they effectively prevent wear.

Product number	ISO VG class	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
3539	46	875	48	7,5	118	250	-33
3549	100	889	100	11,6	104	266	-18

Transformer oils

Neste Trafo 10X

Neste Trafo 10X is a high quality transformer oil especially suitable for use when good cooling ability is required from the oil. Neste Trafo 10X transformer oil is recommended for transformers, oil switches and other electric devices as insulating oil. The product complies with IEC 60296 I-40 °C requirements.

Product number	Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C	Pour point °C
4140	877	7,6	144	-63

Neste Katkaisija 3X

Neste Katkaisija 3X is a high quality transformer oil with a very low pour point, which ensures operational reliability in exceptionally low temperatures. It has high dielectric strength, low electricity losses, good oxidation resistance and good cooling ability. Complies with IEC 60296 I-40 °C requirements.

Product number	Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C	Pour point °C
5059	860	5,0	over 100	below -70

Form oils

Neste Muotti L, M

Neste Muotti L and M form oils are used in moulds in element industry when good detachment ability and surface quality are required. They are spread with a spray nozzle or a brush. Thin layers are recommended.

Neste Muotti series products provide good corrosion protection.

Product number		Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C	Pour point °C
4109	**L**	822	3,4	85	-48
4133	**M**	832	6,3	94	-48

Anti-corrosive agents

Neste Suojaöljy LO

Neste Suojaöljy LO is an anti-corrosive agent for iron and steel objects. It can be spread by dipping or spraying. Protection time is approx. 6 months in a covered outdoor storage. Neste Suojaöljy LO does not contain solvents.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
4829	876	35	5,9	111	228	-36

Neste Suojaöljy 30

Neste Suojaöljy 30 is a special oil with extremely good anti-corrosive agents for long-term storage of engines and gearboxes.

Product number	Density kg/m³ +15 °C	Viscosity mm²/s (cSt) 40 °C	100 °C	Viscosity index	Flash point (COC) °C	Pour point °C
4832	888	94,2	11,2	105	246	-33

White oil

Neste Technical White Oil S

Neste Technical White Oil S is a fully synthetic oil complying with quality requirements for technical white oil. The oil endures freezing temperatures and high temperatures extremely well. Evaporation loss is minimal. Oil is used, for example, in food and technical medical industry applications, such as nitrogen, carbon dioxide and air compressors.

Product number	Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C	Pour point °C
4710	22	18	223	-69

Biodegradable saw chain oil

Neste Biosaw

Neste Biosaw is a vegetable oil -based biodegradable saw chain oil. It has good cold flow properties and resin dissolving ability. Neste Biosaw has good lubricating properties and it decreases the wear of the saw chain and the flange.

Product number	Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C	Pour point °C
5510	920	70	300	-39

Machining fluids

Machining fluids

Metal removal is the most common machining method. These methods include lathing, drilling, planing, reaming and grinding.

Machining fluids are used as cooling and lubricating agents and they are used for lubrication, cooling, purging chips created and giving protection against corrosion all through the process.

Three main types of machining fluids are oils, emulsions and aqueous solutions. Each type has their special properties:

Oils: Good lubrication ability + possible EP additives + lower cooling ability

Emulsions: Good cooling ability + lower lubricating ability + possible EP additives

Aqueous solutions: Excellent cooling ability + lower lubricating ability

Additives

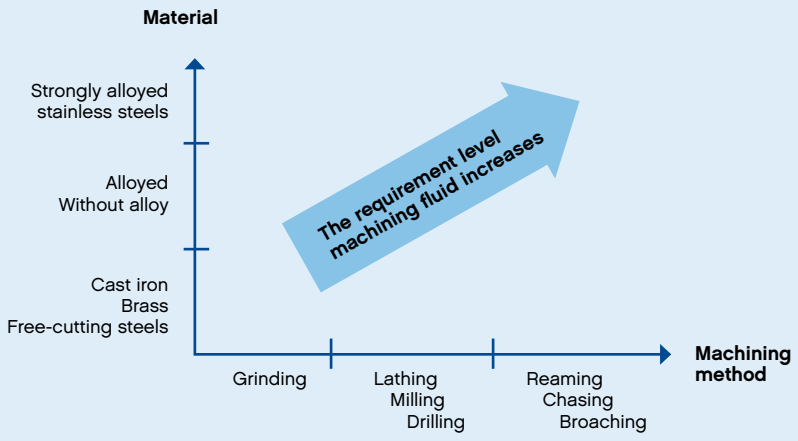
Typical additives used in machining fluids include

- EP additives enhancing lubrication in high temperatures. May darken yellow metals.
- Anti-corrosive agents protecting machines and objects worked on from corrosion.
- Anti-foam agents used to prevent the foaming of water soluble machining liquids in particular.
- Emulgators generating oil-water emulsion.
- Biocides, which protect emulsions and aqueous solutions from micro-organisms thus lengthening the service life of machining fluids.

Choosing a machining fluid

Machining methods and values, the requirements of the metal worked on, tool properties as well as other conditions determine which machining liquids will be used. Difficult materials and slow machining methods emphasize good lubricating ability and EP properties, in which case the right choice often is a machining oil. Correspondingly, fast machining methods require very good cooling ability and the best result is often achieved with aqueous solutions. Emulsions combine the good lubrication and cooling properties and they are often suitable for even more demanding machining tasks.

Machining fluids in working metals



Machining oils

Neste Cutting Neatoil 15

Neste Cutting Neatoil 15 is an active machining oil based on paraffinic base oil and effective chlorine-free additives.

Sphere of use: Neste Cutting Neatoil 15 oil is recommended for demanding machining of low and high-alloyed steels, deep hole drilling and especially cog grinding.

Product number		Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C
3995	**15**	877	16	162

Neste Cutting Neatoil 200

Neste Cutting Neatoil 200 is a clear and almost odorless machining oil containing EP additives. Effective chlorine-free additives enable good surface quality and tool life at maximum settings.

Sphere of use: Neste Cutting Neatoil 200 is suited for reaming, drilling, lathing, broaching and chasing of high-alloy, stainless steels and cast iron. It is also suitable for steel die-cutting and pulling.

Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C
877	16	162

Neste Cutting Neatoil K1

Neste Cutting Neatoil K1 is a clear, chlorine-free, low cloudiness and almost odorless general machining oil.

Sphere of use: Due to its additives, Neste Cutting Neatoil K1 is suited for even quite demanding machining of free-cutting and alloyed steels and yellow metals. Thanks to its wide sphere of use, it is a suitable option for production where various metals are machined using a variety of methods.

Product number	Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C
4004	878	31	226

Neste Cutting Neatoil MT 13

Neste Cutting Neatoil MT 13 is a light and almost odorless oil suitable for general machining.

Sphere of use: Neste Cutting Neatoil MT 13 is suited for general machining of low-allow steels and especially yellow metals. Does not color copper or brass alloys. Balanced chlorine-free additives combined with good cooling ability enable good surface quality and tool life.

Product number		Density kg/m³ +20 °C	Viscosity kinem mm²/s 40°C	Flash point (COC) °C
4006	**MT 13**	850	13	183

Machining fluids: emulsions

Neste Cutting 100

Neste Cutting 100 is a mineral oil -based machining fluid which forms a milk-like emulsion when mixed with water and has good lubrication and cooling properties. Contains additives against both bacteria and fungoid growths.

Sphere of use: Neste Cutting 100 is suitable for chipping of most common metals, such as general machining of steel, aluminum and brass, lathing, drilling, sawing as well as grinding of steel and cast iron. Also suitable for resin protection at sawmills.

Mix: The best results are achieved when the concentrate is added to water. General machining to non-iron metals min. 3%, grinding and general machining (steel) min. 4%, grinding and general machining (cast iron) min. with 5% mix proportion.

Storage: Warm space.

Product number	(Concentrate) Density kg/m^3 +15 °C	(Concentrate) Viscosity kinem mm^2/s 40 °C	pH 10 % solution	Anti-corrosion test DIN 51360	Refractometer index
3970	910	35	9,1	P2 approved	0,9

Neste Cutting F 110

Neste Cutting F 110 is a partly synthetic cutting fluid concentrate forming a fine translucent emulsion when added to water. The product contains chlorine-free wear resistance/EP additives and when mixed with water forms a very sustained, long-life anti-corrosive emulsion, which also provides good protection against bacteria, yeast and fungoid growths.

Sphere of use: Neste Cutting F 110 is suited for general machining of alloy steels, aluminum and copper, lathing, reaming, chasing, drilling, sawing and grinding.

Mix: The best results are achieved when the concentrate is added to water. General machining with min 4%, aluminum machining with min 5%, steel grinding with min 4% mixing proportions.

Storage: Warm space.

Product number	(Concentrate) Density kg/m^3 +15 °C	(Concentrate) Viscosity kinem mm^2/s 40 °C	pH 10 % solution	Anti-corrosion test DIN 51360	Refractometer index
3973	1030	48	9,3	P2 approved	1,4

Emulsion system cleaner

Neste System Cleaner

Neste System Cleaner is an effective cleaner/disinfectant of water-based machining emulsions.

Sphere of use: Suited for cleaning most machines and systems using water-soluble machining fluids. Does not contain alkanolamine, heavy metal compounds, phenols, hexahydro triazine or nitrite.

Use recommendation: Neste System Cleaner is added to the machining fluid used in proportion 1–2% and circled for 8–12 hours in the system. In extremely dirty systems, the time recommended in 24 hours. Does not affect the pH or foaming level of the machining fluid.

Product number	Density	pH/sealant	pH/2 %
3978	1028	10,3	9,8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NESTE OIL

Car chemicals and detergents

Coolants

Neste coolants are either ethylene of propylene glycol -based coolants suitable for cooling systems of mobile fleet. Glycols used as the base fluid provide good protection against freezing and varied additives protect the cooling system components from corrosion.

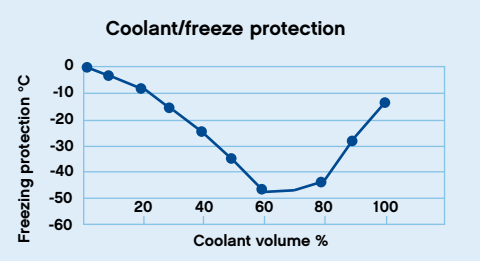
Change interval

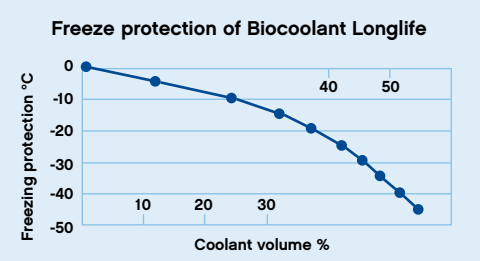
The additives used in the coolant dictate its performance, which together with the engine manufacturer's recommendations determine the change interval.

Freeze resistance and its measurement

The freeze resistance of ethylene glycol -based coolants can be measured either with a gravimeter or a refractometer. However, measurement with gravimeter may produce inaccurate results due to, for example, impurities and additives included in the coolant. In most cases, refractometer gives more accurate results.

Measurement of propylene glycol -based coolants (Neste Biocoolant Longlife) cannot be performed with a gravimeter, because when the specific gravity of water and base glycol is almost the same, the propylene glycol volume cannot be determined. In this case, refractometer is the correct usable measuring device.





It is not recommended that different coolants are mixed, but during topping up of anti-freeze agent (To improve freeze resistance) Neste Jäähdytinneste and Neste Super -jäähdytinneste XLC can be mixed when needed. Even then it is recommended that a single coolant is changed to the system as soon as possible. Ethylene and propylene glycol -based coolants must not be mixed.

Neste Super-jäähdytinneste XLC + Ready

Ethylene glycol -based, "long change interval" coolant, the technical properties of which are top quality with regard to anti-corrosion, heat transfer and service life. Good freeze resistance combined with high boiling point ensures engine operation in extreme conditions. Complies with, for example, BS, ASTM, AFNOR standards and requirements of numerous engine manufacturers including MB-Approval 325.3 & MAN 324 type SNF. Mix rate 50:50 gives approx. -37 °C freeze resistance. Change interval recommendation: up to five years, taking the engine manufacturer's recommendation into account. Available also as ready-to-use coolant, Neste Superjäähdytinneste XLC Ready.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7735 7738 (Ready)	1116	8,6	Red	Below: -37 °C

Neste Super-jäähdytinneste W

Long change interval concentrate for VAG Group cars (Audi, Seat, Skoda, Volkswagen). Top quality corrosion protection to all engine metal and aluminum parts. Does not contain borates, nitrites, amines or phosphates detrimental to the environment. Complies with or exceeds the following requirements: G13 (TL-774 J), G11, G12+ and G12++.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7739	1140	8-8,5	Pink	-35 °C

Neste Coolant Longlife M

Long change interval coolant concentrate especially for cars with MB 325.5 requirement. Top quality corrosion protection to all engine metal and aluminum parts. Does not contain borates, nitrites, amines or phosphates detrimental to the environment. MB-approval 325.5 and MAN 324 Typ Si-OAT-approved. Suitable for Scania starting from 2008.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7734	1123	8,2-8,6	Red	-38 °C

Neste Coolant Longlife K

Long change interval coolant concentrate especially for cars with Volvo VCS requirement. Top quality corrosion protection to all engine metal and aluminum parts. Does not contain nitrites, silicates, phosphates or borates.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7741	1116	8,6	Yellow	-37 °C

Neste Jäähdytinneste + Ready

Ethylene glycol -based coolant which contains effective anti-corrosive and anti-foaming additives. Exceeds both BS6580/1992, BS6580/2010 and ASTM D 3306 performance requirements and is suitable for both gasoline and diesel engines. Mix rate 50:50 gives approx. -36 °C freezing protection. Change interval recommendation: Annually. Available also as ready-to-use coolant, Neste Jäähdytinneste Ready.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7701 **7702 (Ready)**	1120	8,1	Green	Below: -36 °C

Neste Biocoolant Longlife

Neste Biocoolant Longlife is eco-friendly long change interval biodegradable coolant. It protects the sensitive components of modern engines and when coming into contact with the natural environment joins its cycle by degrading completely. The product does not contain silicates or nitrites. The change interval of the product is as long as 5 years.

Product number	Density kg/m³	pH 50 % solution	Color	50 % solution freezing protection
7721	1042	8,3	Orange	Below: -38 °C

Windshield washing fluids

A great deal is demanded from windshield washing fluids used in vehicles. It must keep the windshield clean of dirt all year around and protect the windshield wipers from soiling. It must not foam or form a film on the windshield. In addition, it must prevent freezing of the washing system during cold seasons.

All windshield washing fluids in Voltera range are ethanol-based and eco-friendly and do not contain poisonous methanol. In addition to good freezing point, they share good technical and operating properties: they are economical in use, suite year-round use, are easy to pour from the packaging and have a pleasant odor. Undiluted fluid can also be used for cleaning soiled windshield wipers.

Neste Voltera Strong

Ethanol-based windshield wiper fluid concentrate to be mixed with water, which effectively removes road dust and insects. Freezing point with 1:1 blend -30 °C and with 1:2 blend -17 °C. In summer, 1:10 blend can be used. Does not contain methanol. Blue.

Product number	7640

Neste Voltera Citrus

Ethanol-based citrus-scented windshield wiper fluid to be mixed with water. Freezing point with 1:1 blend -15 °C and with 1:2 blend -7 °C. In summer, 1:10 blend can be used. Does not contain methanol. Yellow.

Product number	7642

Neste Voltera Pro

Neste Voltera Pro is a next-generation, ready-to-use windshield washer fluid. Its unique additives based on nanotechnology forms an invisible and reflection-free protective film on the windshield which protects it from water and dirt. Freezing point: -21.

Product number	7643

Neste Voltera Ready

Ready-to-use ethanol-based windshield washing fluid.
Freezing point -20 °C. Does not contain methanol. Blue. The pouch contains less plastic than a corresponding traditional canister. Can be disposed of by burning.

Product number	764146

Neste Voltera Summer + Ready

Biodegradable windshield washing fluid to be mixed with water. Use during warm seasons. One liter of the concentrate gives you ten liters of ready-to-use windshield washing fluid.
Does not contain odorants or alcohol. To be stored indoors. Light blue in color.
Package size 1 L.

Product number	7646

Also available ready-diluted version, Neste Voltera Summer Ready, package size 3 L.

Product number	7649

Brake fluid

Neste Jarruneste

Brake fluid suitable for all hydraulic brakes. Complies with DOT 3, DOT 4, DOT 5.1 and J1703 requirements.

Product number	Density kg/m³	pH	Color	Type
7920	1050	10	Yellowish	DOT 3, DOT 4 , DOT 5.1

Detergents and car care products

Neste Shampoo

Basic shampoo for year-round use in high-pressure scrubbers and brush car washes. Extremely well-suited for washing heavy equipment, hall floors and walls. Does not damage paint surfaces or rubber and plastic parts. Typical dosage: 5–10% depending on dirtiness

Product number	7591

Neste Pikapesu

Biodegradable general detergent for cars and all dirty surfaces. Use: Sprayed on the dirty surface and rinsed with copious amounts of water after it has been left on the surface for a period to take effect.
Package: 1-liter pump bottle

Product number	7567

Neste Bug Solvent

Prewash detergent which removes insects. Sprayed on the nose and hood of the car before wash. Effectively removes insects and summer dirt.

Product number	7568

Neste Wheelcoat Pro

Protective agent for aluminum wheels. Provides long-term protection for aluminum wheels. Nano additives form an extremely thin protective film on the wheel that prevents dirt from sticking to the wheel. Wheels are easy to wash effectively even with a high-pressure washer without scrubbing.

Product number	7575

Neste Paintcoat Pro

Protective agent for car paint surfaces. Provides long-term protection to car paint surfaces. Nano additives form an extremely thin protective film on the car surface, which prevents dirt from sticking. This also makes cleaning of the car at a car wash more effective.

Product number	7576

AdBlue

Neste AdBlue

AdBlue® is a 32.5% urea-water solution used in SCR diesel vehicles to reduce nitrogen oxide emissions. AdBlue complies with the requirements of the ISO standard no. 22241. Vehicles are equipped with a separate AdBlue tank. Purity is extremely important in using and handling AdBlue. Impurities cause the catalyst to get blocked and shorten its service life. AdBlue consumption is approx. 4 to 5% of diesel fuel consumption. The product freezes at -11 °C.

Product number	7862

Other products

Neste-pienmoottoribensiini 4-T

Neste-pienmoottoribensiini is cleanly burning alkylate gasoline. It is developed to meet the requirements of small combustion engines. Exhaust emissions and odors are lighter than with normal gasoline making its use more pleasant. It is also an excellent fuel for storing and it ensures a good startup of the engine after storage.

Neste-pienmoottoribensiini 4-T is suited for all four-stroke engines: lawnmowers, ATVs, outboard motors, etc.

Product number	7665

Neste-pienmoottoribensiini 2-T

Neste-pienmoottoribensiini is cleanly burning alkylate gasoline. It is developed to meet the requirements of small combustion engines. Exhaust emissions and odors are lighter than with normal gasoline making its use more pleasant. It is also an excellent fuel for storing and it ensures a good startup of the engine after storage.

Neste-pienmoottoribensiini 2-T contains 2% of fully synthetic two-stroke oil, which generates less smoke and is biodegradable.

Neste-pienmoottoribensiini 2-T is suitable for two-stroke engines, such as chainsaws, clearing saws and trimmers.

NB. We recommend using Neste-pienmoottoribensiini 4-T together with two-stroke oil for boat use (e.g. Neste 2-T Marine) in two-stroke boat engines.

Product number	7661

Neste Green Light

Neste Green Light is a fuel for lighting oil lamps and charcoal on a grill. Neste Green Light is manufactured from completely renewable raw materials. It is suitable for lamp oil and lighting charcoal.

Product number	7654

Neste Green Heat

Neste Green Heat is a special fuel for diesel heaters. It is manufactured from completely renewable raw materials. Due to its unique composition, it burns cleanly without smoke and does not generate carbon build-up in the heater. Wallas-approved.

Product number	7656

Neste Valopetroli

Neste Valopetroli is a top quality cleanly burning fuel for kerosene-operated boat and cottage heaters. Wallas-approved.

Product number	7652

Solvents

We provide clean hydrocarbon-based solvents for industrial use. Typical uses include paint and glue production, cleaning, grease removal and extraction processes and various uses in rubber industry. Solvents are available in pre-packaged deliveries.

Nessol solvents

Nessol LIAV 110

Heptane-type dearomatised hydrocarbon solvent. Volatile and highly flammable.
Applications: In rubber industry, activation of rubber parts, oil paint and rubber glue thinner, component in varnish and paint manufacture, washes, cleaning.

Product number	7515

Nessol LIAV 200

Highly purified dearomatised hydrocarbon solvent. Flammable liquid.

Applications: Manufacture of paints and varnishes, tapes and plasters, a thinner for rust prevention substances, in cleaning (greases, oils, wax), dry cleaning.

Product number	7520

Nessol LIAV 230

Highly purified, slowly evaporating, dearomatised hydrocarbon solvent. Combustible liquid.

Applications: In cleaning (greases, rust prevention substances, oils) and as a replacement for paraffin oil, shoe polishes.

Product number	7525

Nessol LIAV 250

Specially purified slowly evaporating dearomatised hydrocarbon solvent. Combustible liquid.

Applications: As a fuel for generating carbon dioxide in greenhouses, fuel in heaters, lighting, aluminum rolling and drilling.

Product number	7530

Nessol LI 200

A hydrocarbon solvent that is also known as mineral turpentine or white spirit. The aromate content of the product is 14–20 vol-%. Flammable liquid.

Applications: General thinner for paints, solvent in the manufacture of surface application agents, as a cleaning agent for painting equipment, various cleaning tasks, grease removal, dry cleaning, thinning of bitumen.

Product number	7503

Emulsifiable hydrocarbon solvents

Nessol LI 200 E

Hydrocarbon solvent which quickly emulsifies with water. Cleans surfaces of road salt, pitch, grease and other dirt. Aromates 10–17 vol-%. More easily evaporating than Nessol LIAV 230 E. Flammable liquid.

Applications: Car and engine wash, cleaning of painting equipment, at printing presses in cleaning of printing inks and impression rollers.

Product number	7555

Nessol LIAV 230 E

Dearomatised slowly evaporating hydrocarbon solvent which emulsifies with water. Can be used as is or mixed with water. Enables rinsing with water. Separates in phases in 45 minutes. Combustible liquid.

Applications: Car and engine wash, cleaning of painting equipment, at printing presses in cleaning of printing inks and impression rollers.

Product number	7565

Printing ink detergents

Neste LIPA 1

Easily evaporating aromate-free printing ink detergent.

A highly flammable liquid.

Applications: Offset rubber cloths, chases and compositions, in metal industry for demanding washes, wash of electro-technical parts.

Product number	7571

Neste LIPA 2

Slowly evaporating aromate-free printing ink detergent.

A highly flammable liquid. Evaporation time double to that of LIPA 1.

Applications: Rubber rollers and cloths and general wash of printing presses.

Product number	7572

Alphabetical index

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