



i-sea

marine lubricants



eni  
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eni lubricants

i-sea



From **eni's research** department comes the eni i-Sea **line** of lubricants, designed **for all types of pleasure craft**, from yachts to dinghies right through to personal watercraft equipped with inboard and outboard **2 and 4-stroke** engines.

There are plenty of reasons  
to choose marina **i-sea** lubricants



#### HIGH BIODEGRADABILITY

The special synthetic esters used offer a high degree of **biodegradability** (67% on the OECD 301F test), **allowing you to significantly reduce impact on aquatic life.**

#### CLEAN ENGINES

The special "ashless" formulation, designed to reduce the formation of carbon deposits in the motor, **ensures optimal operation and better performance.**

#### ANTI-SALINE CORROSION

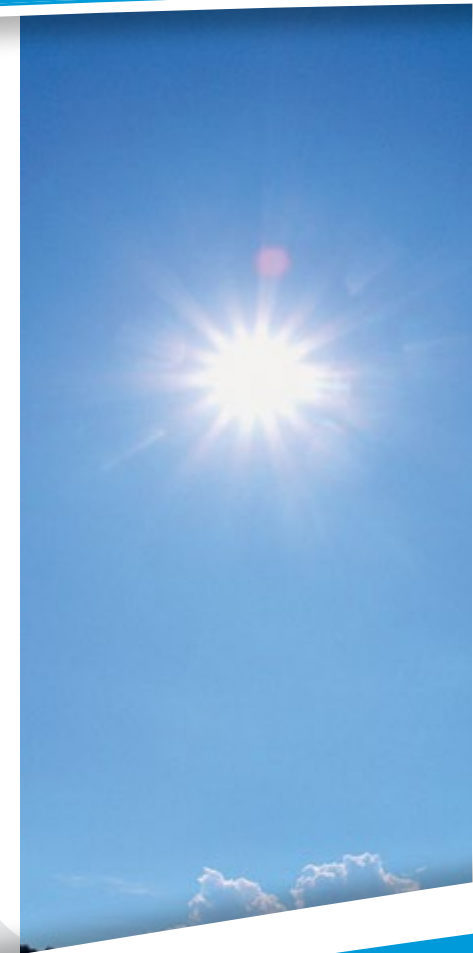
The special additives developed protect against wear and saline corrosion, which are typical of the marine environment, ensuring that the internal components of the engine are **fully protected.**

#### ENGINE LONGEVITY

The good cleansing and dispersing properties keep all engine parts in **perfect working order**, which helps to give it greater longevity.

#### PROLONGED INTERVALS BETWEEN CHANGES

Synthetic bases and antioxidant additives ensure a prolonged **interval between changes.**



# outboard

Lubricants developed specifically for 2 and 4-stroke outboard engines, tested to meet the most demanding international technical reference standards.



## biolube High biodegradability

Synthetic biodegradable lubricant - suitable for 2-stroke outboard direct injection engines or a latest generation indirect injection engine.

HIGH BIODEGRADABILITY

ANTI-SALINE CORROSION

CLEAN ENGINES



## outboard 10W-30

Synthetic lubricant - suitable for catalysed 4-stroke outboard engines.

ANTI-SALINE CORROSION

CLEAN ENGINES

PROLONGED INTERVALS BETWEEN CHANGES

ENGINE LONGEVITY



## outboard 10W-40

Lubricant for 4-stroke outboard engines.

ANTI-SALINE CORROSION

ENGINE LONGEVITY

CLEAN ENGINES

# watercraft

Lubricants for 2 and 4 stroke outboard engines specifically fine-tuned to maximize the watercraft's performance. They effectively contrast saline corrosion, which is particularly critical in these applications. Can conveniently also be used on other outboard propulsion units.



2T

## watercraft

Lubricant suitable for **2-stroke direct or indirect injection engines** - suitable for personal **watercraft**.

CLEAN ENGINES

ANTI-SALINE CORROSION



4T

CERTIFICATE  
NMMA  
FC-W  
(CAT)

performance

synthetic technology  
catalyst compatible  
API SM

## watercraft

10W-40

Synthetic Lubricant - **catalysed 4-stroke engines** - suitable for **water engines**.

ANTI-SALINE CORROSION

ENGINE LONGEVITY

CLEAN ENGINES

PROLONGED INTERVALS BETWEEN CHANGES

# inboard

Lubricants specifically designed for inboard 4-stroke petrol or diesel engines, tested and approved by major international manufacturers. Ensure highly reliable operation and long-lasting protection of the engine, even in the event of prolonged inactivity.



4T

#### performance

- ACEA E7, E5, E3
- API CI-4
- API SL
- VDS-3
- MAN M 3275
- MB 228.3
- MTU typ2

## inboard 15W-40

Lubricant for inboard 4-stroke engines.

ANTI-SALINE CORROSION

ENGINE LONGEVITY



FUEL ECONOMY

4T

#### performance

- synthetic technology
- ACEA E7
- API CI-4
- API SL
- VDS-3
- MAN M 3275
- MB 228.3, MB 229.1
- MTU typ2
- Cummins CES 20077/8

## inboard 10W-40

Synthetic lubricant - inboard 4-stroke engines.

ANTI-SALINE CORROSION

PROLONGED INTERVALS BETWEEN CHANGES

CLEAN ENGINES

# Frequently asked questions

## What are the main functions of a lubricant?

- Keep moving surfaces separate under all load, temperature and speed conditions.
- Act as a coolant, removing the heat produced by friction or external sources.
- Maintain its stability for its entire service life.
- Protect surfaces from atmospheric agents or aggressive products formed during combustion.

## What are the key properties of a lubricant?

Lubricants are classified based on:

- the degree of viscosity;
- compliance with a performance specification.

Viscosity is a fluid's resistance to flow and indicates its smoothness, but it is not a performance index of a lubricant. For lubrication suitable for all temperature and load conditions, the formation of a layer of oil is needed between the mechanical parts to prevent them from coming into contact. The oil must be fluid when cold, to immediately

reach the parts that need lubrication, and viscous when hot to remain in contact with surfaces and withstand loads. Oil that is too viscous increases energy losses due to viscous friction, resulting in increased fuel consumption; it particularly increases the power absorbed by the oil pump, especially in the engine start-up phase. The performance specifications, meanwhile, are used to classify lubricants based on their performance and specific use.

## What does compliance with a performance specification mean?

It means that at least the minimum quality levels set by the specification are guaranteed. Compliance with a specification can only be claimed if a product has passed all the tests required by the specification. Each specification includes a list of tests and limit values. Tests include laboratory tests, bench tests

and road tests.

- Responsibility for determining the correct performance specification of the suitable lubricant lies with the manufacturer.
- The lubricant manufacturer is responsible for ensuring that the product complies with the claimed levels.
- A lubricant can comply with one or more performance specifications and one or more lubricants can comply with a given performance specification.

## What do the letters SAE XW-Y on the packaging mean?

The current oils are multigrade oils, meaning they can be used in a very broad range of ambient temperatures. This is possible thanks to the additives that allow oil to switch from a low to a high temperature without losing the correct viscosity characteristics. The thickness of the layer of oil depends on the viscosity of the lubricant, but this varies with the temperature. There is

an international table, issued by SAE (Society of Automotive Engineers), which classifies lubricants according to the viscosity values measured in two conditions: at 100°C and at a low temperature (from -35°C to -10°C depending on the winter grade). The label indicates SAE XW-Y. The SAE "W" viscosity (W stands for "winter") is the viscosity at low temperature which has values that are classified from 0W to 25W; the "W" classes of viscosity provide an indication regarding the minimum temperature at which the engine can start and the oil can be pumped. The other value represents the viscosity measured at 100°C: SAE grades between 20 and 60, which correspond to increasing viscosity values.

## What is NMMA?

NMMA is the National Marine Manufacturers Association, which is an American institution that brings together the main manufacturers in the outboard marine engine sector. NMMA has defined several performance categories for lubricants, such as FC-W pertaining to 4-stroke

petrol engines and TC-W3, for 2-stroke engines. These levels can only be declared if a lubricant has passed the stringent performance tests for which an official certificate is issued by the institution. For latest-generation engines, fitted with systems to reduce pollutant emissions, NMMA has issued the FC-W specification (CAT) as, in these engines, it is necessary to use lubricants that are formulated ad hoc in order to keep the equipped catalysts in clean conditions and perfectly efficient.

## What are API and ACEA?

API is the American Petroleum Institute which defines two categories for engine oils, identified with a two-letter acronym. The first letter distinguishes the type of engine: "S" stands for Service, petrol engine, "C" stands for Commercial, diesel engine. The second letter indicates the performance level, the higher the letter is in alphabetic order, the higher and more current the performance will be; a letter is assigned progressively to each new revision. A more recent API specification is therefore generally

more stringent than an older specification. The latest classifications are API SN for petrol engines and API CI-4 for diesel engines (the 4 indicates a 4-stroke diesel engine). ACEA is the European Automobile Manufacturers' Association and has 4 different standards depending on the type of engine and use. Category "A" is for petrol engines, "B" is for diesel engines and both are specifically for light vehicles.

## What are vehicle manufacturer performance levels?

The manufacturers who have chosen to maintain their own system of original specifications may have one or more differentiated specifications for the type of vehicles in the range. These specifications are based on a starting point made up of the minimum levels of API and/or ACEA. Engine tests or original performance can be included in the specifications. Some manufacturers release formal approvals.

## Frequently asked questions



### Are there oils which increase fuel economy?

Of course, eni has developed a series of lubricants which, thanks to the latest generation technology and their special fluidity characteristics, greatly reduce the friction between the moving parts of an engine, resulting in reduced dissipation of energy and therefore lower fuel consumption. These products also rapidly lubricate all parts of the engine at start up and at very low temperatures, thus reducing energy dissipation, which is higher in this stage, and contributing further to reduced consumption. It is worthwhile remembering that reduced fuel consumption also reduces greenhouse gases, including CO<sub>2</sub> (carbon dioxide).

The products in question are specifically

- outboard 10W-30
- inboard 10W-40

### How should waste oil be disposed of?

The oil used for internal combustion engines is hazardous waste. If disposed of incorrectly or used improperly, it can be highly polluting. For example, if it is poured on the ground, it can reach the water table and even wells for drinking water. In addition, if it is dispersed in water, it creates a thin and impermeable layer that prevents the underlying flora and fauna from breathing. To get an idea of just how harmful it is, consider that 8 pounds of waste oil, the equivalent of a normal oil change, if poured into the sea, will pollute an area as large as a football pitch.

Disposal is arranged, at no cost to the customer, by the Consorzio Obbligatorio degli Oli Usati (COOU) which for 28 years has collected over 4.72 million tons of waste lubricating oil.

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refining & marketing

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profondità fino metriche	125	Profondità in metri
		Batimetrica
	+	Scoglio affiorante
		Profondità di uno scoglio isolato