New engine oil for after-sales

QUARTZ

9000 FUTURE GF5 FUEL ECONOMY 0W-20

TOTAL QUARTZ 9000 FUTURE GF5 0W-20
Marketing & Technical Pack

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QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

New engine oil for after-sales

General description: product profile

- Product name: **TOTAL QUARTZ 9000 FUTURE GF5 0W-20**
- Synthetic technology, **New 0W-20 engine oil.**

✓ **FUEL ECONOMY engine oil,** with savings certified by official tests

✓ Compatible with Petrol engines with or without post-treatment devices, even the most recent.

✓ Exceeds the international standards API SN/CF and fully backward compatible with all former API sequences

✓ Exceeds the international standard ILSAC GF-5 and fully backward compatible with all former ILSAC sequences

TOTAL QUARTZ 9000 FUTURE 0W-20 can cover vast ranges of petrol engines as API and ILSAC sequences have a "universal" scope of application. This is particularly true with non-Europeans car manufacturers.

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QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

New engine oil for after-sales

Integrates the architecture of the TOTAL QUARTZ range

Premium range: TOTAL QUARTZ API and/or ACEA and/or ILSAC and/or approval from OEMs

	TOTAL QUARTZ sub-ranges	Present	
Top of the range	**TOTAL QUARTZ INEO oils known as "Low SAPS synthetic technology" oils** Emphasize: Optimal performance with specific formulations For all recent engines, whether or not equipped with anti-pollution systems.	Mainly Europe	
Top of the range	**TOTAL QUARTZ 9000: Oils known as "synthetic technology" oils** Emphasize: Improved performance, optimum technical properties For all recent petrol or diesel engines not fitted with DPFs.	Worldwide	 
Mid-range	**TOTAL QUARTZ 7000: Oils known as "synthetic based" oils** Emphasize: Efficiency and performance	Worldwide	
Entry-level	**TOTAL QUARTZ 5000: Oils known as "mineral" oils** Emphasise: Protection	Worldwide	

Price defence: TOTAL CLASSIC API and/or ACEA and/or ILSAC • No manufacturer approval

Price defence	**TOTAL CLASSIC: The price defence range** The use of TOTAL CLASSIC products is justified when the premium TOTAL QUARTZ ranges are already well established but challenged concerning price. Lower prices may be proposed, justified by the lower product profiles.	Worldwide	

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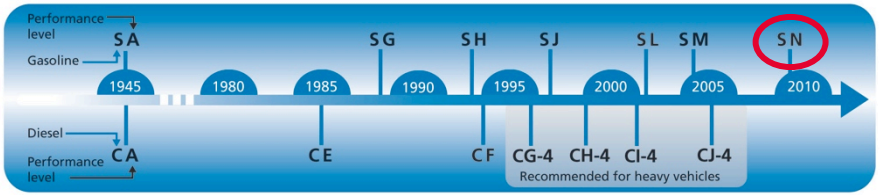
The API: international standard

energy API
AMERICAN PETROLEUM INSTITUTE

- ✓ The API sequences for light vehicles is generally used outside Europe, and is mainly concentrated on petrol engines.
- ✓Depending on the geographical areas, requirements vary and different API sequences may coexist.
- ✓Certain geographical areas are always seeking the most recent specifications, while others use older specifications.
- ✓Certain geographical areas may use different API sequences within their ranges. TOTAL products may coexist and claim the API SL, SM or SN within the same range.

  It should nevertheless be kept in mind that the most recent sequence (API SN) is claimed by TOTAL QUARTZ 9000 FUTURE GF5 0W-20, which also satisfies all the requirements of the former sequences (API SM, SL, SJ etc.). The API sequences are backward compatible.
- ✓The API sequences also have a "universal" character, in that most non-European manufacturers refer to them for the maintenance of their engines.

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 exceeds all of the requirements of the most recent sequence: API SN



Source: American Petroleum institute, Engine Oil Licensing & Certification System

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QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

TOTAL QUARTZ 9000 FUTURE GF5 0W-20

exceeds all of the requirements of the most recent sequence: API SN

energy API AMERICAN PETROLEUM INSTITUTE

Backward compatible

API SEQUENCE	STATUS	CHARACTERISTICS
API SN 	In force Backward compatible	For all new engines and older automotive technologies Sequence introduced in October 2010 in order to: ✓Improve the protection of engine pistons against deposits formed at high temperature ✓Improve compatibility with engine seals ✓Improve resistance to the formation of sludge ✓Enhance the protection of post-treatment systems for petrol engines
API SM	In force	For 2010 and older automotive engines
API SL	In force	For 2004 and older automotive engines
API SJ	In force	For 2001 and older automotive engines
API SH	Obsolete	For 1996 and older automotive engines
API SG…	Obsolete	Note: Not desirable for engines after 1993.

As well as being compliant with the new API SN sequence,
TOTAL QUARTZ 9000 FUTURE GF5 0W-20 is backward compatible with the former API SM, SL and SJ sequences.

Source: American Petroleum institute, Engine Oil Licensing & Certification System
http://www.api.org/oil-and-natural-gas-overview/fuels-and-refining/engine-oil/~/media/Files/Oil-and-Natural-Gas/Engine%20Oil/MOTOR_OIL_GUIDE_2010_120210.ashx

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TOTAL QUARTZ 9000 FUTURE GF5 0W-20

ALSO exceeds all of the requirements of the most recent ILSAC: GF-5

Definition:

ILSAC → The International Lubricant Standardization and Approval Committee (ILSAC) is responsible for the creation of passenger car engine oil specifications.

Who are its representatives?

American & Japanese OEMs → ILSAC is composed of 2 branches: representatives from the Alliance of Automobile Manufacturers (AAM) and the Japanese Automobile Manufacturers Association (JAMA).

Linked to the API sequences → ILSAC contributes to the passenger car motor oil specification process by verifying the need for a new specification and setting final testing limits. These testing limits are ultimately certified by the American Petroleum Institute (API).

What is GF-5?

GF-5 was introduced in october 2010 and is the most recent sequence. it is fully compatible with all former sequences. Compared to the ILSAC GF-4 sequence, 3 main criteria have been improved (see more details on next page):

What's new? →

- ✓Improved fuel economy and fuel economy retention*
- ✓Engine oil robustness
- ✓Protection of emission control systems

* FE retention: is the ability of the oil to maintain its F.E. Properties throughout the whole drian interval

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ILSAC GF-5 into more details

- The current and previous ILSAC standards and API Service Categories are listed here. Vehicle owners should refer to their owner's manuals before consulting these charts. Oils may have more than one performance level.
- For automotive gasoline engines,the latest ILSAC standard or API Service Category include the performance properties of each earlier category and can be used to service older engines where earlier category oils were recommended.

ILSAC STANDARD FOR PASSENGER CAR ENGINE OILS

NAME	STATUS	SERVICE
GF-5	**CURRENT**	Introduced in October 2010 for 2011 and older vehicles, designed to provide high temperature deposit protection for pistons and turbochargers, more stringent sludge control, improved fuel economy, enhanced emission control system compatibility, seal compatibility, and protection of engines operating on ethanol-containing fuels up to E85.
GF-4	**OBSOLETE**	Valid until September 30, 2011. Use GF-5 where GF-4 is recommended.
GF-3	**OBSOLETE**	Use GF-5 where GF-3 is recommended.
GF-2	**OBSOLETE**	Use GF-5 where GF-2 is recommended.
GF-1	**OBSOLETE**	Use GF-5 where GF-1 is recommended.

As well as being compliant with the most recent ILSAC GF5 sequence,
TOTAL QUARTZ 9000 FUTURE GF5 0W-20 is backward compatible with the former ILSAC sequences.

Source: Motor Oil Guide, American Petroleum Institue

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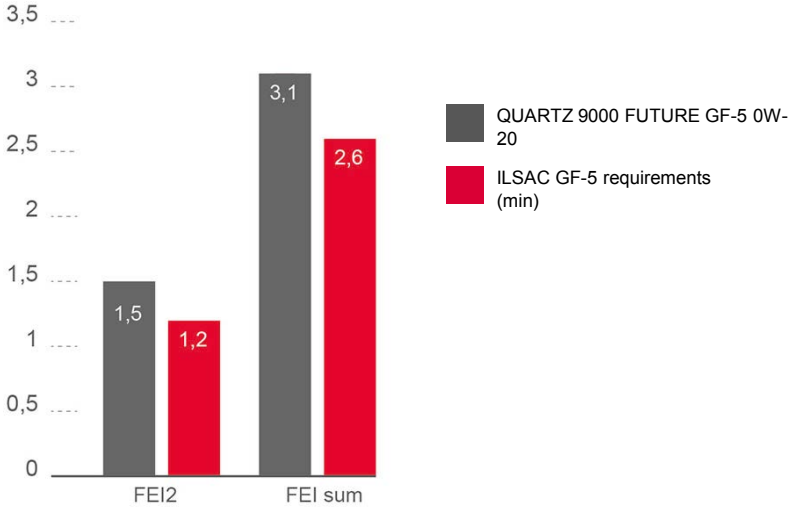
TOTAL QUARTZ 9000 FUTURE GF5 0W-20: The Fuel Economy engine oil

- Highest Fuel Economy performances*



This test measures the fuel economy performance on two criteria: Fuel economy improvement measured on the aged oil (The FEI 2) and the sum of the fuel economy performances of both fresh and aged oil (FEI sum).

** : Seq. VID engine test*

The official ILSAC GF-5 engine test proves that TOTAL QUARTZ 9000 FUTURE GF5 0W-20 is an high-performance FUEL ECONOMY engine oil.

An overall result of 3.1% Fuel Economy was obtained.

FUEL ECONOMY ENGINE OIL

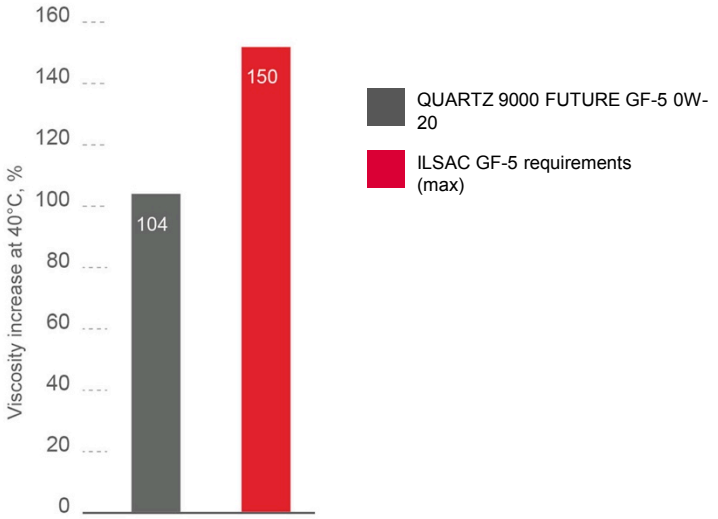
This result is obtained compared to the official ILSAC 20W-30 reference engine oil.
The engine used for this test is also the official GENERAL MOTORS 3.6L Petrol engine.

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 also passed successfully the flex fuel tests: This new engine oil protects engine parts even in the case of dilution with Ethanol, as required by the official ILSAC GF-5 sequence

QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 : resistance to oxydation

- Improved Oxydation control*



** : Sequence IIIG engine test*

These tests measure the ageing of the oil by a variation in viscosity.

The result obtained assures the longevity and properties of the oil over time, easily spanning the change intervals.

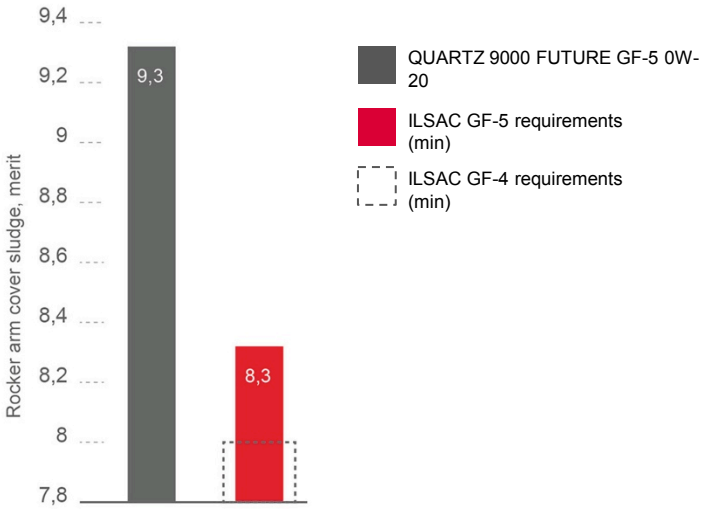
Official test on a GENERAL MOTORS engine!

RESISTANCE 30% GREATER THAN THE REQUIREMENT

This result is obtained at the official test, conducted on a General Motors V6 3.8L petrol engine

TOTAL QUARTZ 9000 FUTURE GF5 0W-20: engine sludge protection

- Reinforced engine sludge protection*



** : Sequence VG engine test*

This test measures formation of sludge in the engine.

The result obtained ensures that the oil will have good longevity and maintain its properties over time.

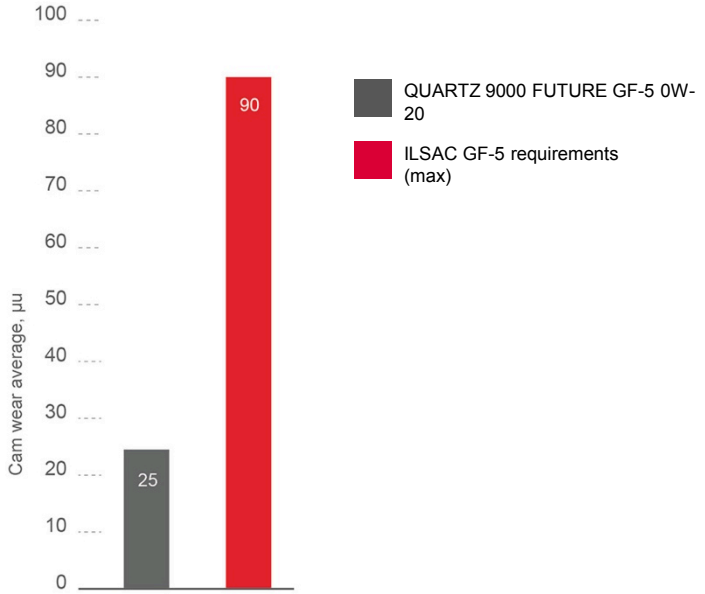
The recommended oil change intervals can therefore be met!

This result is obtained at the official test, conducted on a FORD 4.6L petrol engine

QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 : protection against wear

- Greater Protection against wear*



In wear tests, TOTAL QUARTZ 9000 FUTURE GF5 0W-20 obtains results that also exceeded ILSAC GF-5 requirements.

This example demonstrates **excellent resistance to contact between two metal parts**.

ENGINE PROTECTION 70% GREATER THAN ILSAC GF-5 REQUIREMENTS

This result is obtained at the official test, conducted on a NISSAN 2.4L petrol engine

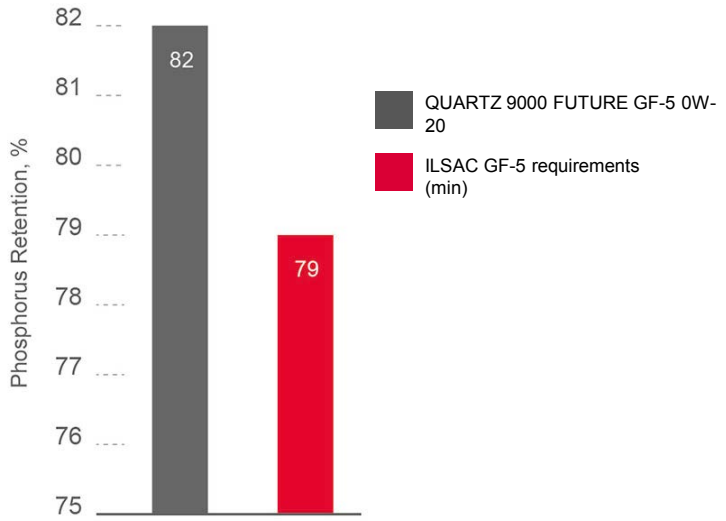
** : Sequence IVA engine test*

TOTAL QUARTZ 9000 FUTURE GF5 0W-20: protection of post-treatment devices

PROTECTION OF CATALYTIC CONVERTERS

LABORATORY TEST

- Optimum Three way catalyst protection*



This test measures the amount of phosphorus retained in the oil after a durability test. It helps to estimate the phosphorus content that is gone in the exhaust line when the oil is consumed. The phosphorus can be seen as a poison for the after-treatment device.

Compared to a standard engine oil, TOTAL QUARTZ 9000 FUTURE GF5 0W-20 phosphorus content is reduced in order to protect the catalytic converters against poisoning .

Polluting emissions are therefore reduced according to OEM's most recent requirements.

** : Sequence IIIGB test*

QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

TOTAL QUARTZ 9000 FUTURE GF5 0W-20: protection of post-treatment devices

PROTECTION OF CATALYTIC CONVERTERS

To meet the pollutant emission limits, modern engines are more environment-friendly and are often equipped with post-treatment systems. To sum up:

All manufacturers in compliance with emission standards equip their engines with a post-treatment system or combine several such systems, as follows:

Engine:	Pollution control system:	Pollutants treated:
PETROL, indirect injection	**Catalytic converter or 3-way catalyst**	**Nitrogen oxide (NOx), Carbon monoxide (CO), Unburned hydrocarbons (HC)**
DIESEL, direct injection	**Particulate filter**	**Particles**
PETROL & DIESEL, direct injection	**DeNOx**	**Nitrogen oxide (NOx)**

Lifetime of post-treatment systems:
• Catalytic converters have a lifetime equal to the vehicle's lifetime
• Particulate filters have a lifetime of about 160,000 km, unless specifically recommended otherwise by the OEMs
Post-treatment components are very effective in destroying some targeted emissions but are also very sensitive to the lubricants (and fuels) used.

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 has been formulated by carefully selecting constituent ingredients so as to optimize pollution control and the longevity of Petrol engines equipped with post-treatment components.

Compared to standard oils, the formulation of TOTAL QUARTZ 9000 FUTURE GF5 0w-20 contains:	This low content is required for the following post-treatment system:	This low content is required because it ensures/prevents:
Less PHOSPHORUS	Catalytic converter or 3-way catalyst	Poisoning

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Marketing attributes

a) Labelling

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 complies with the TOTAL Label charter

TOTAL logo

Colour codes = gold metallised in background + green panel "9000 FUTURE GF5"

NEW!!

All new TOTAL labels implement xxW – yy for multi-grade engine oils

QUARTZ typography and Product name

The API SN + ILSAC GF-5 sequence and its backward compatibility are clearly mentionned on the front label

Red panel with grade and information on the composition of the "Synthetic technology" product

On the back are marketing texts, caveats and statutory texts in several languages, the API and ILSAC performance levels, barcodes, logos etc. on several sheets.

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QUARTZ 9000 FUTURE GF5 FUEL ECONOMY 0W-20

Technical data sheet available from LUB ONLINE

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TOTAL QUARTZ 9000 FUTURE GF5 0W-20

Engine oil

KEY DATA

LIGHT VEHICLE RANGE

PETROL ENGINE OIL
SAE 0W-20
SYNTHETIC TECHNOLOGY
FUEL ECONOMY

INTERNATIONAL STANDARDS

- ✓ API SN & ILSAC GF-5
- ✓ Retro-applicable for API SM, SL & ILSAC GF-4, GF-3

MANUFACTURER APPROVALS

- ✓ Meets HONDA's technical requirements
- ✓ Meets MITSUBISHI's technical requirements
- ✓ Meets TOYOTA's technical requirements

APPLICATIONS

Synthetic technology engine oil that provides the best protection against wear and deposits. The post-treatment systems for petrol engines, which are sensitive to the lubricants used and expensive to maintain, are also protected over the long-term thanks to the product's low phosphorus content. The 0W-20 grade reduces internal friction within the engine as much as possible so that it can deliver full power, while at the same time generating fuel savings.

Using this engine oil can help generate fuel savings even without the need to change driving style. It is suitable for the most demanding driving conditions (door-to-door, sporty driving styles, repeated start-ups, city and motorway driving, etc.).

TOTAL QUARTZ 9000 FUTURE GF5 0W-20 is particularly well-suited for use with the latest "Downsized" engines equipped with Stop & Start technologies and hybrid engines which require very fluid synthetic engine oils.

CUSTOMER BENEFITS

- **Reduced environmental impact: 3.1% reduction in fuel consumption,** as measured by the official ILSAC test sequence VI D. It meets all of the performance levels claimed by brands such as HONDA, TOYOTA and MITSUBISHI in relation to environmental standards.
- **Protection for pollution-control systems:** With its low phosphorus content, this lubricant also optimises the way in which three-way catalytic converters operate, preventing them from getting damaged through poisoning. This reduces NOx, HC and CO in particular.
- **Engine protection and cleanliness:** This oil offers the best possible protection in its category against wear and deposits as soon as the engine is started up.
- **Easier cold starts:** The 0W-20 grade, together with special additives, makes cold engine starts easier, even at very low temperatures

Oil change intervals: To be modified based on the usage, please always refer to the car owner's manual.

www.lubrifiants.total.fr

CHARACTERISTICS*

Test	Unit	Test method	Result
Viscosity grade	-	SAE J300	0W-20
Density at 15°C	kg/m^3	ASTM D1298	849
Kinematic viscosity at 40°C	mm^2/s	ASTM D445	47.21
Kinematic viscosity at 100°C	mm^2/s	ASTM D445	8.75
Viscosity index	-	ASTM D2270	167
Pour point	°C	ASTM D97	-42
OC Flash point	°C	ASTM D92	222

* The characteristics given above are obtained with a standard tolerance threshold during production and may not be considered specifications.

RECOMMENDATIONS FOR USE

Before using the product, the vehicle's maintenance guide should be checked. Oil changes should be carried out in accordance with the manufacturer's recommendations.

The product should not be stored at temperatures over 60°C. It should be kept away from sunlight, intense cold and extreme temperature fluctuations.

If possible, the packaging should not be exposed to the elements. Otherwise, the drums should be laid horizontally in order to avoid any contamination from water and to prevent the product's label from rubbing off.

HEALTH, SAFETY AND THE ENVIRONMENT

Based on the toxicological information available, this product should not cause any adverse health effects, provided it is used for its intended purpose and in accordance with the recommendations laid out in the Safety Data Sheet. This can be obtained on request from your local reseller and is available for consultation at www.quickfds.fr.

This product should not be used for any purposes other than the ones for which it is intended.

When disposing of the product after use, please protect the environment and comply with local regulations.

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France

TOTAL QUARTZ 9000 FUTURE GF5 0W-20

Last update of this datasheet: 04/2013

afaq ISO 9001 Certified

Some variations can be expected under normal production conditions, but these should not affect the product's expected performance irrespective of the site. The information contained in this document is subject to change without notice. Our products can be viewed on our website at www.lubrifiants.total.fr.

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