



ELF PERFO 100

“Unleaded and non-oxygenated racing fuel for 4-stroke and 2-stroke engines”



Our formula use pure bases to guarantee naturally stable, long-lasting properties, consistent from one production batch to another. This search for constant and optimum quality ensures you to obtain leading edge performance.

“This is the gasoline of the ELF racing range that has the best octanes values technically possible for an unleaded and non-oxygenated fuel.”

Uses

- **ELF PERFO 100** is an unleaded and non-oxygenated gasoline with the highest octane ratings of the ELF range.
- ELF Research has combined its expertise with the will to push engines and technology beyond known limits, to develop an atypical fuel: **ELF PERFO 100**.
- By selecting compounds with outstanding resistance to knocking, **ELF PERFO 100** permits engines to run in ranges hitherto inaccessible to other unleaded fuels. Supercharging pressures and compression rates can be extended to the engine's mechanical limits.
- **ELF PERFO 100** is an unleaded fuel **that does not conform to FIM or FIA regulations**.
- Adapted everywhere 4-stroke and 2-stroke engines are used:
 - Circuits
 - Rallies
 - Acceleration
 - Hill climbing
 - Motorcycle
 - Karting

“Unleaded and non-oxygenated racing fuel for 4-stroke and 2-stroke engines”

Characteristics

		Standard data
OCTANE NUMBERS	RON	109
	MON	96.5
DENSITY	kg/l at 15°C	0.805
AIR FUEL RATIO		13.9
OXYGEN	% m/m	<0.2%
VAPOUR PRESSURE	Bar at 37.8°C	0.460
DISTILLATION (°C)	% vol. at 70°C	8
	% vol. at 100°C	20
SULPHUR	mg/kg	<10
LEAD CONTENT	g/litre	<0.005
BENZENE	% Vol.	<0.5

Properties

Fuel characteristics	→	Technical advantages	→	Engine benefits
Unique RON and MON for unleaded non oxygenated fuel	→	Compression rates and supercharging pressure and the ignition timing can be increased to the mechanical limits of the engine	→	Maximum torque and power for high torque for all kinds of engines.
Strong density	→	High energy content of fuel	→	Significant improvement in filling compared to traditional fuel
Total absence of alcohol and di-olefin	→	Any incompatibility with materials from the fuel system	→	Any modification for the pieces from the fuel system is needed

“Unleaded and non-oxygenated racing fuel for 4-stroke and 2-stroke engines”

Very low **benzene** and **sulphur** contents

→

Harmless

→

No special precautions for use
ELF PERFO 100 respects both health and the environment.

Recommendations

- Engine mapping and the compression rate must be optimised (Air/Fuel ratio, ignition sequence) to obtain full benefit from **ELF PERFO 100**.
- **ELF PERFO 100** fuel is fully compatible with naturally aspirated, turbocharged 4-stroke and 2-stroke engines.

Storage

To preserve its original properties and comply with the Health and Safety rules pertaining to fuels, **ELF PERFO 100** must be handled and stored away from sunlight and bad weather and properly resealed in its drum after each use, to avoid loss of the lightest particles.

Glossary

RON & MON: RON & MON characterise resistance to knocking (see definition) of a fuel used in a spark-ignition engine. RON is representative of the operation of an engine running under cold and low speed conditions, while MON is representative of an engine running under warm and high speed conditions.

For racing use, MON is commonly used to describe a fuel's anti-knocking capacity.

Higher octane levels allow engines to run more efficiently under severe, high speed conditions (high rotation speed, high compression ratio).

KNOCKING: Knocking is the result of non controlled fuel combustion in the engine. Sometimes revealed by a characteristic 'pinking' noise, these detonation phenomena often damage the engine.

There are two ways to prevent knocking: tuning the ignition timing and/or using a fuel with better anti-knocking characteristics (RON/MON and combustion speed).

CHARGE COOLING: The amount of energy needed to vaporise fuel depends on the latent vaporisation heat. This phenomenon leads to cooling the intake air which in turn generates internal supercharging.



“Unleaded and non-oxygenated racing fuel for 4-stroke and 2-stroke engines”

COMBUSTION SPEED: It characterizes the fuel's reactivity in the combustion process. The higher the combustion speed, the more effective it is, and the greater the power produced by the engine, via a better cycle yield. More dedicated to high speed rotating engines.

OXYGEN CONTENT: Oxygenated compounds naturally contain high levels of octane and generally improve engine filling capacities thanks to the cooling effect on the admitted air flow (see definition). Others also have remarkable combustion speeds.

DENSITY (or dimensional weight): Usually measured at 15°C and under 1 bar, given in kg/litre (or in kg/m³), this is the density of one litre (or 1000 litres) of fuel. A fuel's density increases as its temperature drops.

VAPOUR PRESSURE: Usually measured at 37.8°C (Reid vapour pressure), by bar (or Pascals), with its distillation curve, this dimension characterises a fuel's capacity to evaporate. This property comes into play when the petrol is mixed with the air intake and for cold engine starts. If the vapour pressure is too high, it can cause 'vapour lock' issues.

AIR/FUEL RATIO (stoichiometric ratio): This ratio characterises the respective fuel and combusive (air intake) quantities necessary for theoretically ideal combustion. In practice, the engine tuner will usually ensure that the air/fuel ratio corresponds to a value between 1.10 and 1.20, or the theoretical value in relation to the real value.