



ELF PERFO 105

“Unleaded competition fuel for naturally aspirated and turbocharged 4-stroke engines”



Using pure bases, our formulas guarantee naturally stable, long-lasting properties, consistent from one production batch to another. This search for constant and optimum quality gives you first class performance and easy settings adjustments.

“This is the gasoline of the ELF competition range that has the best octanes technically possible for an unleaded fuel.”

Uses

- **ELF PERFO 105** is the unleaded gasoline with the highest octane numbers of any unleaded fuel in the **ELF** range.
- ELF Research has combined its expertise with the will to push engines and technology beyond known limits, to develop an exception fuel: **ELF PERFO 105**.
- By selecting compounds with outstanding resistance to knocking, **ELF PERFO 105** 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 105** is an unleaded fuel **that does not conform to official regulations** FIA/FIM.
- Adapted everywhere naturally aspirated and turbocharged 4-stroke engines are used:
 - Circuit
 - Rallye
 - Accélération
 - Course de côte
 - Dragster

Characteristics

		Standard data
OCTANE NUMBERS	RON	113
	MON	98
DENSITY	kg/l at 15°C	0.740
AIR FUEL RATIO		11.9
OXYGEN	% m/m	16.3
VAPOUR PRESSURE	Bar at 37.8°C	0.475
DISTILLATION (°C)	% vol. at 70°C	40.8
	% vol. at 100°C	100
SULPHUR	mg/kg	<10
LEAD CONTENT	g/litre	<0.005



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Properties

Fuel characteristics	→	Technical advantages	→	Engine benefits
Exceptional oxygenated compound content		Effect of natural supercharging		Spontaneous power gains over the whole range.
	→	High latent vaporisation heat favouring mixture cooling before combustion	→	Increased power by optimisation before ignition.
		Increased volume filling by charge cooling		Excellent engine response in transient phase.
Unique RON and MON for unleaded fuel	→	Compression rates and supercharging pressure can be increased to the mechanical limits of the engine	→	Maximum torque and power for high torque and exceptionally charged engines.
Very low benzene and sulphur contents	→	Harmless	→	No special precautions for use ELF PERFO 105 respects both health and the environment.

Recommendations

- Engine mapping and the compression rate have to be optimised (Air/Fuel ratio, ignition sequence) to obtain full benefit from **ELF PERFO 105**.
- If oxygenated compounds are not allowed, the we recommend to use **ELF PERFO 100**.

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Storage

To preserve its original properties and comply with the Health and Safety rules pertaining to fuels, **ELF PERFO 105** 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 competition 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.

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.

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.

AIR/FUEL RATIO (stoichiometric ratio): This ratio characterises the respective fuel and combustive (air intake) quantities necessary for theoretically ideal combustion.