

*“Unleaded competition fuel for naturally aspirated 2-stroke and 4-stroke engines”*



*Our formulae 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 obtain first class performance, in conformity with competition requirements.*

## Uses

- Our unleaded **ELF AVSP 15** fuel has been especially designed for 2-stroke engines running at high speeds and compression rates. It is adapted to every category (125, 250 and 500 cm<sup>3</sup>).
- **ELF AVSP 15** is also adapted for 4-stroke engines running at high compression rates.
- The development of **ELF AVSP 11**, **ELF AVSP 15** can be distinguished by the absence of MTBE (Methyl Tertio-Butyl Ether) in its composition.
- **ELF AVSP 15** does not **conform** to international FIM and FIA regulations.
- **ELF AVSP 15** has a high octane composition ensuring that it provides good resistance against knocking, even under severe conditions.
- It is specifically adapted to high compression naturally aspirated engines for:
  - Circuits
  - Rally & Rallycross
  - Acceleration
  - Hill climbing

## Characteristics

		Standard data
OCTANE NUMBERS	RON	105
	MON	95
DENSITY	kg/l at 15°C	0.755
OXYGEN	% m/m	2.7
VAPOUR PRESSURE	Bar at 37.8°C	0.370
SULPHUR	mg/kg	<10
LEAD CONTENT	g/litre	<0.005

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## Properties

Fuel characteristics	→	Technical advantages	→	Engine benefits
High oxygenated compound content	→	Effect of <b>natural supercharging</b>	→	Spontaneous power gains (without specific tuning) over the whole range.
	→	High latent vaporisation heat favouring <b>mixture cooling</b> before combustion	→	Increased power by optimisation before ignition.
		Increased <b>volume filling</b> by charge cooling		Excellent engine response in transient phase.
Exceptional octane numbers	→	Excellent resistance to <b>knocking</b> , ensuring controlled combustion	→	Exceptional reliability under severe conditions (compression and heat/humidity rates).
			Permits using optimised ignition timing for higher power.	
Very low <b>benzene</b> and <b>sulphur</b> contents	→	Harmless	→	No special precautions for use
			ELF AVSP 15 respects both health and the environment.	

## Recommendations

- **ELF AVSP 15** does not contain MTBE (Methyl Tertio-Butyl Ether) and is therefore not subject to prohibitions related to its use.
- For 2-stroke applications, **ELF AVSP 15** can be used mixed with **ELF HTX 909** lubricant or, for even greater efficiency, with **ELF HTX 976** (recommended dosing at 4% lubricant with the fuel).

## Storage

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To preserve its original properties and comply with the Health and Safety rules pertaining to fuels, **ELF AVSP 15** 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).

**DENSITY (or dimensional weight):** Usually measured at 15°C and under 1 bar, given in kg/litre (or in kg/m<sup>3</sup>), this is the density of one litre (or 1000 litres) of fuel.

A fuel's density increases as its temperature drops.

**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.

**AIR/FUEL RATIO (stoichiometric ratio):** This ratio characterises the respective fuel and combustive (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.