ELF LM®S

"Unleaded competition fuel for race circuits"

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, in conformity with official regulations.

Use

- Specifically developed for race circuits under FIA regulations
- Complies with regulations: FIA Article 252 Annex J/EN 228
- Particularly suited for:
  - Naturally-aspirated and turbo-chargedcompressed 4-stroke engines
  - 2-stroke engine Karting
- **ELF LM®S** has earned the trust of the **top championships**, both in sprint and endurance, with the satisfaction of the participating teams: A1-GP/GP2/GT FIA/LMS/WTCC/CIK-FIA/Super Series FFSA/Masters F3000/GT OPEN/ historic F3 /etc.

Characteristics

		Typical data	FIA Annex J regulations
OCTANE NUMBER	RON	101.7	95 to 102
	MON	89.7	85 to 90
DENSITY	kg/l at 15°C	0.765	0.725 to 0.775
OXYGEN	% m/m	2.6	2.7 max
AIR/FUEL RATIO		14.05	
VAPOUR PRESSURE	Bar at 37.8°C	0.550	0.900
DISTILLATION (°C)	% vol. at 70°C	25	15 to 47
	% vol. at 100°C	60	46 to 70
LEAD	g/litre	<0.001	0.005 max
SULPHUR	mg/kg	<0.001	0.015 max
BENZENE	% vol.	<0.05	1 max

Properties

Fuel characteristics	→	Technical gains	→	Engine benefits
Octane indexes set to upper regulatory limit	→	Excellent resistance to **knocking** for controlled combustion	→	**Exceptional reliability under severe application (heat / humidity)** **Allows work with optimised ignition sequence**
Oxygen content set to upper regulatory limit	→	Natural **booster** effect High latent heat of evaporation helps cool mix before combustion (turbo-charged engines) Even greater optimisation of ignition curve	→	**Spontaneous power gains (without special tuning)** **Power gains after optimisation of ignition advance**
Strong **density** (upper regulatory limit)	→	High energy content of fuel	→	**Significant improvement in filling compared to traditional fuel**
Chemical composition adjusted	→	**High combustion speed** for comfortable combustion control up to 15,000 rpm	→	**Better engine speed**
Very low **benzene** and **sulphur** content	→	Harmless	→	**No special precautions for use** **ELF LM®S respects both the environment and health**
Total absence of **alcohol** and **di-olefins**	→	No incompatibility with fuel circuit materials	→	**No modification to make in fuel circuit**

Recommendation

- **ELF LM®S** provides significant gains in power and reliability, with no fine-tuning.
- To get the full benefit of this product, it is preferable to optimise the richness (Air/Fuel ratio) and ignition advance.

Storage

To preserve its original properties and comply with the Health and Safety rules pertaining to fuels, **ELF LM®S** 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: The RON & MON characterize the resistance to knocking (see definition) of a fuel used in a spark-ignition engine. The RON is representative of the functioning of an engine running in cold and low speed condition, while the MON is representative of an engine running in warm and high speed condition.
For competition use, the MON is commonly used to describe a fuel's anti-knocking capacity.
Higher octane levels give the fuel greater capacity to allow the engine to function under severe conditions that raise speeds (high rotation speed, high compression ratio).

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 characterizes the respective fuel and combustive (air intake) quantities necessary for ideal combustion in theory. In practice, most of the time, the engine tuner will make sure that the air/fuel ratio corresponds to a value between 1.10 and 1.20, or the theoretical value in relation to the actual value.

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.