EVP FUEL REQUIREMENTS FOR ALL TUNING

Fuel is a critical part of enjoying your EVP-tuned vehicle. Some customers may be under the impression that all fuels are roughly the same. The purpose of this document is to educate those who may not be familiar with the differences between various fuels, and to save our customers from costly repairs due to poor fuels or inadequate octane ratings for a given tune.

Pump Gas Tunes:

Each one of our 91 or 93 octane tunes have been validated on non-oxygenated pump fuel at the required octane rating. The reason we use non-oxygenated fuel is because blended fuels have a short shelf life, and we have no way of knowing how old the fuel that comes out of the pump is. However, we build plenty of margin in each of our tunes to account for 91 octane pump fuel whether oxygenated or not. **DO NOT USE 87, 89 OR 90 OCTANE UNDER ANY CIRCUMSTANCES**. We do not recommend octane boosters to achieve desired octane ratings due to several factors and the wide-ranging quality between brands, as well as some of the outlandish claims.

93 and 95 Octane can be made by mixing 91 octane fuel with either 100LL (available at most airports) or VP 110.

- To make 10 gallons of 93 octane fuel using 100LL, mix 2 gallons of 100LL to 8 gallons of 91 octane fuel
- To make 10 gallons of 95 octane fuel using 100LL, mix 4.5 gallons of 100LL to 5.5 gallons of 91 octane fuel
- To make 10 gallons of 93 octane fuel using VP110, mix 1 gallon of VP110 to 9 gallons of 91 octane fuel
- To make 10 gallons of 95 octane fuel using VP110, mix 2 gallons of VP110 to 8 gallons 91 octane fuel

100 Octane Tunes:

There are several fuels that can be used including:

- VP UTV 96 (Is actually 98.8 octane, but safe to use with EVP 100 Octane Tunes)
- 100LL (Avgas)
- VP110/91 octane mix (To make 10 gallons of 100 octane fuel using VP110, mix 5 gallons of VP110 to 5 gallons of 91 octane fuel)

E85 Tunes:

Please note that not all E85 is created equally! All Evolution Powersports E85 tunes were developed on either IGNITE Orange or VP X85

Pump E85 can be used for stock turbo and mild big turbo tunes (up to 300 horsepower) if the fuel tests out between 80 and 90% ethanol. FOR ALL BIG TURBO TUNES ABOVE 300 HORSEPOWER, YOU MUST USE EITHER IGNITE ORANGE OR VP X85. **DO NOT UNDER ANY CIRCUMSTANCES USE VP C85**. There are also some other lesser-known ethanol-based fuels which may or may not be good. As an example of how much variation there is in E85 fuels, below are the data sheets from VP – you can see the difference in motor octane between VP's X85 and C85 – they are not in the same league in terms of knock resistance. VP C85 was designed to produce power on a normally aspirated vehicle, not on a high boost, small engine making 100+ horsepower per cylinder. If you must use other fuels, insist upon seeing their octane ratings. Make sure they are rated at least as good as VP X85. Do not take chances with your engine – use good fuel!

E85 SPEC SHEETS:

Specification Sheet: X85 - **GOOD** (Typical Values)	Specification Sheet: C85 - **BAD** (Typical Values)
Color = Colorless	Color = Yellow
Specific Gravity = 0.7800	Specific Gravity = 0.7940
MON = 95.2	**MON = 86.5**
RON = 108	**RON = 106**
(R+M)/2 = 101.6	**(R+M)/2 = 96.3**
Oxygen Content = 30.03%	Oxygen Content = 31.97%
Oxidation Stability (min.) = 1440+	Oxidation Stability (min.) = 1440+
Leaded: No	Leaded: No
RVP = 4.22psi	RVP = 5.98psi
Distillation	Distillation
IBP = 140.0°F	IBP = 119.8°F
10% = 163.4°F	10% = 153.9°F
50% = 170.6°F	50% = 167.0°F
90% = 172.0°F	90% = 171.0°F
FBP = 174.7°F	FBP = 182.3°F
H:C ratio = 2.85	H:C ratio = 2.85
O:C ratio = 0.40	O:C ratio = 0.45
Stoichiometric A/F Ratio = 9.81	Stoichiometric A/F Ratio = 9.20
Rev = 10/04/19	Rev = 10/04/19