

# Fuel regulations – National ACU

## PURPOSE OF REGULATION

The purpose of these Articles is to ensure that the fuel used in competition is unleaded 'pump petrol' as this term is generally understood. These detailed requirements are intended to achieve this purpose whilst allowing the use of consistent petrols for racing purposes. Any petrol which appears to have been formulated in order to subvert the purpose of this regulation will be deemed to be outside it. Lead replacement petrol (LRP) is not considered to be unleaded petrol.

## FUEL, FUEL/OIL MIXTURES

UNLEADED PETROL as defined by European Committee for Standardisation (CEN), EN 228 (2004) or BS EN 228 (British Standards BS7070) must be used for Road Racing (exceptions in Road Racing rules), Motocross, Trials, Enduro and some classes in Drag Racing, Sprint, and Track Racing. (See individual discipline rules).

Unleaded petrol must comply with the ACU specification with the following characteristics:

For: Road Racing, Trials, Enduro

Property	Units	Min.	Max.	Test Method
RON		95.0	102.0	ISO 5164
MON		85.0	90.0	ISO 5163
Oxygen	% m/m		2.7	ASTM D 5622 ASTM D 4815
Nitrogen	% m/m		0.2	ASTM D 4629
Benzene	% v/v		1.0	EN238

For: Motocross and Track Racing

Property	Units	Min.	Max.	Test Method
RON		95.0	102.0	ISO 5164 or ASTM D2699
MON		85.0	90.0	ISO 5163 or ASTM D2700
Oxygen (includes 10% Ethanol allowance)	% m/m		3.7	ISO 22854 or EN13132 Or elemental analysis
Nitrogen	% m/m		0.2	ASTM D 4629 or ASTM 5762
Benzene	% v/v		1.0	ISO22854 or ASTM D6839 or ASTM D5580

And other characteristics according to the current ACU specification. Available from the Technical Secretary, ACU, Rugby.

Any infringement of the fuel specifications will automatically result in the exclusion of the competitor from the entire meeting. The result of the competitors' fuel sample analysis (A or B Sample) more favorable to the competitor will be taken into account.

## AIR

Only ambient air may be mixed with the fuel as an oxidant. Unless otherwise specified in Standing Regulations, fuel additives are not permitted.

## BIO-FUELS

E85 Bio-ethanol pump fuel may be used where specifically allowed by the sporting discipline Committee.

E85 Bio-ethanol fuel is defined by CWA 15293:2005 (automotive fuels, ethanol E85, requirements and test methods) standards and is a road legal, publicly available fuel.

## SAMPLING-ROAD RACE AND SUPERMOTO

Fuel samples may be taken, to ensure compliance with the ACU Fuel Regulations at any time or place during the course of an event.

- The Chief Technical Officer with the agreement of the Clerk of the Course may take or supervise the taking of up to 1.5 litres of fuel from any competition machine.
- Containers used must be clean and of a type certified suitable for holding petrol samples.
- Each sample taken must be divided into two and placed in separate 1 litre containers. (1 litre approximately in one and 0.5 litre approximately in the other). The containers must be sealed immediately and identified by reference to the machine from which the sample was taken. This information must be entered on a certificate which must certify the date, place and time of taking the sample and the seal numbers of both the 1 litre (the 'A' sample) and 0.5 litre (the 'B' sample) containers.

- Sample 'A' must remain in the control of the Chief Technical Officer for delivery to an ACU approved 'Fuel Test Laboratory'. Sample 'B' must be given to the rider or his authorised representative who must sign the fuel sample certificate, acknowledging receipt.
- Samples taken for routine control must be tested for compliance with at least three of the characteristics listed – A fuel test result will be said to be 'in compliance with' or 'not' in compliance with the characteristics tested for.
- When fuel is tested for any other reason all characteristics listed must be proved.

### **SAMPLING-OFF ROAD DISCIPLINES**

1) The ACU appointed Official has the sole responsibility for the management and supervision during the taking of fuel samples.

2) The preferred fuel test method in a first step is Gas chromatography or GC Fingerprint method.

Gas chromatography (GC) is an analytical technique for separating compounds based primarily on their volatility and polarity. Gas chromatography provides both qualitative and quantitative information for individual compounds present in a sample. Gas chromatography is widely used for the analysis of fuels.

The GC Fingerprint is a comparison between the given reference and the fuel drawn from the competitor's motorcycle. With the fingerprint method any changes in the composition and concentration of the fuel against the reference is detected. The separation is done with a non polar column suitable for fuel analysis. The detection of the components is done with a flame ionisation detector.

3) If other test methods are required, fuel samples are transported to the appointed laboratory by an official courier, using the appropriate containers.

4) Riders selected for fuel controls are directed with their motorcycles to the inspection area.

5) Only new sample bottles are used for the fuel samples.

6) The fuel to be tested is transferred directly from the selected fuel tank into three vials (3 small sample containers), marked A, B and C and identified by reference to the motorcycle from which the sample was taken. The bottles are closed, sealed and labelled by the ACU appointed Official.

7) The Fuel Sample Declaration form (see 14) is filled out immediately, containing all information as shown on the sample sheet, including the riders' name and race number, date and place of fuel sampling. A responsible team member signs this declaration, after verifying that all the information is correct.

8) Samples A and B are given to the appointed laboratory staff, present at the event for analysis or be sent to the respective laboratory by the organiser if no trackside laboratory is available. Sample B will be kept by the laboratory staff as a reserve sample, to be used for a second analysis if required. All samples are accompanied by a copy of the Fuel Sample Declaration form. Costs for the analyses of sample A and B are paid by ACU.

9) Sample C is handed over to the ACU, accompanied by a copy of the Fuel Sample Declaration form, for safeguarding in case of protests and/or a request for a counter-expertise by the ACU appointed laboratory. Costs for the analyses of sample C are paid by the team concerned.

10) As soon as possible after completing the testing, the Fuel Analyst/ACU appointed laboratory will report the results of the fuel sample analyses directly to the ACU appointed Official, with a copy to the rider and the Discipline Committee.

11) In the case of non-conformity of the fuel, the ACU appointed Official must notify the results to the Discipline Committee and the rider/ team representative concerned. Failure of the sample to conform to the ACU fuel specifications results in the disqualification of the competitor from the entire meeting. The result of the competitor's fuel sample analysis ("A" or "B" sample) more favourable to the competitor is taken into account.

Note: The non-conformity of one property (except the Appearance) is sufficient for declaring the non-conformity of the fuel or the mixture.

12) Within 48 hours of the receipt of the notification of the results from the analysis of sample A and/or B, the team must notify the Discipline Committee and the ACU appointed Official if a counter-expertise of sample C is requested.

13) The Discipline Committee takes a decision, immediately following the notification of the results of the final expertise. Any appeal against the decision of the Discipline Committee is heard by the ACU Judicial Panel.

### **FUEL TEST COSTS AND PENALTIES**

When following routine testing fuel found to be not in compliance with the ACU/FIM Fuel Regulations the competitor involved will be liable for the relevant testing costs.

When fuel is tested as a result of a protest the protest fee must be accompanied by a 'Nominal Testing Charge' of £600 and the losing party will be liable for all the testing costs. In the event of the protest being upheld the 'Nominal Testing Charge' will be returned. Any competitor who fails to provide a fuel sample when requested to, or whose fuel is found to be not in compliance with these regulations will:

- Have his/her licence suspended for a minimum period of six months of the 'season' March to October inclusive.
- Be disqualified from the results.
- Lose any championship points that may have been earned at the meeting.