

OICA PROPOSAL FOR AMENDMENTS TO REGULATIONS Nos. 83 and 101

In order to harmonize the test procedures between future EU-regulation and current UN/ECE-Regulations, especially with respect to the use in countries outside Europe, the introduction of E5 petrol and B5 diesel as alternative reference fuel is proposed for the Type I and Type VI tests. The modifications to the text of the Regulation are marked in **bold** characters.

A. PROPOSAL

REGULATION No. 83

List of contents, annexes,

Items 2.4., 2.18 amend to read:

2.4. "Gaseous pollutants" means the exhaust gas emissions of carbon monoxide, oxides of nitrogen, expressed of:

- C₁H_{1,85} for petrol (E0),
- C₁H_{1,86} for diesel (B0),
- C₁H_{2.525} for LPG,
- C₁H₄ for NG,
- **C₁H_{1,89}O_{0.016} for petrol (E5),**
- **C₁H_{1,86}O_{0.005} for diesel (B5)**

2.18. "Fuel requirement by the engine" means the type of fuel normally used by the engine:

- petrol (**E0 or E5**),
- LPG (liquefied petroleum gas),
- NG (natural gas),
- either petrol or LPG,
- either petrol or NG,
- diesel fuel (**B0 or B5**).

Annex 4, *Item 8.2.; amend to read:*

ANNEX 4
TYPE I TEST

...

8. DETERMINATION OF THE QUANTITY OF GASEOUS AND PARTICULATE POLLUTANTS EMITTED

8.1. The volume considered
The volume to be considered shall be corrected to conform to the conditions of 101.33 kPa and 273.2 K.

8.2. Total mass of gaseous and particulate pollutants emitted
The mass M of each pollutant emitted by the vehicle during the test shall be determined by obtaining the product of the volumetric concentration and the volume of the gas in question, with due regard for the following densities under above-mentioned reference conditions:

In the case of carbon monoxide (CO): $d = 1.25 \text{ g/l}$

In the case of hydrocarbons:

- for **E0** petrol ($\text{CH}_{1.85}$) $d = 0.619 \text{ g/l}$
- for **B0** diesel ($\text{CH}_{1.86}$) $d = 0.619 \text{ g/l}$
- for LPG ($\text{CH}_{2.525}$) $d = 0.649 \text{ g/l}$
- for NG (CH_4) $d = 0.714 \text{ g/l}$
- for **E5** petrol ($\text{C}_1\text{H}_{1.89}\text{O}_{0.016}$) $d = 0.631 \text{ g/l}$
- for **B5** diesel ($\text{C}_1\text{H}_{1.86}\text{O}_{0.005}$) $d = 0.622 \text{ g/l}$

Annex 4, Appendix 8

The second subparagraph of paragraph 1.3. of Appendix 8 to Annex 4 shall be amended to read:
“.....**The dilution factor is calculated as follows:**

For each reference fuel:

$$DF = \frac{X}{\text{CCO}_2 + (\text{CHC} + \text{CCO})10^{-4}}$$

For a fuel of composition $\text{C}_x\text{H}_y\text{O}_z$ the general formula is:

$$X = 100 \frac{x}{x + \frac{y}{2} + 3.76 \left(x + \frac{y}{4} - \frac{z}{2} \right)}$$

For the reference fuels contained Annex IX, the values of ‘X’ are as follows.

Fuel	X
Petrol (E0)	13.4
Diesel (B0)	13.4
LPG	11.9
NG	9.5
Petrol (E5)	13.4
Diesel (B5)	13.5

ANNEX 10**2. SPECIFICATIONS OF REFERENCE FUELS FOR TESTING VEHICLES TO THE EMISSION LIMITS GIVEN IN ROW B OF THE TABLE IN PARAGRAPH 5.3.1.4. - TYPE I TEST****2.1. TECHNICAL DATA ON THE REFERENCE FUEL TO BE USED FOR TESTING VEHICLES EQUIPPED WITH POSITIVE-IGNITION ENGINES***Type: Unleaded petrol*

Parameter	Unit	Limits ⁽¹⁾		Test Method
		Minimum	Maximum	
Research octane number, RON		95.0	-	EN 25164
Motor octane number, MON		85.0	-	EN 25163
Density at 15°C	kg/m ³	740	754	ISO 3675
Reid vapour pressure	kPa	56.0	60.0	PrEN ISO 13016-1 (DVPE)
Distillation:				
- Evaporated at 70°C	per cent v/v	24.0	40.0	EN-ISO 3405
- Evaporated at 100°C	per cent v/v	50.0	58.0	EN-ISO 3405
- Evaporated at 150°C	per cent v/v	83.0	89.0	EN-ISO 3405
- final boiling point	°C	190	210	EN-ISO 3405
Residue	per cent v/v	-	2.0	EN-ISO 3405
Hydrocarbon analysis:				
- Olefins	per cent v/v	-	10.0	ASTM D 1319
- Aromatics	per cent v/v	29.0	35.0	ASTM D 1319
- Saturates	per cent v/v	Report		ASTM D 1319
- Benzene	per cent v/v	-	1.0	pr. EN 12177
Carbon/hydrogen ratio		Report		
Induction period ⁽²⁾	minutes	480	-	EN-ISO 7536
Oxygen content	per cent m/m	-	1.0	EN 1601
Existent gum	mg/ml	-	0.04	EN-ISO 6246
Sulphur content ⁽³⁾	mg/kg	-	10	ASTM D 5453
Copper corrosion		-	class 1	EN-ISO 2160
Lead content	mg/l	-	5	EN 237
Phosphorus content	mg/l	-	1.3	ASTM D 3231

(1) The values quoted in the specifications are “true values”. In establishment of their limit values the terms of ISO 4259 “Petroleum products – Determination and application of precision data in relation to methods of test” have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility).

Notwithstanding this measure, which is necessary for technical reasons, the manufacturer of fuels should nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify the questions as to whether a fuel meets the requirements of the specifications, the terms of ISO 4259 should be applied.

- (2) The fuel may contain oxidation inhibitors and metal deactivators normally used to stabilise refinery gasoline streams, but detergent/dispersive additives and solvent oils must not be added.
- (3) The actual sulphur content of the fuel used for the Type I test shall be reported.

ALTERNATIVELY

Type: Petrol (E5)

Parameter	Unit	Limits ¹		Test method
		Minimum	Maximum	
Research octane number, RON		95,0	—	EN 25164 prEN ISO 5164
Motor octane number, MON		85,0	—	EN 25163 prEN ISO 5163
Density at 15 °C	kg/m ³	743	756	EN ISO 3675 EN ISO 12185
Vapour pressure	kPa	56,0	60,0	EN ISO 13016-1 (DVPE)
Water content	% v/v		0.015	ASTM E 1064
Distillation:				
– evaporated at 70 °C	% v/v	24,0	44,0	EN-ISO 3405
– evaporated at 100 °C	% v/v	48,0	60,0	EN-ISO 3405
– evaporated at 150 °C	% v/v	82,0	90,0	EN-ISO 3405
– final boiling point	°C	190	210	EN-ISO 3405
Residue	% v/v	—	2,0	EN-ISO 3405
Hydrocarbon analysis:				
– olefins	% v/v	3,0	13,0	ASTM D 1319
– aromatics	% v/v	29,0	35,0	ASTM D 1319
– benzene	% v/v	—	1,0	EN 12177
– saturates	% v/v		Report	ASTM 1319
Carbon/hydrogen ratio			Report	
Carbon/oxygen ratio			Report	
Induction period ²	minutes	480	—	EN-ISO 7536
Oxygen content ⁴	% m/m		Report	EN 1601
Existent gum	mg/ml	—	0,04	EN-ISO 6246
Sulphur content ³	mg/kg	—	10	EN ISO 20846 EN ISO 20884
Copper corrosion		—	Class 1	EN-ISO 2160
Lead content	mg/l	—	5	EN 237
Phosphorus content	mg/l	—	1,3	ASTM D 3231
Ethanol ⁴	% v/v	4,7	5,3	EN 1601 EN 13132

1 The values quoted in the specifications are 'true values'. In establishment of their limit values the terms of ISO 4259 Petroleum products - Determination and application of precision data in relation to methods of test have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility).

Notwithstanding this measure, which is necessary for technical reasons, the manufacturer of fuels shall nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify whether a fuel meets the requirements of the specifications, the terms of ISO 4259 shall be applied.

2 The fuel may contain oxidation inhibitors and metal deactivators normally used to stabilise refinery gasoline streams, but detergent/dispersive additives and solvent oils shall not be added.

3 The actual sulphur content of the fuel used for the Type 1 test shall be reported.

4 Ethanol meeting the specification of prEN 15376 is the only oxygenate that shall be intentionally added to the reference fuel.

5 There shall be no intentional addition of compounds containing phosphorus, iron, manganese, or lead to this reference fuel.

2.2. TECHNICAL DATA ON THE REFERENCE FUEL TO BE USED FOR TESTING VEHICLES EQUIPPED WITH DIESEL ENGINE

Type: Diesel fuel

Parameter	Unit	Limits ⁽¹⁾		Test Method
		Minimum	Maximum	
Cetane number ⁽²⁾		52.0	54.0	EN-ISO 5165
Density at 15°C	kg/m ³	833	837	EN-ISO 3675
Distillation:				
- 50 per cent point	°C	245	-	EN-ISO 3405
- 95 per cent point	°C	345	350	EN-ISO 3405
- Final boiling point	°C	-	370	EN-ISO 3405
Flash point	°C	55	-	EN 22719
CFPP	°C	-	-5	EN 116
Viscosity at 40°C	mm ² /s	2.3	3.3	EN-ISO 3104
Polycyclic aromatic hydrocarbons	per cent m/m	3.0	6.0	IP 391
Sulphur content ⁽³⁾	mg/kg	-	10	ASTM D 5453
Copper corrosion		-	Class 1	EN-ISO 2160
Conradson carbon residue (10 per cent DR)	per cent m/m	-	0.2	EN-ISO 10370
Ash content	per cent m/m	-	0.01	EN-ISO 6245
Water content	per cent m/m	-	0.02	EN-ISO 12937
Neutralisation (strong acid) number	mg KOH/g	-	0.02	ASTM D 974
Oxidation stability ⁽⁴⁾	mg/ml	-	0.025	EN-ISO 12205
Lubricity (HFRR wear scan diameter at 60°C)	µm	-	400	CEC F-06-A-96
FAME		Prohibited		

⁽¹⁾ The values quoted in the specifications are "true values". In establishment of their limit values the terms of ISO 4259 "Petroleum products – Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility).

Notwithstanding this measure, which is necessary for technical reasons, the manufacturer of fuels should nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify the questions as to whether a fuel meets the requirements of the specifications, the terms of ISO 4259 should be applied.

⁽²⁾ The range for cetane number is not in accordance with the requirements of a minimum range of 4R. However, in the case of a dispute between fuel supplier and fuel user, the terms of ISO 4259 may be used to resolve such disputes provided replicate measurements, of sufficient number to archive the necessary precision, are made in preference to single determinations.

⁽³⁾ The actual sulphur content of the fuel used for the Type I test shall be reported.

⁽⁴⁾ Even though oxidation stability is controlled, it is likely that shelf life will be limited. Advice should be sought from the supplier as to storage conditions and life.

ALTERNATIVELY

Parameter	Unit	Limits ¹		Test method
		Minimum	Maximum	
Cetane number ²		52,0	54,0	EN-ISO 5165
Density at 15 °C	kg/m ³	833	837	EN-ISO 3675
Distillation:				
- 50 % point	°C	245	—	EN-ISO 3405
- 95 % point	°C	345	350	EN-ISO 3405
- final boiling point	°C	—	370	EN-ISO 3405
Flash point	°C	55	—	EN 22719
CFPP	°C	—	- 5	EN 116
Viscosity at 40 °C	mm ² /s	2,3	3,3	EN-ISO 3104
Polycyclic aromatic hydrocarbons	% m/m	2,0	6,0	EN 12916
Sulphur content ³	mg/kg	—	10	EN ISO 20846 / EN ISO 20884
Copper corrosion		—	Class 1	EN-ISO 2160
Conradson carbon residue (10 % DR)	% m/m	—	0,2	EN-ISO 10370
Ash content	% m/m	—	0,01	EN-ISO 6245
Water content	% m/m	—	0,02	EN-ISO 12937
Neutralisation (strong acid) number	mg KOH/g	—	0,02	ASTM D 974
Oxidation stability ⁴	mg/ml	—	0,025	EN-ISO 12205
Lubricity (HFRR wear scan diameter at 60 °C)	µm	—	400	EN ISO 12156
Oxidation stability @ 110 °C ^{4,6}	h	20,0		EN 14112
FAME ⁵	% v/v	4,5	5,5	EN 14078

1 The values quoted in the specifications are 'true values'. In establishment of their limit values the terms of ISO 4259 Petroleum products – Determination and application of precision data in relation to methods of test have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility). Notwithstanding this measure, which is necessary for technical reasons, the manufacturer of fuels shall nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify whether a fuel meets the requirements of the specifications, the terms of ISO 4259 shall be applied.

2 The range for cetane number is not in accordance with the requirements of a minimum range of 4R. However, in the case of a dispute between fuel supplier and fuel user, the terms of ISO 4259 may be used to resolve such disputes provided replicate measurements, of sufficient number to archive the necessary precision, are made in preference to single determinations.

3 The actual sulphur content of the fuel used for the Type 1 test shall be reported.

4 Even though oxidation stability is controlled, it is likely that shelf life will be limited. Advice shall be sought from the supplier as to storage conditions and life.

5 FAME content to meet the specification of EN 14214

6 Oxidation stability can be demonstrated by EN-ISO 12205 or by EN 14112. This requirement shall be reviewed based on CEN/TC19 evaluations of oxidative stability performance and test limits

3. **SPECIFICATIONS OF REFERENCE FUEL TO BE USED FOR TESTING VEHICLES EQUIPPED WITH POSITIVE-IGNITION ENGINES AT LOW AMBIENT TEMPERATURE - TYPE VI TEST**

Type: Unleaded *d* petrol

Parameter	Unit	Limits ⁽¹⁾		Test Method
		Minimum	Maximum	
Research octane number, RON		95.0	-	EN 25164
Motor octane number, MON		85.0	-	EN 25163
Density at 15°C	kg/m ³	740	754	ISO 3675
Reid vapour pressure	kPa	56.0	95.0	<i>prEN ISO 13016-1 (DVPE)</i>
Distillation:				
- Evaporated at 70°C	<i>per cent v/v</i>	24.0	40.0	EN-ISO 3405
- Evaporated at 100°C	per cent v/v	50.0	58.0	EN-ISO 3405
- Evaporated at 150°C	per cent v/v	83.0	89.0	EN-ISO 3405
- final boiling point	°C	190	210	EN-ISO 3405
Residue	<i>per cent v/v</i>	-	2.0	EN-ISO 3405
Hydrocarbon analysis:				
- Olefins	per cent v/v	-	10.0	ASTM D 1319
- Aromatics	per cent v/v	29.0	35.0	ASTM D 1319
- Saturates	<i>per cent v/v</i>	<i>Report</i>		ASTM D 1319
- Benzene	per cent v/v	-	1.0	pr. EN 12177
Carbon/hydrogen ratio		Report		
<i>Induction period</i> ⁽²⁾	<i>minutes</i>	480	-	EN-ISO 7536
Oxygen content	per cent m/m	-	1.0	EN 1601
Existent gum	mg/ml	-	0.04	EN-ISO 6246
Sulphur content ⁽³⁾	mg/kg	-	10	<i>ASTM D 5453</i>
Copper corrosion		-	<i>Class 1</i>	EN-ISO 2160
Lead content	<i>mg/l</i>	-	5	EN 237
Phosphorus content	<i>mg/l</i>	-	1.3	ASTM D 3231

⁽¹⁾ The values quoted in the specification are "true values". In establishment of their limit values the terms of ISO 4259 "Petroleum products - Determination and application of precision data in relation to methods of test" have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility).

Notwithstanding this measure, which is necessary for *technical* reasons, the manufacturer of fuels should nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify the question as to whether a fuel meets the requirements of the specifications, the terms of ISO 4259 should be applied.

⁽²⁾ The fuel may contain oxidation inhibitors and metal deactivators normally used to stabilise refinery gasoline streams, but detergent/dispersive additives and solvent oils *must* not be added.

⁽³⁾ The actual sulphur content of the fuel used for the Type *VI* test shall be reported.

ALTERNATIVELY

Type: Petrol (E5)

Parameter	Unit	Limits ¹		Test method
		Minimum	Maximum	
Research octane number, RON		95,0	—	EN 25164 prEN ISO 5164
Motor octane number, MON		85,0	—	EN 25163 prEN ISO 5163
Density at 15 °C	kg/m ³	743	756	EN ISO 3675 EN ISO 12185
Vapour pressure	kPa	56,0	95,0	EN ISO 13016-1 (DVPE)
Water content	% v/v		0.015	ASTM E 1064
Distillation:				
– evaporated at 70 °C	% v/v	24,0	44,0	EN-ISO 3405
– evaporated at 100 °C	% v/v	50,0	60,0	EN-ISO 3405
– evaporated at 150 °C	% v/v	82,0	90,0	EN-ISO 3405
– final boiling point	°C	190	210	EN-ISO 3405
Residue	% v/v	—	2,0	EN-ISO 3405
Hydrocarbon analysis:				
– olefins	% v/v	3,0	13,0	ASTM D 1319
– aromatics	% v/v	29,0	35,0	ASTM D 1319
– benzene	% v/v	—	1,0	EN 12177
– saturates	% v/v		Report	ASTM 1319
Carbon/hydrogen ratio			Report	
Carbon/oxygen ratio			Report	
Induction period ²	minutes	480	—	EN-ISO 7536
Oxygen content ⁴	% m/m		Report	EN 1601
Existent gum	mg/ml	—	0,04	EN-ISO 6246
Sulphur content ³	mg/kg	—	10	EN ISO 20846 EN ISO 20884
Copper corrosion		—	Class 1	EN-ISO 2160
Lead content	mg/l	—	5	EN 237
Phosphorus content	mg/l	—	1,3	ASTM D 3231
Ethanol ⁴	% v/v	4,7	5,3	EN 1601 EN 13132

1 The values quoted in the specifications are 'true values'. In establishment of their limit values the terms of ISO 4259 Petroleum products - Determination and application of precision data in relation to methods of test have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account; in fixing a maximum and minimum value, the minimum difference is 4R (R = reproducibility).

Notwithstanding this measure, which is necessary for technical reasons, the manufacturer of fuels shall nevertheless aim at a zero value where the stipulated maximum value is 2R and at the mean value in the case of quotations of maximum and minimum limits. Should it be necessary to clarify whether a fuel meets the requirements of the specifications, the terms of ISO 4259 shall be applied.

2 The fuel may contain oxidation inhibitors and metal deactivators normally used to stabilise refinery gasoline streams, but detergent/dispersive additives and solvent oils shall not be added.

3 The actual sulphur content of the fuel used for the Type 1 test shall be reported.

4 Ethanol meeting the specification of prEN 15376 is the only oxygenate that shall be intentionally added to the reference fuel.

5 There shall be no intentional addition of compounds containing phosphorus, iron, manganese, or lead to this reference fuel.

Paragraph 5.2.4. amend to read:

5.2.4. The appropriate reference fuels as defined in annex 10 to Regulation No. 83 must be used for testing.

For LPG and natural gas (NG) that reference fuel must be used which is chosen by the manufacturer for the measurement of the net power in accordance with Regulations No. 85. The chosen fuel must be specified in the communication document as defined in annex 3 to this Regulation.

For the purpose of calculation mentioned in paragraph 5.2.3., the fuel consumption shall be expressed in appropriate units and the following fuel characteristics shall be used:

(a) density: measured on the test fuel according to ISO 3675 or an equivalent method. For petrol and diesel fuel the density measured at 15 °C will be used; for LPG and natural gas a reference density will be used, as follows:

0.538 kg/litre for LPG

0.654 kg/m³ for NG *)

(b) hydrogen-carbon ratio: fixed values will be used which are:

C₁H_{1.85} for petrol (E0)

C₁H_{1.86} for diesel fuel (B0)

C₁H_{2.525} for LPG

C₁H_{4.00} for NG.

C₁H_{1.89}O_{0.016} for petrol (E5)

C₁H_{1.86}O_{0.005} for diesel fuel (B5)

Annex 6,

Item 1.4.3. amend to read:

ANNEX 6

METHOD OF MEASURING EMISSIONS OF CARBON DIOXIDE AND FUEL CONSUMPTION OF VEHICLES POWERED BY AN INTERNAL COMBUSTION ENGINE ONLY

1. SPECIFICATION OF THE TEST

1.4. Calculation of CO₂ and fuel consumption values

1.4.3. The fuel consumption, expressed in litres per 100 km (in the case of petrol, LPG or diesel) or in m³ per 100 km (in the case of NG) is calculated by means of the following formulae:

(a) for vehicles with a positive ignition engine fuelled with petrol (E0):

$$FC = (0.1154 / D) \cdot [(0.866 \cdot HC) + (0.429 \cdot CO) + (0.273 \cdot CO_2)]$$

(b) for vehicles with a positive ignition engine fuelled with LPG:

$$FC_{norm} = (0.1212 / 0.538) \cdot [(0.825 \cdot HC) + (0.429 \cdot CO) + (0.273 \cdot CO_2)]$$

If the composition of the fuel used for the test differs from the composition that is assumed for the calculation of the normalised consumption, on the manufacturer's request a correction factor cf may be applied, as follows:

$$FC_{norm} = (0.1212 / 0.538) \cdot (cf) \cdot [(0.825 \cdot HC) + (0.429 \cdot CO) + (0.273 \cdot CO_2)]$$

The correction factor cf, which may be applied, is determined as follows:

$$cf = 0.825 + 0.0693 \cdot n_{\text{actual}}$$

where:

n_{actual} = the actual H/C ratio of the fuel used

- (c) for vehicles with a positive ignition engine fuelled with NG:
$$FC_{\text{norm}} = (0.1336 / 0.654) \cdot [(0.749 \cdot \text{HC}) + (0.429 \cdot \text{CO}) + (0.273 \cdot \text{CO}_2)]$$
- (d) for vehicles with a compression ignition engine diesel (B0):
$$FC = (0.1155 / D) \cdot [(0.866 \cdot \text{HC}) + (0.429 \cdot \text{CO}) + (0.273 \cdot \text{CO}_2)]$$
- (e) **for vehicles with a positive ignition engine fuelled with petrol (E5):**
$$FC = (0.118 / D) \cdot [(0.848 \cdot \text{HC}) + (0.429 \cdot \text{CO}) + (0.273 \cdot \text{CO}_2)]$$
- (f) **for vehicles with a compression ignition engine fuelled with diesel (B5):**
$$FC = (0.116 / D) \cdot [(0.861 \cdot \text{HC}) + (0.429 \cdot \text{CO}) + (0.273 \cdot \text{CO}_2)]$$

In these formulae:

- FC = the fuel consumption in litre per 100 km (in the case of petrol, LPG or diesel) or in m³ per 100 km (in the case of natural gas)
- HC = the measured emission of hydrocarbons in g/km
- CO = the measured emission of carbon monoxide in g/km
- CO₂ = the measured emission of carbon dioxide in g/km
- D = the density of the test fuel

In the case of gaseous fuels this is the density at 15 °C.

* * *

B. JUSTIFICATION

Regulations 83 and 101 do not allow any biodiesel or ethanol content in the specification of the reference fuel for Type I and Type VI testing.

The specific procedures, tests and requirements for type approval, which are now under discussion in the European Community, will define future reference fuels, such as petrol, diesel, gaseous fuels and biofuels, such as bioethanol, biodiesel and biogas. The current committee proposal (version of September 2007) allows only B5 and E5 fuel as reference fuel for Type I and Type VI testing of mono-fuel vehicles.

It is reasonable to allow the use of the proposed B5 and E5 reference fuel as an alternative in Regulations 83 and 101 to avoid double testing of Type I and Type VI testing and to allow easier export of modern Euro 5 concepts to countries outside the European Community, which apply the UN/ECE Regulations.
