

ANNEX IV

AMENDMENTS TO ANNEX V TO DIRECTIVE 72/306/EEC

Annex V is replaced by the following:

TECHNICAL CHARACTERISTICS OF REFERENCE FUEL PRESCRIBED FOR APPROVAL TESTS AND TO VERIFY CONFORMITY OF PRODUCTION

CEC reference fuel RF-03-A-84⁰⁰⁰

	Limits and units	ASTM method
Cetan number ^d	min 49	D 613
	max 53	
Density 15 °C (Kg/l)	min 0,835	D 1298
	max 0,845	
Distillation ^b 50 %	min 245 °C	D 86
	90 %	
	min 320 °C	
FBP	max 340 °C	
	max 370 °C	
Flash point	min 55 °C	D 93
CFPP	min –	EN 116 (CEN)
	max – 5 °C	
Viscosity 40 °C	min 2,5 mm ² /S	D 445
	max 3,5 mm ² /S	
Sulphur content	min (to be reported)	D 1266/D 2622 D 2785
	max 0,3 % mass	
Copper corrosion	max 1	D 130
Conradson carbon residue (10 % DR)	max 0,2 % mass	D 189
Ash content	max 0,01 % mass	D 482
Water content	max 0,05 % mass	D 95/D 1744
Neutralization (strong acid) number	max 0,2 mg KPH/g	
Oxidation stability ^f	max 2,5 mg/100 m	D 2274
Additives ^e		
Carbon-hydrogen ratio	(to be reported)	

a Equivalent ISO methods will be adopted when issued all properties listed above.

b The figures quoted show the evaporated quantities (percentage recovered + percentage loss).

Status: EU Directives are being published on this site to aid cross referencing from UK legislation. After IP completion day (31 December 2020 11pm) no further amendments will be applied to this version.

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- c** The values quoted in the specification are “true values”. In establishment of their limit values the terms of ASTM D 3244 “Defining a basis for petroleum product quality disputes” have been applied and in fixing a maximum 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 statistical reasons, the manufacturer of fuel 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 specification, the terms of ASTM D 3244 be applied.
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- d** The range for cetane is note in accordance with the requirement of a minimum range of 4R. However, in cases of dispute between fuel supplier and fuel user, the terms of ASTM D 3244 can be used to resolve such disputes provided replicate measurements, of sufficient number to achieve the necessary precision, are made in preference to single determinations.
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- e** This fuel should be based on straight run and cracked hydrocarbon distillate components only; desulphurization is allowed. It must not contain any metallic additives or cetane improver additives.
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- f** Even though oxidation stability is controlled, it is likely that shell life will be limited. Advice should be sought from the supplier as to storage conditions and life.
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- g** If it is required to calculate thermal efficiency of an engine or vehicle, the calorific value of the fuel can be calculated from:
Specific energy (calorific value) (net) MJ/kg =
 $(46,423 - 8,792d^2 + 3,170d) (1 - (x+y+s)) + 9,420s - 2,499x$
where:
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|----------|---|--|
| d | = | the density at 15 °C, |
| x | = | the proportion by mass of water (%/100), |
| y | = | the proportion by mass of ash (%/100), |
| s | = | the proportion by mass of sulphur (%/100). |
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