

Att. No. 1b - Requirements and quality for ORLEN Unipetrol Slovakia s.r.o.Product specification for depots: **Nové Zámky, Trebišov****All quality parameters are in compliance with****STN EN 14214 + A2:2019 (idt. EN 14214 + A2:2019), considering any changes in regulations introduced during the term of the Contract.**

Property	Unit	Scope		Testing method
		minimum	maximum	
1) Content of fatty acid methyl esters (FAME)	% (m/m)	96.5	-	EN 14103
2) Density at 15°C ^a	kg/m ³	860	900	EN ISO 3675 ^b EN ISO 12185
3) Viscosity at 40°C	mm ² /s	3.50	5.00	EN ISO 3104 EN 16896
4) Flash point	°C	101	-	EN ISO 2719 ^b EN ISO 3679 ^c
5) Sulfur content	mg/kg	-	10.0	EN ISO 20846 ^b EN ISO 20884 EN ISO 13032
6) Cetane number ^d		51.0	-	EN ISO 5165 EN 15195 ^h EN 16715 EN 17155
7) Sulphated ashes content	% (m/m)	-	0.02	ISO 3987
8) Water content	% (m/m)	-	0.050	EN ISO 12937
9) Total contamination	mg/kg	-	24	EN 12662 ⁱ
10) Test of copper strip corrosion (3h in 50°C)	Rating	class 1		EN ISO 2160
11) Oxidation stability in 110°C	h	8	-	EN 15751 EN 14112 ^b
12) Acid value	mg KOH/g	-	0.50	EN 14104
13) Iodine index	g of iodine/100 g	-	120	EN 14111 ^b EN 16300
14) Content of linoleic acid methyl ester	% (m/m)	-	12.0	EN 14103
15) Content of polyunsaturated fatty acid methyl esters (containing at least four double bonds)	% (m/m)	-	1.00	EN 15779
16) Methyl alcohol content	% (m/m)	-	0.20	EN 14110
17) Monoacylglycerol content	% (m/m)	-	0.70 ^e	EN 14105
18) Diacylglycerol content	% (m/m)	-	0.20	EN 14105
19) Triacylglycerol content	% (m/m)	-	0.20	EN 14105
20) Free glycerol content	% (m/m)	-	0.02	EN 14105 ^b EN 14106
21) General glycerol content	% (m/m)	-	0.25	EN 14105
22) Group I metal content (Na + K)	mg/kg		5.0 ^f	EN 14108 ^b EN 14109 EN 14538
23) Group II metal content (Ca + Mg)	mg/kg	-	5.0	EN 14538
24) Phosphorus content	mg/kg	-	4.0 ^g	EN 14107 ^b EN 16294
Climate dependent requirements				

Property	Unit	Scope		Testing method
		minimum	maximum	
FAME in 100 % concentration				
CFPP				
Grade B (15.04.-30.09.)	°C		0	EN 116
Grade D (1.03.-14.04.; 1.10.-15.11.)	°C		-10	EN 116
Grade F (16.11.-28.02.)	°C		-20	EN 116
FAME as blending component for Diesel				
a) cold flow properties:				
Class d (1.04.-30.09.)				
Cloud point	°C		5	EN 23015
CFPP	°C		0	EN 116
Class f (1.10.-31.3.)				
CP	°C		0	EN 23015
CFPP for depot Nové Zámky	°C		-10	EN 116
CFPP for depot Trebišov (01.11.-28/29.02)	°C		-20	EN 116
b) Monoacylglycerol content				
Class 6 (all year)	% (m/m)		0,7	EN 14105

a	Density may be determined within the temperature range from 20 °C to 60 °C. Adjustment of temperature shall be made according to the formula set out in Annex B to the EN 14214+A2:2019-05 norm.
b	See 5.5.2 in the EN 14214+A2:2019-05 norm.
c	A 2 ml of a sample shall be used and a measuring apparatus equipped with a thermal detector shall be employed. See also 5.5.2 in the EN 14214+A2:2019-05 norm.
d	The determination of derived cetane number for FAME is not included in the precision determinations of some test methods
e	For the use as an extension of uses of diesel fuel Table 3 EN 14214+A2:2019-05. In the period from 1.10. to 15.04. the Product shall be delivered with a limit of 0.6% (m/m).
f	A lower value may be introduced after validation of work on the required measurement precision (see Introduction in the EN 14214+A2:2019-05 norm).
g	A value lower than 2.5 mg/kg may be introduced after validation of work on the required measurement and impact on engine oil.
h	See 5.5.2. EN 15195 is applicable for the quantitative determination of the ignition characteristics of FAME, however the correlation data available were inconclusive about the precision of the equation.
i	EN 12662 is under revision for pure FAME. EN 12662:1998 [8] may be used as an alternative

Note 1: Producer shall put antioxidant into each batch before delivery as soon as possible after production.
Note 2: Each delivery shall be attended by atest with all parameters above.
Note 3: For FAME as blending component for Diesel, the given cold flow values (CP, CFPP) are without any additives for reducing flow properties at low temperatures (e.g. depresants).
Note 4: Each supplied batch shall be supplied with declaration of sustainability of biofuels.

The maximum value of greenhouse gas emissions of the **Product** shall be ... g CO₂eq/MJ.

The **Product** is made from