

TOPAZ ENERGY LTD - PRODUCT SUPPLY SPECIFICATION

PREMIUM UNLEADED MOTOR GASOLINE - ULG 95

IS EN 228 - 2004			Winter	Transition	Summer	Transition	Spec Test	IP / ASTM	Notes
Applicable Period			16/10 - 15/4	16/4 - 31/5	1/6 - 31/8	1/9 - 15/10			a
Appearance			Clear and Bright and free from suspended mater						
Density at 15°C	kg/m ³	min max	720 775	720 775	720 775	720 775	EN ISO 3675 EN ISO 12185	D 4052	
Octane No: Research Motor	ON ON	min/max min/max	95.0-96.0 85.0-86.0	95.0-96.0 85.0-86.0	95.0-96.0 85.0-86.0	95.0-96.0 85.0-86.0	EN 25164 EN 25163	D 2699	f
Lead	mg/l	max	5	5	5	5	EN 237	IP 3237	b
Distillation:									
Evap. At 70°C	%v	min max	22 50	22 50	22 48	20 50	prEN ISO 3405	D 86	
Evap. At 100°C	%v	min max	46 71	46 71	46 71	46 71	prEN ISO 3405	D 86	
Evap. At 150°C	%v	min	75	75	75	75	prEN ISO 3405	D 86	
Final Boiling Point	°C	max	210	210	210	210	prEN ISO 3405	D 86	
Residue	%v	max	2.0	2.0	2.0	2.0	prEN ISO 3405	D 86	
RVP	kPa	min max	70 ⁽²⁾ 100 ⁽²⁾	45 ⁽²⁾ 70 ⁽¹⁾	45 ⁽²⁾ 70 ⁽¹⁾	45 ⁽¹⁾ 100 ⁽²⁾	prEN 13016-1	IP 402	
VLI		max	1250 ⁽⁴⁾	1250 ⁽³⁾	na	1250 ⁽³⁾	10 VP + 7 E70		c
Sulphur	mg/kg	max	10	10	10		EN ISO 14596 EN ISO 8785 EN 24260	IP 336 D 2622	e
Olefins	%v	max	18.0	18.0	18.0	18.0	ASTM D 1319		
Aromatics	%v	Max max	42.0 35	42.0 35	42.0 35	Until 12-04 01-01-05	ASTM D 1319		
Benzene	%v	max	1.0	1.0	1.0	1.0	EN 12177 EN 238	D3606	
Hydrogen Sulphide			Pass				SMS 231		
Oxygenates:							EN 1601 prEN 13132		
MTBE	%v	max	10	10	10	10			
Alcohols	%v	max	0.5	0.5	0.5	0.5			
Oxygen	%m/m	max	2.7	2.7	2.7	2.7	EN 1601 prEN 13132		
Copper corrosion – 3hrs at 50°C		max	Class 1				EN ISO 2160	D 130	
Mercaptan sulphur	%m	max	0.0015	0.0015	0.0015	0.0015	D3227		
or Doctor test			Negative	Negative	Negative	Negative	IP30		
Existent Gum	mg/100ml	max	4	4	4	4	EN ISO 6246	IP 131	
Induction period (oxidation stability)	mins	min	360	360	360	360	EN ISO 7536	D 525	
Ethanol	%	max	5	5	5	5			
Odour			Marketable						
Silver Corrosion –3hrs AT 50C	rating	max	Class 1	Class 1	Class 1	Class 1	ASTM D4814 - 048		

Where more than one test method is quoted in the reference specification the one in **BOLD** is defined as the referee method.

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Notes:

This product may contain up to 5% Ethanol.

- (1) To meet Motor Fuel Regulations ex refinery (Annex 1, corrected to 70 kPa summer in paragraph 3.3(iii))
 - (2) To meet IS EN228:2000 (ex retail site)
 - (3) To ensure Retail transition specifications in IS EN228:2000 are met
 - (4) This limit is required to turn over the retail network to 1250 max by 16 April to satisfy IS EN228:2000. It is **not necessary** to manufacture to 1250 max for the whole of the winter period, only the last six weeks or so. The exact timing of the change to 1250 max ex refinery is to be reviewed annually by Supply in the light of prevailing economics. In the absence of any other guidance the change is to be made on the 1 March each year.
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- (a) This is to ensure the fuel meets IS EN 228 requirements ex retail sites for the following seasonal periods: Winter (16 October - 15 April), Spring (16 April - 31 May), Summer (1 June - 31 August) and Autumn (1 September - 15 October)
 - (b) The lead content of 0.005g Pb/l max applies throughout the supply chain.
 - (c) During the transition period any mixture of the applicable transition grade and the summer grade is acceptable.
 - (d) Need not be determined if components from the HF Alkylation units are not blended into the finished product. It is acceptable to monitor/control the level in finished blends either by measurement, or calculation from determined concentrations in butane and alkylate component streams.
 - (e) Sulphur test methods: the referee method in case of dispute has changed to be EN ISO 14596 in place of EN ISO 24260.
 - (f) Only a single maximum octane limit applies at a time. It is permitted to exceed the maximum RON provided the MON is below its maximum limit and vice versa.