



HELLENIC PETROLEUM S.A.

ELEFSIS REFINERY

## CERTIFICATE OF QUALITY LABORATORY REPORT

PRODUCT:                      JET A1

PROPERTIES	RESULTS	METHOD ASTM/IP
Density at 15 °C	Kg/m <sup>3</sup> <b>799.3</b>	D-1298
Appearance (visual)	<b>Clear bright</b>	
Colour	<b>21</b>	D-156
Total acidity	mgKOH/g <b>0.004</b>	IP-354
Aromatics	% vol <b>17.0</b>	D-1319
Sulfur total	% wt <b>0.27</b>	D-4294
Sulfur, mercaptan or Doctor test	% wt <b>0.0012</b>	D-3277 D-4952
Hydroprocessed component in batch	% vol <b>nil</b>	
Severely hydroprocessed components	% vol <b>nil</b>	
Distillation	°C	D-86
I.B.P.	°C <b>154</b>	
10 % vol	°C <b>175</b>	
20 % vol	°C <b>181</b>	
50 % vol	°C <b>200</b>	
90 % vol	°C <b>236</b>	
End point	°C <b>252</b>	
Loss	% vol <b>0.8</b>	
Residue	% vol <b>0.5</b>	
Flash point (Tag)	°C <b>43</b>	D-56
Freezing point	°C <b>-49</b>	D-2386

PROPERTIES	RESULTS	METHOD ASTM/IP
Viscosity at -20 °C	cSt	D-445
Specific Energy Net	MJ/Kg	D-4529
Water reaction	<b>1B/2</b>	D-1094
Smoke point	mm	D-1322
Corrosion, copper (2h at 100 °C)	<b>1a</b>	D-130
Thermal stability(JFTOT) (control temperature 260 °C)		D-3241
a-Filter pressure differential	mm Hg	<b>Zero</b>
b-Tube Deposit Rating (visual)	<b>Zero, No peacock or abnormal colour deposits</b>	
Existent Gum	mg/100ml	<b>1.5</b> D-381
Particulate Contamination	mg/l	<b>0.40</b> D-5452 D-3948
WSIM(Microseparator, rating) with Static dissipator additive without Static dissipator additive		<b>93</b>
Electrical conductivity	Ps/m	<b>5</b> D-2624
Lubricity		D-5001
Bocle wear scar diameter	mm	
Antioxidant in hydroprocessed & synthetic fuels	mg/l	
in non-hydroprocessed fuels	mg/l	
Metal deactivator	mg/l	
Static dissipator	mg/l	
First doping    Stadis 450	mg/l	
Re-doping	mg/l	

This product meets joint fuelling system check list for Jet A-1 latest issue (20) -March 2005'.

which embodies the following Specifications.

a-British MoD DEF STAN 91-91/Issue 5, dated 8 February 2005, Jet A-1.

b-ASTM D-1655-04a, Jet A-1.

CHIEF CHEMIST: .