

Siemens AG, PG P11M87, 45466 Muelheim an der Ruhr

LOTOS OIL SA  
Mr. Jan Biedroń  
Biuro Technologii  
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Poland

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Your letter of	RT/226/07
Our reference	P11M8/07/1073
Date	July 9, 2007

### **Turbine Oil Approval according to TLV 901304 REMIZ TU 32 and REMIZ TU 46**

Dear Mr. Biedroń,

we carried out approval testing on your products "REMIZ TU 32" and "REMIZ TU 46" according to Siemens turbine oil specification TLV 9013 04. The results are in accordance with this specification. They are listed in the enclosed test certificates.

Herewith we give the formal approval for "REMIZ TU 32" and "REMIZ TU 46" for use in Siemens turbosets without gearbox. The products will be published in the list of approved turbine oils.

Sincerely yours,

Enclosure  
2 Test Certificates



Dr. Ludger Quick

**Siemens AG**  
Division: Fossil Power Generation, Products  
Head: Luis de Sousa, Head Business Admin.: Guenter Weis  
Group: Power Generation  
Group Executive Management: Klaus Voges, Group President; Ralf Guntermann,  
Michael Suess, Randy Zwirn

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Managing Board: Peter Loescher, Chairman, President and Chief Executive Officer; Johannes Feldmayer, Heinrich Hiesinger, Joe Kaeser,  
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Registered offices: Berlin and Munich; Commercial registries: Berlin Charlottenburg, HRB 12300, Munich, HRB 6684  
WEEE-Reg.-Nr. DE 23691322



# Test Certificate

**No. S1883**

 Lube Oil Analysis
 

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Code word:	<b>Approval TLV 901304</b>	Customer:	<b>LOTOS OIL</b>
Turbine type:		Department:	
Serial No:		Telephone:	
Oil type:	<b>REMIZ TU 32</b>	SAP account no:	<b>40016235</b>
Manufacturer/Supplier:	<b>LOTOS Oil</b>	Date of receipt:	<b>2007-05-16</b>
Sampling date:		Sampling:	

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## Test Results:

Air release at 50°C	DIN ISO 9120	<b>4 min</b>
Neutralization Number	DIN 51558-1	<b>0.12 mg KOH/g</b>
Water content	DIN 51777-1	<b>&lt; 0.01 %</b>
Foaming tendency at 25°C	ISO 6247	<b>0 ml</b>
Foam stability at 25°C	ISO 6247	<b>0 s</b>
Rest after 600 s at 25°C	ISO 6247	<b>0 ml</b>
Water separability	DIN 51589-1	<b>80 s</b>
Viscosity at 40°C	DIN 51562-1	<b>32.2 mm<sup>2</sup>/s</b>
Density at 15°C	DIN 51757	<b>0.875 g/ml</b>
Colour (ASTM scale)	DIN ISO 2049	<b>&lt; 0.5</b>
Flash point (Cleveland open cup)	DIN EN ISO 2592	<b>224 °C</b>
Pour point	DIN ISO 3016	<b>&lt; -12 °C</b>
Cleanliness code	ISO 4406	<b>19/16/13</b>
Corrosiveness to copper	DIN EN ISO 2160	<b>passed</b>

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## Comments:

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 Elaborator: **Henrichs**

 Testing date: **2007-06-23**

 Counter-signature: **sgd. Quick**


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# Test Certificate

**No. S1884**

 Lube Oil Analysis
 

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Code word:	<b>Approval TLV 901304</b>	Customer:	<b>LOTOS OIL</b>
Turbine type:		Department:	
Serial No:		Telephone:	
Oil type:	<b>REMIZ TU 46</b>	SAP account no:	<b>40016235</b>
Manufacturer/Supplier:	<b>LOTOS Oil</b>	Date of receipt:	<b>2007-05-16</b>
Sampling date:		Sampling:	

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## Test Results:

Air release at 50°C	DIN ISO 9120	<b>3</b> min
Neutralization Number	DIN 51558-1	<b>0.14</b> mg KOH/g
Water content	DIN 51777-1	<b>&lt; 0.01</b> %
Foaming tendency at 25°C	ISO 6247	<b>130</b> ml
Foam stability at 25°C	ISO 6247	<b>120</b> s
Water separability	DIN 51589-1	<b>100</b> s
Viscosity at 40°C	DIN 51562-1	<b>44.1</b> mm <sup>2</sup> /s
Density at 15°C	DIN 51757	<b>0.878</b> g/ml
Colour (ASTM scale)	DIN ISO 2049	<b>&lt; 0.5</b>
Flash point (Cleveland open cup)	DIN EN ISO 2592	<b>220</b> °C
Pour point	DIN ISO 3016	<b>&lt; -12</b> °C
Cleanliness code	ISO 4406	<b>17/15/13</b>
Corrosiveness to copper	DIN EN ISO 2160	<b>passed</b>

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## Comments:

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 Elaborator: **Henrichs**

 Testing date: **2007-06-23**

 Counter-signature: **sgd. Quick**


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