

## Annexure

<b>1. Detailed specification</b>	<p>IS: 15607:2005 (or latest version) and additional parameters as under:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Parameter</th> <th style="text-align: center;">Limit</th> <th style="text-align: center;">Method</th> </tr> </thead> <tbody> <tr> <td>Mono Glyceride content</td> <td>0.8% m/m max.</td> <td>ASTMD 6584</td> </tr> <tr> <td>Di Glyceride content</td> <td>0.2% m/m max</td> <td>ASTMD 6584</td> </tr> <tr> <td>Tri Glyceride content</td> <td>0.2% m/m max</td> <td>ASTMD 6584</td> </tr> <tr> <td>Group I metals (Na+K)</td> <td>5, max, mg/kg</td> <td>EN 14108 &amp; EN 14109</td> </tr> <tr> <td>Group II metals (Ca+Mg)</td> <td>5, max, mg/kg</td> <td>EN 14538</td> </tr> <tr> <td colspan="3" style="text-align: center;">Cold filter plugging point: 'To Report'</td> </tr> </tbody> </table>	Parameter	Limit	Method	Mono Glyceride content	0.8% m/m max.	ASTMD 6584	Di Glyceride content	0.2% m/m max	ASTMD 6584	Tri Glyceride content	0.2% m/m max	ASTMD 6584	Group I metals (Na+K)	5, max, mg/kg	EN 14108 & EN 14109	Group II metals (Ca+Mg)	5, max, mg/kg	EN 14538	Cold filter plugging point: 'To Report'					
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<b>2. Inspecting Authority</b>	<p>i) Before commencement of supply, approval of manufacturing facilities &amp; process is to be done by RDSO.</p> <p>ii) At the time of qualification of a biodiesel supplier full specification testing to IS:15607:2005 (or latest version) is to be done by RDSO on the main lot manufactured by the supplier for each type of feedstock used, including additional tests as per table below:</p> <p style="text-align: center;"><b>Additional Test of Biodiesel</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Parameter</th> <th style="text-align: center;">Limit</th> <th style="text-align: center;">Method</th> </tr> </thead> <tbody> <tr> <td>Mono Glyceride content</td> <td>0.8% m/m max.</td> <td>ASTMD 6584</td> </tr> <tr> <td>Di Glyceride content</td> <td>0.2% m/m max</td> <td>ASTMD 6584</td> </tr> <tr> <td>Tri Glyceride content</td> <td>0.2% m/m max</td> <td>ASTMD 6584</td> </tr> <tr> <td>Group I metals (Na+K)</td> <td>5, max, mg/kg</td> <td>EN 14108 &amp; EN 14109</td> </tr> <tr> <td>Group II metals (Ca+Mg)</td> <td>5, max, mg/kg</td> <td>EN 14538</td> </tr> <tr> <td>Cold filter plugging point (CFPP)</td> <td>6°C, max</td> <td>IS 1448, P:110</td> </tr> <tr> <td>Pour point</td> <td>3°C, max</td> <td>IS 1448, P:10</td> </tr> </tbody> </table> <p>iii) Firm to dispatch 0.5 KL of bio-diesel to RDSO for engine performance tests on Alco and EMD test bed with B5 blend, out of the first ordered quantity only, of a type of feedstock used.</p> <p>iv) Subsequent to clearance by RDSO, if the type of feedstock used is different from the one tested by RDSO, full specification test is to be done by inspecting authority (RITES) on the main lot against specification IS:15607:2005 (or latest version) including additional tests given in para ii above.</p> <p>v) Thereafter firm to dispatch biodiesel to purchaser as per terms and conditions of the purchase order. The characteristic of biodiesel which will need to be tested to the limits of specification IS:15607:2005 (or latest version) for each sub</p>	Parameter	Limit	Method	Mono Glyceride content	0.8% m/m max.	ASTMD 6584	Di Glyceride content	0.2% m/m max	ASTMD 6584	Tri Glyceride content	0.2% m/m max	ASTMD 6584	Group I metals (Na+K)	5, max, mg/kg	EN 14108 & EN 14109	Group II metals (Ca+Mg)	5, max, mg/kg	EN 14538	Cold filter plugging point (CFPP)	6°C, max	IS 1448, P:110	Pour point	3°C, max	IS 1448, P:10
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lot, at manufacturer's end, by inspecting authority (RITES), before dispatch, as per the table below. (These would be sub lots of the main lot manufactured by the supplier and being supplied as per delivery requirements of the purchase order).

S.No	Characteristic	Test method ISO /ASTM/IS:14448
1	Density@15°C, Kg/m <sup>3</sup>	P-16/P-32
2	Kinematic Viscosity@40°C, Min	P-25
3	Flash point, (PMCC)°C, Min.	P-21
4	Water Content, mg/kg, max	D2709
5	Total contamination, mg/kg, max	EN 12662
6	Copper corrosion 3hrs @50°C, max	P-15
7	Acid value, mg KOH/g, max	P-1/sec-1
8	Ester content % by mass, max	EN 14103
9	Total Glycerol% by mass, max	D6584
10	Oxidation stability @110°C, h, min.	EN 14112

vi) The characteristics of biodiesel which need to be tested to the limits of specification IS:15607:2005 (or latest version) for each lot, received at RCD, by consignee are as per the table below.

S.No	Characteristic	Test method ISO /ASTM/IS:14448
1	Density@15°C, Kg/m <sup>3</sup>	P-16/P-32
2	Kinematic Viscosity@40°C, Min	P-25
3	Flash point, (PMCC)°C, Min.	P-21
4	Copper corrosion 3 hrs @50°C, max	P-15
5	Water Content, mg/kg, max	D2709

**3. Charges for tests**

- a) **Tests to be done by RDSO**  
 All expenses related to tests for which facilities are available in the vendor's premises and if RDSO decides to carry out the test in the vendor's premises will be borne by vendor himself.  
 All tests which RDSO decides to carry out in its lab will be borne by RDSO.  
 All tests which are decided by RDSO to be done in outside agency (other than RDSO and Vendor's lab) will be borne by vendor.
- b) **Tests to be done by RITES**  
 All expenses related to tests for which facilities are available in the vendor's premises and if RITES decides to carry out these tests in the Vendor's premises will be borne by vendor himself.  
 All tests which RITES decided to carry out in outside lab (other than vendor and Railway lab) will be borne by vendor.
- c) **Tests to be done by RCDs (Consignee)**  
 All tests which consignee decided to carry out in consignee

	premises will be borne by the consignee himself.
<b>4. Delivery schedule</b>	<p>Supplier should be capable of supplying at least 50 KL to each consignee every 15 days. Normally supply will be required from month of March to month of October. Monthly loading schedule will be advised by consignee to the supplier as per requirement based on storage capacity and trend of consumption. Normally no supply will be required from month of November to month of February.</p> <p>Firm will ensure delivery to reach the product on the date(s) shown in the monthly schedule and send advance intimation of dispatching the product.</p> <p>Firm will endeavour to meet the requirement in time. If, however, for any reasons loading schedule cannot be complied with, the same will be intimated to the consignee in due course with a request to revise loading plan.</p>
<b>5. Warranty condition</b>	Warranty will be applicable to procure biodiesel as per clause 3201 & 3204 of IRS condition of contract.