

**Scope of work – Engine Coolant Analysis**

- I. Lab should be NABL certified.
- II. Lab should have in house facilities to check following parameters as per ASTM standards.

**PHYSICO ANALYSIS**

SL.NO.	Particulars	UNITS	METHODS
1	Colour	Appearance	Visual
2	Water Content	Wt. %	ASTM E203
3	Glycol Content	%	ASTM D3321
4	Freezing Point	°C	
5	Alkalinity (RA)	ml	ASTM1121
6	pH	Value	ASTM D1287
6	Boiling Point	°C	ASTM D1120
8	Total Dissolved Solids (TDS)	ppm	By TDS Meter
9	Nitrite	ppm	Lab Procedure
10	Sulphate	ppm	
11	Chloride	ppm	ASTM D3634
12	Total Hardness	ppm	Lab Procedure
13	Conductivity	ms/cm	By Conductivity meter

**Elemental Analysis – ppm (mg/kg) – ASTM D6130****Corrosion Metals**

SL.NO.	PARAMETERS	UNITS	METHODS
1	Aluminium	ppm	ASTM D6130
2	Copper (Cu)		
3	Lead (Pb)		
4	Zinc (Zn)		

**Contaminants**

1	Calcium (Ca)	ppm	ASTM D6130
2	Magnesium (Mg)		

**Additives**

1	Sodium (Na)	ppm	ASTM D6130
2	Potassium (K)		
3	Silicon (Si)		
4	Phosphorus (P)		
5	Boron (B)		
6	Molybdenum (Mo)		

- I. All reports should be available on line (firm's website) and immediate information to concerned thru messages.
- II. Each report should contain history of analysis results conducted on previous samples. Specific to Engine / Equipment Sl. No. Monthly consolidated report shall be mailed by firm to divisional Quality & Service.
- III. Reports should indicate proper comments for further analysis.
- IV. Sample from BEML Ltd., at offices spread across India needs to be collected by the lab.



QTZ-1