Calibration and Operational Gases for
Automotive BSVI Exhaust Emission Analysers

In order to qualify the Bidders have to meet both the Technical Specifications in Table 1 and the Essential Supplier Qualifying Conditions in Table 2. The bidders also have to specify the Rent and Deposit for the cylinders as given in Table 3.

Table 1 Technical Specifications of the Calibration and Operational Gases for Automotive BSVI Exhaust Emission Analysers

No.	Gas Component	Purpose	Balance gas	Concentration	Cylinder
OPERATIONAL GASES					
1	Pure N_2	Standard		99.999 (%)	47 lit Carbon steel
2	Pure Air/Synthetic Air	Standard - FIA - Flame Burner air for THC/CH4		20% Oxygen+80% Nitrogen	47 lit Carbon steel
3	H2/He	Standard		(H_2 40%+/- 1%) He 60%	47 lit Carbon steel
4	Pure Oxygen	Standard- Ozonator - for CLA		99.999 (%)	47/50 lit Carbon steel
CALIBRATION GASES					
5	CO	Standard	N_2	4500 ppm	30/34 lit Aluminium
6	CO	Standard	N_2	5% vol	30/34 lit Aluminium
7	CO_2	Standard	N_2	10% vol	30/34 lit Aluminium
8	O_2	Standard	N_2	21%	30/34 lit Aluminium
9	C_3H_8	Standard	Air	3000 ppm	30/34 lit Aluminium
10	CH_4	Standard	Air	Ch4(10000 ppm)	30/34 lit Aluminium
11	NOx	Standard	N_2	NO(2000 ppm),with 1% tolerance	30/34 lit Aluminium With SS Valve
12	ethylene (C_2H_4)	EURO-6	Air	405 ppm of ethylene	Min 10 lit Aluminium
13	Toluene(C_7H_8)	EURO-6	Air	135 ppm	Min 10 lit Aluminium
14	Ammonia	Euro-6	Nitrogen	100ppm	Min 10 lit Aluminium SS Valve

1. For gases Sl. No. 4–11 a minimum accuracy1% accuracy is required.
2. For gases 12–14 an accuracy of min 2% is required.
3. Stability time should be greater than or equal to 18 months and has to be indicated in the bid.

Table 2 Essential Supplier Qualifying conditions

Please fill in and attached this sheet to your quotation.

Qualifying conditions without which the bids will not be considered	Compliance (Yes/No) if "No" provide remarks
1. The bidder should have supplied calibration gases meeting BSIV/BSVI emission analyser calibration requirements at least 5 times to NATRIP testing centres (National Automotive Testing and R&D Infrastructure Project) and to reputed automotive OEMs (Original Equipment Manufacturers) in the last 5 years. Out of the 5 supplies at least 2 should have been to NATRIP testing centres like ARAI (Automotive Research Association of India) or ICAT (International Centre for Automotive Technology) or GARC (Global Automotive Research Centre) or NATRAX (National Automotive Test Tracks). <u>Proof of the above supplies by providing copies of POs along with the technical bid without indicating commercial terms has to be given along with the technical bid failing which it will not be considered.</u>	
2. The stability of the supplied calibration gases should be for 1½ years or more.	
3. The gases have to be delivered to the I C Engines Laboratory, IIT Madras at no extra cost. The cylinders for re-filling have to be taken from IC Engines lab IIT Madras and be delivered back at no extra cost when being refilled.	
4. If the supplied gases do not meet the specified standard they have to be replaced free of cost and delivered free of cost.	

Table 3 Rent of the Cylinders and Deposit

Please fill in and attached this sheet to your quotation.

The rent of the cylinders and the refundable deposit have to be specified as given below.

No.	Gas Component	Cylinder	Rent/day	Rent for 2 years	Deposit
1	Pure N_2	47 lit Carbon steel			
2	Pure Air/Synthetic Air	47 lit Carbon steel			
3	H2/He	47 lit Carbon steel			
4	Pure Oxygen	47/50 lit Carbon steel			
5	CO	30/34 lit Aluminium			
6	CO	30/34 lit Aluminium			
7	CO_2	30/34 lit Aluminium			
8	O_2	30/34 lit Aluminium			
9	C_3H_8	30/34 lit Aluminium			
10	CH_4	30/34 lit Aluminium			
11	NOx	30/34 lit Aluminium With SS Valve			
12	ethylene (C_2H_4)	Min 10 lit Aluminium			
13	Toluene(C_7H_8)	Min 10 lit Aluminium			
14	Ammonia	Min 10 lit Aluminium SS Valve			