



**INDIAN INSTITUTE OF TECHNOLOGY KANPUR**  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
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Enquiry no.: ME/ERL/2011-12/Nov/01

Enquiry date: November 4<sup>th</sup>, 2011

Last Date: November 14<sup>th</sup>, 2011

**Enquiry for FTIR Based Exhaust Gas Emission Analyser**

Quotations are invited for purchase of **FTIR Based Exhaust Gas Emission Analyser**. The Emission Equipment is expected to measure exhaust emissions from engines fuelled with Diesel, Gasoline, CNG, LPG, Ethanol, Methanol and Biodiesel. Offered measurement system should take into account specifications given below.

Measured Components		
CO	CO <sub>2</sub>	NO
NO <sub>2</sub>	N <sub>2</sub> O	H <sub>2</sub> O
NH <sub>3</sub>	SO <sub>2</sub>	HCHO
HCOOH	CH <sub>4</sub>	C <sub>2</sub> H <sub>4</sub>
C <sub>2</sub> H <sub>6</sub>	C <sub>3</sub> H <sub>6</sub>	C <sub>3</sub> H <sub>8</sub>
1,3-C <sub>4</sub> H <sub>6</sub>	HCN	CH <sub>3</sub> COOH
MeCHO	COS	C <sub>2</sub> H <sub>2</sub> – Acetylene
C <sub>2</sub> H <sub>5</sub> OH – Ethanol	CH <sub>3</sub> CHO – Acetaldehyde	CH <sub>3</sub> OH – Methanol
IC <sub>5</sub> - iso-Pentane	NC <sub>5</sub> - n-Pentane	NC <sub>8</sub> - n-Octane
HNCO - Isocyanic acid	AHC - Aromatic HC	C <sub>6</sub> H <sub>6</sub> Benzene
C <sub>7</sub> H <sub>8</sub> Toluene		
Calculated Components		
HCG (HC Gasoline)	HCD (HD Diesel)	NMHC (non methane HC)

Principle: Fourier transform infrared spectroscopy (FTIR)  
With spectrum range 650 to 4000 cm<sup>-1</sup> & spectral resolution 0.5 cm<sup>-1</sup>

Response time (T<sub>10-90</sub>): Within 2 seconds.

Warm-up Time: Less than 1 hours

Sample line temperature: 186 +/- 7°C.

Operating Environment: Ambient Temperature: 15° C to 40°C

Repeatability: Within ±1.0 % of full scale

- FTIR Heated Sample Line 1m (1 Nos)
- FTIR Heated Sample Line 6m (1 Nos)
- FTIR Pre-Filter Heated + Back Flush 220V (1 Nos)
- FTIR Zero Air Generator (1 Nos)
- Installation, Services and on-site training for three days
- Project Management

**Terms & Conditions:**

- (i) Prices (FOB) should include delivery upto nearest airport.
- (ii) Warranty should at least be for three years after installation.
- (iii) Validity of quotation should be at least for 90 days
- (iv) Delivery period: Less than 7 months from the date of PO

Kindly send your best offer (Technical & Commercial) so as to reach us on or before November 14<sup>th</sup>, 2011 to the following address:

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