

ENVIRONMENTAL AUTHORITIES INDIA: TECHNOLOGY REFERENCE LIST

Sulphur Dioxide Measurement In FGD Process

various measurement technologies

Parameters	Infrared Absorption	UV Absorption	UV-DOAS	Fourier Transform IR	Advance Infrared Absorption Spectroscopy
Suitability for inlet measurement	✓	✓	✓	✓	✓
Suitability for outlet measurement	X	✓	✓	✓	✓
Interference	Moisture	Nil	Nil	Moisture	Moisture
Moisture removal	Required	Required	Not required	Not required	Not required
Moisture measurement for correction	Required even after removal	Not required	Not required	Required	Required
Maintenance period	Once in a week	Once in a month	Once in six months	Once in a month	Once in three months
Lamp replacement	Once in three years	Once in two years	Once in two years	Once in three years	Once in three years
Conformance to standards for low emission	X	✓	✓	✓	✓

various sampling techniques

Parameters	Cold/Dry Extraction (sample gas cooler)	Permeation Dryer Extraction	Hot/Wet Extraction	In-situ Cross Duct Type	In-situ Probe Type without filters	In-situ Probe Type with dust filters
Suitability for inlet measurement	✓	✓	✓	✓	✓	✓
Suitability for outlet measurement	X	✓	✓	X	✓	X
Loss of SO ₂ in the sample gas cooler	Loss	No loss	No loss	No loss	No loss	No loss
Moisture removal	Required and done using chillers	Required and done using permeation dryers	Not required	Not required	Not required	Not required
Response time	> 60 s (increases with sample line length)	> 60 s (increases with sample line length)	> 60 s (increases with sample line length)	< 5 s	< 5 s	> 100 s
Calibration	To be done for the whole system incl. sample gas cooler	To be done for the whole system incl. dryer	Calibration using internal span filters	Calibration using internal span filters	Calibration using internal span filters	Calibration done with external gases
Maintenance period	Once in a week	Once in a week	Once in three months	Once in six months	Once in six months	IR: once in a month UV DOAS: once in six months
Power requirement	Very high	High	Very high	Low	Low	Low

Recommendation:

Measurement of SO₂ in the outlet and inlet are important for the calculation of the FGD efficiency and control the amount of lime being dosed.

The important parameters for deciding are response time (shorter the better), less inventory (common for inlet and outlet), less maintenance (high maintenance interval).

In view of the above, in-situ UV-DOAS probe without filter is recommended for inlet and outlet.