

## Thermo-Optical Measuring Method: To Improve the Efficiency, Economy and Minimize Emissions of Coal-Fired Plants

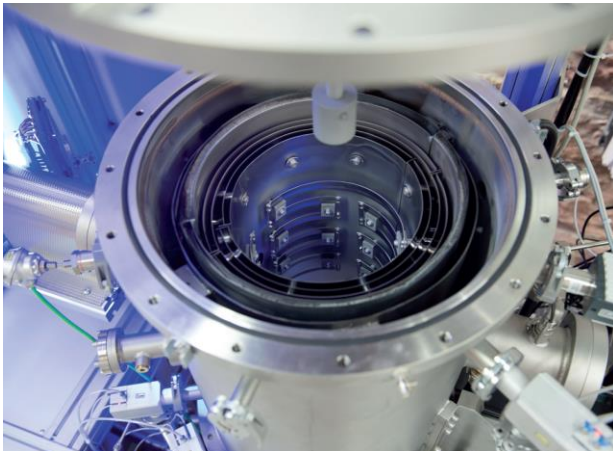


Fig : Thermo-Optical Measuring System (TOM)

Fraunhofer is one of the world's largest applied R&D organization, with nearly 80 research units in all sectors of industry, 24500 employees and an annual outlay of Euros 2.1 Billion. Our global footprint is very strong, with offices and research centres in the Europe, USA and Asia. Some of our renowned innovations are the MP3 format, the white LED, the smallest of cameras. In the field of renewable, Fraunhofer hold the world record in solar cell efficiency, battery storage, and cover the entire spectrum of energy (Grid, Renewables, Storage, etc) across the value chain from materials to testing and certification. Fraunhofer has been active in India since the past several years, bringing innovative technologies and research competence to India. Fraunhofer in India is the chosen R&D and innovation technology partner of some of the major players in the field of Energy, Environment, Automotive, Electro-mobility, Materials, Production Technology of Government and Private Organizations

The Fraunhofer Institute for Silicate Research ISC focuses on the Clusters Materials Chemistry and Application Technology - on the optimization of materials and on efficient manufacturing techniques and processes, in line with industry requirements. The Thermo-optical measuring (TOM) device is developed by the Fraunhofer ISC for testing high temperature materials and optimizing manufacturing processes. It is used for the optimization of debinding and sintering processes. Coal-fired plants are essential baseload power sources as an alternative to nuclear power stations as long as the energy supply can not be secured solely by solar, wind or hydropower. Their high CO<sub>2</sub> emissions, however, call for action both in terms of eco-friendliness and energy efficiency. Fraunhofer ISC was able to optimize combustion processes and so to significantly reduce CO<sub>2</sub> emissions and save energy. The key was a thorough TOM analysis and characterization of the coal combustion process and of the resulting combustion slags and gases.

Clean Coal TOM Benefits -

- Quality control of incoming coal and resulting slag:
  - Reduced coal consumption by up to – 30%
  - Reduced CO<sub>2</sub> emission by up to – 10% (in modern power plants; higher benefits in old power plants)
  - Reduction in firing temperature
- On-site investigation of resulting slag
- Less than 2 years payback time expected immediate effects: Less coal, less CO<sub>2</sub>, more money

Kindly in touch with us if you need any additional info on the subject.

Thanks and Regards,

Ms. Anandi Iyer  
 Director, Fraunhofer Office India  
 405-406, 30 MG Road, Bengaluru - 1  
 Tel: +91 80 40965008/09  
[www.fraunhofer.de](http://www.fraunhofer.de)  
[www.isc.fraunhofer.de](http://www.isc.fraunhofer.de)

Mr. Sanmati Naik  
 Manager – Energy (RE), Fraunhofer Office India  
[sanmati.naik@fraunhofer.in](mailto:sanmati.naik@fraunhofer.in)