



Chemtron Science Labs Pvt Ltd.

To,

Introduction to Bio Gas Analysers

With increase in the consumption of the fuels the requirement of alternative fuel generation has been given more importance today. Bio Gas is one of such fuel that has become important source for domestic use. In rural as well as in urban areas rules and regulations are changing to safe guard the environment. This has made every residential and commercial complex to rethink the reuse of biodegradable waste from the plants and kitchen to be anaerobically converted to bio gas and its solid waste generated as fertilizer.

We Chemtron Science Laboratories Pvt. Ltd. as a company give state of the art technology to monitor the process of Bio Gas Generation on a small plants to a big plants on turnkey basis.

We are an ISO 9001: 2000 by BSI, a part of fastest growing industry i.e. chemical and Electronics Industry, established in the year 1992, since then CSL has 25% growth rate annually. CSL has well equipped high technology lab equipments, testing and inspecting facilities, which makes its products one of the best in the industry. CSL has a team of trained qualified engineers in its R & D Department, which constantly seeks to innovate, specialized products as per customer's requirement.

CSL TEAM

Consisting of well trained qualified Chemists with education qualification of B.Sc., M.Sc. and have more than 9-10 years experienced Engineers and Senior Quality Control Inspectors. Apart from that we also have assistance from various consultants. The Chairman of the company Dr. O.P. Srivastava has been awarded PhD. Degree from University of Wales-U.K. in the field of Gas Chromatography, has been associated for more than 30 years in developing G.C.'s, Process Control Instruments, etc. As a retired BARC scientist, his expertise and experience adds value to our organization. Our Technical Director Shri Ashish Srivastava executes turnkey projects and stream line the manufacturing process in our industry.

Following are the products what will interest you for your business.

Applications.

- ▲ Bio Gas analysis.
- ▲ Digester gas research
- ▲ Engine Feed gas analyzer.
- ▲ Sampling systems and sample collection devices

Features to choose from.

- Up to four gases. CH₄/CO₂/H₂S/O₂
- Up to Four Streams.
- Built in sample conditioning system
- H₂S Scrubber for CH₄/CO₂ sensor for better life.
- Provision for Multi Stream analysis.

Why Chemtron?.

- Completely indigenous developed as per Indian conditions.
- Inexpensive and affordable.
- Complete service and maintenance guarantee.
- Reliability and Accuracy as per world standards.
- ▲ Customization to customer's requirement.
- ▲ Designed, Developed on principle "Common Sense Technology"

Solutions for BiO Gas related applications:

1. **Online Bio Gas analyzers:** Typically used for methane and hydrogen sulphide sensors in two sensor configuration. This analyzer is typically used for analysis of gas stream at the inlet of the engine. The system consist of internal gas sampling conditioning unit which removes excessive moisture and also prevents methane and co2 sensors form Hydrogen Sulphide related corrosion thereby increasing sensor life and sensor calibration. The system also comes equipped with dilution system which can be configured for dilution ratios of up to 1/20 times hence measurement of Hydrogen Sulphide can be done up to 2 % Vol/Vol. The System can be connected to SCADA system via MODBUS® protocol or by hardwire 4-20mA inputs. The system has features of real-time data logging and auto calibration. The various models that we offer are as below.
 - a. 602u Series online Multi-Stream analyzers with options for
 - a.i. Two Gas channels:
 - a.ii. Four Gas channels
 - b. 602u Series Multi Stream analyzers with options for
 - b.i. Two Gas channels
 - b.ii. Four Gas channels
2. **Portable Gas Analyzers:** These analyzers are used for site survey and applications were the measurement of gases is not so critical. The portable analyzers are very economical and best suited to domestic or small industrial use. The 4 gas multi-gas analyzers are best suited for on field surveys and very important diagnostic tool.
 - a. Multi gas analyzers up to 4 gases
 - b. Single Gas portable analyzers (Model 601 Series)
3. **Online/Bench Top Gas chromatograph (Model 1045):** The GAS chromatograph or GC is widely used for research level applications were the measurement accuracy is better than 0.1 % Chemtron offers specialized dedicated bio gas configured gas chromatographs for Bio Gas analysis. The GC comes with TCD detector and suitable columns with which methane, hydrogen Sulphide and Carbon Dioxide can be analyzed with precision. The GC can be configured for online analysis were the analysis cycle can be as low as five minutes .
 - a. Model 1045 Bio Gas Bench Top configuration GC
 - b. Model 1045u Online Bio Gas GC
4. **Gas sampling bottles:** Gas sampling is done using Stainless steel sampling bottles. These bottles are specially designed for bio gas applications were all the wetted parts are selected for high hydrogen Sulphide atmospheres. The sampling bombs are widely used for survey and for sample gas portability. The sampling bombs can withstand pressures from 10 bars upto 200 bars were bio gas is compressed by compressor and used for fuel. The various models are:
 - a. Low Pressure Gas sampling bottles.
 - b. High Pressure Gas Sampling bottles.
5. **Calibration Gas Standards:** Calibration gases are our core products. We offer gas standards which are used for constant calibration of Bio Gas analyzers and sensors. These analyzers need to be calibrated quite often because sensor calibration changes frequently due to corrosion of sensor due to high Hydrogen Sulphide environments. We offer below standards in different size cylinder:
 - a. Low pressure cans containing 60 ltr gas with fine control needle valves containing:
 - a.i. Methane 60 % Carbon Dioxide 39 % Hydrogen Sulphide 1000 ppm Bal Nitrogen



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- a.ii. Methane 100 %
- a.iii. Carbon Dioxide 100 %
- a.iv. Pure Air (Zero Gas)
- b. High pressure aluminum/Carbon Steel Cylinder containing 1000 ltr of gas along with pressure regulator:
 - b.i. Methane 60 % Carbon Dioxide 39 % Hydrogen Sulphide 1000 ppm Bal Nitrogen
 - b.ii. Methane 60 % Carbon Dioxide 39 % Hydrogen Sulphide 1000 ppm Bal Nitrogen
 - b.iii. Methane 100 %
 - b.iv. Carbon Dioxide 100 %
 - b.v. Pure Air (Zero Gas)
- 6. **Analytical Services:** We offer analytical service in which we do bulk sample analysis for particular project for feasibility studies. We have state of the art lab with all equipment's in which sample analysis can be done on site or the samples can be brought to our lab in Mumbai.

7. LIST OF BIOGAS ANALYSERS THAT WE MANUFACTURE AND PROVIDE SERVICE TO:

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|------------------------------|----------------------------|
| A) PORTABLE BIOGAS ANALYSERS | B) DESKTOP PORTABLE BIOGAS |
| C) SINGLE STREAM- ONLINE | D) MULTISTREAM-ONLINE |

PLEASE FEEL FREE TO REVERT IN CASE YOU HAVE ANY PRODUCT OF YOUR INTEREST.