

Portable Gas Chromatography

Configuration:

- 04 (Four) analytical GC channels
- The gas being injected is to be introduced in to the Gas Chromatograph at a single entry point. From within the gas chromatograph, the sample is to be split in to 04 (four) separate streams that are introduced to each of 04 (four) channels in parallel.
- Dual carrier gas should be used.
- System should be configured specially for coal mine gas analysis.

Channels:

- Each GC should consist of 01 (one) Micro-machined Injector, 01 (one) TCD capillary column, 01 (One) column heater and Micro-machined Thermal Conductivity Detector.

Control:

- Independent control shall be provided for each analytical channel including injector, column and detector settings, pneumatics and time based column - pressure programming.

Injector:

- Suitable Injector shall be provided.

Column Oven:

- A Column Oven of suitable type shall be provided.

DETECTOR:

- A Micro-machined thermal conductivity detector (TCD) shall be provided.
- Detection limit between 1 PPM & 100% level.

CARRIER GAS:

- 02 (two) carrier gases preferably Helium (He) and Argon (Ar) shall be provided.
- Pneumatics of the carrier gas should be controlled electronically.

Span Calibration Gases:

02 (two) nos. of span / calibration gases (high & low con. of mixture of gases to be detected).

OUTPUT & DATA DISPLAY:

Arrangement for analysis report in the form of peaks as well as in the form of concentration in tabular format shall be provided.

POWER REQUIREMENTS:

- Main power of A/C 180 - 260 V, 50 - 60 Hz.
- Packed with external battery packs to work outside a minimum time of atleast 08 (eight) hours.

WORKING ENVIRONMENT REQUIREMENTS OF THE GAS CHROMATOGRAPH:

- Between humidity (relative) 0% and 95% non condensing.
- Between temperature 0 °C and 50 °C.

SOFTWARE FOR PORTABLE MICRO GAS CHROMATOGRAPH:

- To analyze mine gas samples, allocating the gas components to the peaks, to determine the concentration of gas and suitably reporting of the results thereof and naming of data files. The software shall additionally have the following capabilities.
- Peak integration and identification to be graphically set.
- Display of an explosibility diagram when required.
- Determining the explosibility status of mine gas samples and generating explosibility diagrams, such as coward Triangles and Ellicot diagrams.
- Plotting graphical trends of all mine gases including gas ratios to detect spontaneous combustion.
- Data acquired by the gas chromatograph shall be directly transferable to decision supporting / interpretation assisting software.



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