

ISO 9001:2008
Certified

IRGAS - SUPR

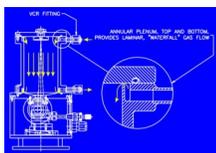
CIC Photonics, Inc. • Albuquerque, NM 87113 USA, •Tel: 505-343-9500 •Fax 509-479-2980
www.cicp.com OR www.irgas.com

Gases Commonly Analyzed with IRGAS - SUPR

1-Butanol
1-Hexene
1-Propanol
2-Butanol
2-Methylbutane
2-Methylpentane
3-Methylpentane
Acetic Acid
Acetone
Acetonitrile
Acetylene
Acrolein
Ammonia
Benzene
Bromochloromethane
Carbon Dioxide
Carbon Monoxide
Carbon Tetrachloride
Carbonyl sulfide
Chlorobenzene
Chloroform
Chloromethane
Cis-2-pentene
Cyclohexane
Cyclopentane
Diborane
Dichloromethane
Dichlorosilane
Dimethyl Sulfide
Ethane
Ethanol
Ethyl Acetylene
Ethyl Methyl Ether
Ethylbenzene
Ethylene (Ethene)
Ethylene Oxide
Formaldehyde
Germane
Halocarbon 14
Halocarbon 22
Hydrogen Bromide
Hydrogen Chloride
Hydrogen Cyanide
Hydrogen Fluoride
Hydrogen Selenide
Hydrogen Sulfide
Isopropanol
Methane
Methanol
Methyl Acetate
Methyl Ether
m-Xylene



4Runner /
Annular plenum flow

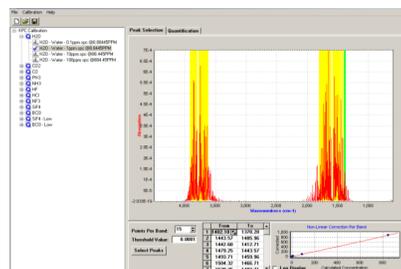


CIC Photonics, Inc. (CICP) is dedicated to providing today's growing industries with the highest sensitivity and fastest time response instrumentation. CICP has more than 14 years experience in the gas analysis market, and 9 year of experience with our IRGAS systems. Our analyzers are used worldwide in a variety of different arenas, and although CICP has a set of core systems, we pride ourselves on truly meeting the needs of our customers by adapting the core analyzers to their specifications.

The IRGAS - SUPR Analyzer integrates a rugged ABB MB3000 FTIR spectrometer with a CICP stainless steel 4Runner gas cell. This combination produces analyzers that can handle some of the most demanding applications. The IRGAS - SUPR is ideal for applications requiring limits of detection in the ppm level to 10 ppb, and have the need to monitor a large variety of species simultaneously while in real time. The robust, small footprint (17" W x 16" H x 14" D) makes the IRGAS - SUPR extremely suitable for production or laboratory environments.

The 4Runner gas cell is manufactured with stainless steel gold-coated mirrors to not only provide high energy throughputs of 36-48% but also to be able to withstand corrosive and toxic gas analysis. Within the rim of the gas cell is a well designed to provide the gas cell with a plenum waterfall flow, rather than the typically used turbulent flow. The plenum flow design also allows the gases in an application that is above room temperature to be heated to temperature prior to entering the cell cavity. The 4Runner also has a rapid gas exchange due to its low internal volume.

The ABB MB3000 FTIR Spectrometer is rack mounted, and as a standard, comes with a DTGS detector (which has the same sensitivity as different spectrometer with a LN2-MCT detector without the hassle of LN2) and a 24bits ADC. The electronics in the spectrometer allows the system to provide a maximum signal to noise RMS of 50,000:1.



Qmax Screen

Included with the IRGAS - SUPR is CICP's patented SPGAS software. This software package includes: IRGAS 100 or IRGAS 100 with SpectraStream, Qmax, Configuration Manager, and Reprocessing Tool. With these pieces of software the user can do everything from real-time concentration tracking, to hardware control, to allowing the user to recalculate previously collected data.

CIC Photonics 4Runner Gas Cell

- Annular Plenum Flow
- 0.6 liter
- Less than 2 gas volume exchanges for T90
- Plenum area preheats gas before it enters the gas cell compartment
- High Energy Throughput (>40% Energy)
- All 316L stainless steel construction
- 304 stainless steel mirrors
- Zero dead space
- Temperature up to 300°C
- Option for automatic background collection

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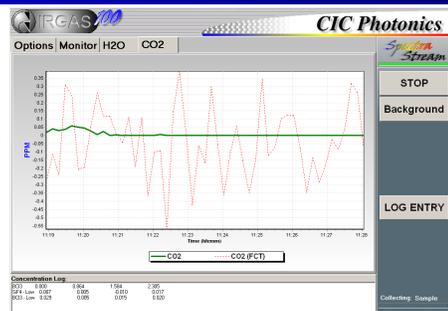
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Gases Commonly Analyzed with IRGAS - SUPR

n-Heptane
n-Hexane
Nitric Oxide
Nitrogen Dioxide
Nitrogen Trifluoride
Nitrous Oxide
n-Octane
o-Xylene
Phosphine
p-Xylene
Silane
Sulfur Dioxide
Sulfur
Hexafluoride
Sulfur Trioxide
Sulfuryl Chloride
Tert-Butyl Methyl Ether
Tetrachloroethylene
Titanium Tetrachloride
Toluene
Trans-2-pentene
Trichloroborane
Trichloroethylene
1,3 Butadiene
1-Butene
1-Pentene
Isobutane
Isobutene
n-Butane (Butane)
n-Pentane (Pentane)
Ozone
Propane
Propylene (Propene)
Water
and
more!

For LODs please
contact CICP.

It is possible that
the IRGAS SUPR
can detect gas
species not on this
list, to determine
the feasibility of
the gas species not
on this list please
contact CICP.



IRGAS 100 with SpectraStream Screen

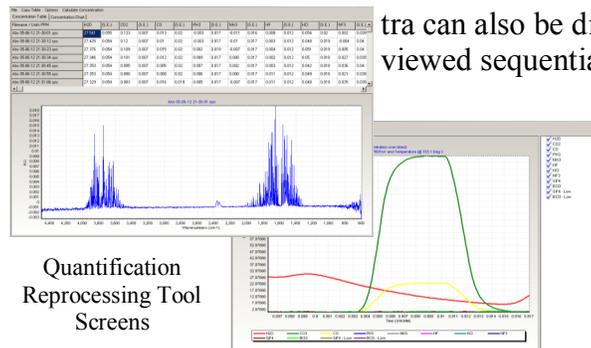
IRGAS 100 with SpectraStream allows the user to view changes in species concentrations within seconds of the changes happening through the program's Fast Concentration Tracker by decreasing the response time that is typically associated with FTIR.

The systems calibrations are generated in the QMax program which permits the user to easily generate calibrations and/or add new species to pre-existing

calibrations. In addition to creating new calibrations, QMax can be used to apply correction factors to current calibrations.

The IRGAS Configuration Manager is a program that contains all of the information regarding the system in one central location. In the Configuration Manager the user can find various parameters for the system that can be altered to their needs.

Our most recent program added to the software package is the Quantification Reprocessing Tool. This program allows the user to recalculate data that had been previously collected. Instead of having to recollect data for temperature and pressure changes, a user can enter the new parameters in the Quantification Reprocessing Tool and the program will recalculate the data with the new parameters. As well as recalculating new parameters it can reprocess using new calibration files that have more or less species being quantified. The Quantification Reprocessing Tool can also be used to determine the accuracy of a calibration file and help to determine the correction factor needed for calibrations. Collected spectra can also be displayed and viewed sequentially in the



Quantification
Reprocessing Tool
Screens

Quantification
Reprocessing
Tool allowing the
viewer to see changes
in spectra.

ABB MB3000 FTIR Spectrometer Key Items

- Maintenance Free
- Non-hydroscopic optics
- IR Source: 10 yr avg. lifetime
- 24bit ADC
- Maximum Signal to Noise RMS: 50,000:1 or better
- Frequency Repeatability of 0.001cm^{-1} at 1918cm^{-1}
- Frequency Accuracy of 0.01cm^{-1} at 1918cm^{-1}
- High-throughput double pivot Michelson, fully jacketed
- VCSEL solid state laser self calibrating and ensures better wavelength accuracy with precise results. 20 yrs lifetime avg.
- Permanently aligned optical system
- Rugged and durable modules



IRGAS - SUPR

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