

UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.

April 19, 1974

CBW
RLK
CHK
BRL
✓ LFM-REC
ACW
JJT
RJD

To: Memorandum

From: A. C. Warner

Pursuant to conversations with all parties concerned the following participation of the MARVINOL R&D - Process Development Group in the VC monomer problem is indicated.

1. Plant Monitoring

Under the supervision and control of LFM (and REC) the pilot plant foreman and five operators will participate in plant monitoring and other activities as needed.

2. Pilot Plant Work

Work on steam stripping, high per cent conversion and solvent cleaning projects in the pilot plant as priority projects taking precedence over our regular process development work.

3. Technical Service

Visit Uniroyal and other customer plants, warehouses, shipping facilities, etc., to make appropriate measurements so we can, as a technical service to our customers, determine VC concentrations and make appropriate recommendations.

4. Industry Meetings

Be available for, participate in, and provide technical backup at SPI, MCA, and other industry meetings on this subject.

The normal rate of Factory Service charges will be maintained. The balance of time will as usual be charged to R&D.

ACW:dmb

URL 20325

INTERCOMPANY CORRESPONDENCE

INSTRUMENTS & LAB

Recent Developments in Vinyl Chloride Analyzers

Detects vinyl chloride

Very small concentrations of vinyl chloride in air can be measured with portable, battery-operated indicator that weighs only 7 lb. It has full-scale low range of 0-300 ppm vinyl chloride, with 2 higher ranges available through use of a selector switch.

(Model TLV Sniffer — Bacharach Instrument Co., division of Ambac Industries, Inc., 625 Alpha Dr., Pittsburgh, PA 15238.)

Circle 179 opposite last page.

Monitors vinyl chloride from below 0.1 ppm

Flame ionization gas chromatograph detects vinyl chloride from below 0.1 ppm to over 500 ppm in air. Instrument is designed for on-site analysis.

Portable gas chromatograph is used along with a column and optional gas sampling valve to provide analysis.

(Model 511 flame ionization gas chromatograph — Analytical Instrument Development, Inc., Route 41 & Newark Rd., Avondale, PA 19311.)

Circle 181 opposite last page.

Measures vinyl chloride down to 1 ppm

Vinyl chloride and other chlorinated organics such as methyl chloride can be monitored with an instrument that features full-scale sensitivity as low as 1 ppm, making detection limits down to 25 parts per billion (ppb) practical.

Complete systems which permit sampling of extremely adverse conditions and multipoint sampling of many different plant locations are available. Multipoint recorders are also offered to permit continuous recording of atmospheric conditions.

(VCM monitor — Arcas, Inc., a division of Anacon, Inc., 6400 Westpark, Suite 300, Houston, TX 77027.)

Circle 182 opposite last page.

Vinyl chloride monitored in low ppm

Detector system continuously monitors for presence of low ppm concentrations of vinyl chloride in ambient atmosphere of manufacturing, process, and storage areas. Typical range of measurement is 0 to 100 ppm vinyl chloride.

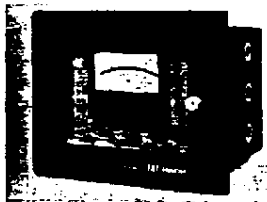
Audible/visual alerts automatically whenever concentration level reaches 50 ppm. Alarm setpoint is field adjustable and can be set to values lower than 50 ppm.

Unit can be equipped with indicating and/or recording readouts, multiple alarm setpoints, time-share sample programmer, automatic calibrator, or time-weighted average concentration exposure printout for each 8-hr work shift.

(Series 9000 detector system — Devco Engineering, Inc., 36 Pier Lane West, Fairfield, NJ 07006.)

Circle 183 opposite last page.

Complete 0-14 pH range monitored by analyzer



Process analyzer monitors complete 0-14 pH range and in expanded scale mode, any two pH units can be displayed with a resolution of 1/100th of

a pH unit. Stability is to within 0.01 pH unit/week.

Designed for stringent water monitoring applications, analyzer incorporates two electrodes — a glass measuring electrode and a platinum reference type. Both are fitted into a non-clogging, dual-chambered sensor block. Port windows in the block permit observation of the sample and condition of electrodes. Block is rated for line pressures of 100 psi and temps of 150°F.

(Model TAL-pH analyzers — Hach Chemical Co., PO Box 907, Ames, Ia 50010.)

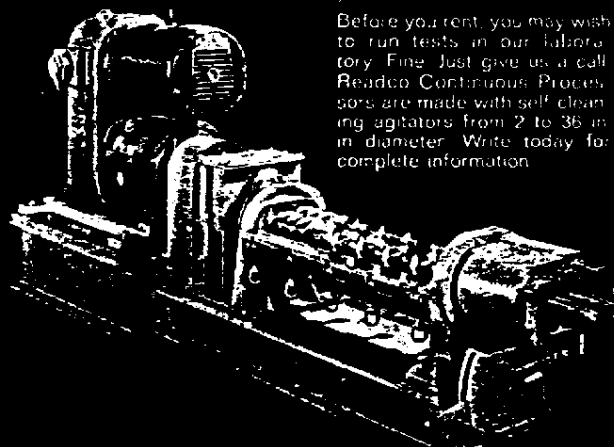
Circle 184 opposite last page.

Rent the machine that makes the toughest mixing routine

Rent the Reader CONTINUOUS PROCESSOR for a nominal fee and use it to mix, blend, knead or polymerize (with heating or cooling) the pastes, semi-solids or high viscosity

materials you're now handling with a batch mixer. When you've seen how much can be saved—10 to 50 percent—buy the unit as it's paying for itself. It can do it in as little as two years!

Before you rent, you may wish to run tests in our laboratory. Fine. Just give us a call. Reader Continuous Processors are made with self-cleaning agitators from 2 to 36 in. in diameter. Write today for complete information.



TELEDYNE

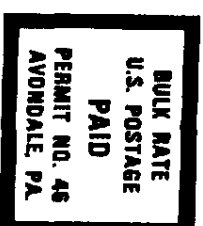
901 SOUTH RICHLAND AVENUE
YORK, PENNSYLVANIA 17405
(717) 848-2801 TELEX: 84 0415

HIGH INTENSITY MIXERS DOUBLE ARM MIXERS DUAL LEVEL MIXERS

Circle 180 opposite last page.



ANALYTICAL INSTRUMENT DEVELOPMENT, INC.
RT. 41 & NEWARK RD., AVONDALE, PA. 19311



L.F. Marcus
Unitroyal Chemical
Box 460
Painesville, OH 44077

VINYL CHLORIDE ANALYSIS

OSHA & EPA Approved Method

Methane, Air
Acetylene
Ethylene
Ethane
Water
Propylene
Propane
Methyl Alcohol
Methyl Chloride
Vinyl Chloride
Isobutane
1, 3 - Butadiene
Butene -1
Isobutylene
Trans Butene - 2
n-Butane
Ethyl Alcohol
Cis Butene - 2
Ethyl Chloride
Acetone
Dichloromethane
Vinylidene Chloride
n-Pentane
n-Hexane

URL 20327

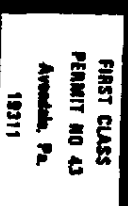
BEFORE

AFTER

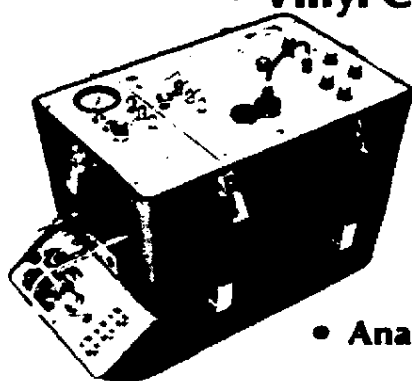
BUSINESS REPLY MAIL

NO POSTAGE NECESSARY IF MAILED IN UNITED STATES

POSTAGE WILL BE PAID BY



ANALYTICAL INSTRUMENT DEVELOPMENT, INC.
Rt. 41 & Newark Rd Avondale, Pa. 19311

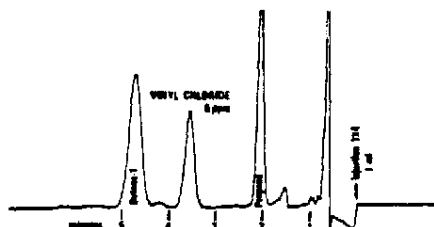


- **Vinyl Chloride** Detectable from less than 0.1 ppm in air
- **OSHA & EPA Approved Method**
- **No Interference**
 - **Rapid ON-SITE Analysis**
 - **Completely Portable Self-Contained**
- **Compatible with Charcoal Sampling Tubes**
- **Analyze for Hydrocarbons and Industrial Solvents in air.**

The Model 511 Flame Ionization Portable Gas Chromatograph is used to perform the analysis of vinyl chloride in about 3½ minutes. The detector is linear in response over a concentration range from below 0.1 ppm to over 500 ppm with a minimum detectable level of at least .05 ppm.

The design characteristics of the instrument result in a stability which previously was only attainable with laboratory instruments. Consequently, only daily calibration is required. AID can also supply all material for calibration.

One of the basic concerns of the hygienist is the possible interferences of other compounds which would lead to erroneous determinations. To our knowledge, there is no chemical interference as indicated in the nomograph presented on the front cover. This graph also demonstrates the ease of obtaining additional chemical information from the work environment which may be important in the future.



The accompanying chromatogram is of an industrial atmosphere. With proper notation, this graph can be held as a permanent record. Simple calculations performed directly on the chromatogram allow rapid concentration determinations.

URL 20328

Complete training on your instrument is available at our factory. AID application staff is available as a no-cost consultant. This allows the customer to extend the capability of the instrument to other analytical areas using the basic flexibility of the hardware.

This instrument may also be used to analyze CS₂ extracts of charcoal tubes. This capability, in conjunction with the portability, provides a complete system for environmental health impact studies.

For more information on the Model 511 Portable Flame Ionization Gas Chromatograph, vinyl chloride analysis, and other AID Portable Chromatographic systems, please fill in and return the postage paid mailer below.

I require this for:

- ☐ Immediate Procurement
- ☐ Possible Future Procurement
- ☐ Files Only
- ☐ Please have Field Engineer Call

My Application is: _____

Product Literature

- ☐ GC for Vinyl Chloride Analysis
- ☐ Additional information on Vinyl Chloride Detection
- ☐ Air Pollution Analyzer Model 514 ppm level CO, CH₄ & total Hydrocarbon
- ☐ Tracer studies Model 510 (EC)
- ☐ Improved Orsat analysis Model 512
- ☐ Ambient trace Sulfur Compounds Model 513 (FPD)

Name _____ Title _____

Company _____

Address _____ Zip _____

Phone _____

Vinyl chloride detective

This flasher is an integral part of a new system developed by the Bendix Corp.'s Process Instruments Div., Ronceverte, WV, for the detection of vinyl chloride—a widely used chemical suspected of causing liver cancer in some industrial workers exposed to it over long periods of time. An electrical heater in the assembly provides the energy to flash the collected sample from the absorption tube into the gas chromatograph for analysis. With the system, vinyl chloride can be monitored in concentrations as low as 50 ppb, which is well below the one ppm detection standard now being proposed by the government's Occupational Safety and Health Administration (OSHA).



URL 20329