

ANALYSIS OF COMPETITIVE PRODUCTS

JOHN P. WINEBURG

Of the competitive products analyzed during January 1975, the following seven have been selected as being of possible general interest. Except where otherwise indicated, results are necessarily somewhat tentative, being based on an arbitrarily limited high spot "Survey Analysis" aimed at establishing the general nature of the sample and the classes of major ingredients present. Since detailed analysis of complex commercial products is usually difficult and/or time-consuming, it is undertaken only in special cases where the time and expense can be justified.

(I)	(II)	(III)	(IV)
<u>Company</u>	<u>Product</u>	<u>End Use</u>	<u>Components Detected</u>
Very Important Products Inc.	Amor All		Silicone Water
Wearever	Debron	Cookware Coating	Polyphenylene Sulfide Teflon
Sherwin-Williams	Polyester Powder Coating		Terephthalic and/or Isophthalic Polyester Anhydride Crosslinker
Ferro Corp.	Vedoc Epoxy		Bisphenol A Epoxy Dicyandiamide-type Crosslinker TiO ₂
Phillips	Polymercaptan		Predominant component is a polyether, probably poly(oxy- propylene) glycol
Mallinckrodt	BYK 301	Eldep Additive	Copolymer or blend of an aliphatic silicone and a polyether
Troykyd	Latex Anticrater	Wall Paint Additive	Sulfosuccinate surfactant

JPW/yi
1/24/75

ENVIRONMENTAL MONITORING

G. L. EVANS

Sludges normally disposed of in landfills have been analyzed for heavy metals (Ft. Madison) and heavy metals and solvents (Tucker). Both sets of data were required by state authorities.

Efforts are currently under way to develop a (gas chromatographic) procedure for determination of low levels of chloroprene in air. Samples requiring this analysis are on hand.

We plan to participate the week of Jan. 27 in a round-robin evaluation of current analytical procedures for determination of low levels of hexamethylene-diisocyanate in air. The Du Pont spectrophotometric procedure and the Mobay thin layer chromatographic procedure will be compared.

We are informally involved in an accreditation program which involves qualitative and quantitative gas chromatographic analysis of low-level solvent samples on charcoal provided by the National Institute of Occupational Safety and Health (NIOSH). The samples are meant to simulate those obtained by collecting air samples on charcoal in the course of OSHA analyses. Limited experience to date has been favorable, but our program will continue until we collect enough data to document our competence in analysis of OSHA-type samples.

GLE/meg
1/23/75

GEL PERMEATION AND LIQUID CHROMATOGRAPHY

E. P. H. MEIBOHM

LIQUID CHROMATOGRAPHY

We are continuing to evaluate liquid chromatographs function as basic flow control and detector systems for both normal high speed liquid chromatography columns and for high speed micro-styrogel columns for high speed GPC. The Micromeritics instrument has been added to those under consideration. A final decision on the choice of instrument should be in hand very shortly.

PRINTING INKS COMPOSITION

A technique was worked out for the determination of relative quantities of plasticizer and ink polymer in printing ink systems. The procedures have worked very well on the GPC-200 instrument at normal sample sizes, but attempts to analyze extremely small quantities (<1 to 5 mg) on the bench instrument have experienced problems due to lack of base line stability at very high sensitivity levels. If further work is done with very small samples, we shall try the GPC-200 at its highest sensitivity.

EPHM/yj
1/24/75

MICROSCOPY

G. W. HIDDEMEN

ELDEP HYDROSOL CAN COATING - PARTICLE SIZE

During the past period H. Seiler of the ELDEP Group submitted eight batches of RK-B-94676 (Electro Depositible Can Coating Hydrosols) for particle size determinations. This information has enabled him to set up specifications as to the proper particle size the manufacturer must supply in the future. It also confirmed his assumption that the shear stability, conductivity and electrocoating properties of these materials were related directly to particle size.

ENCAPSULATED TiO₂

Also during this period A. Yeramyans objective was to develop a technique of encapsulating titanium dioxide pigment with polymer. If successful this would increase the hiding properties of our paints by making more efficient use of TiO₂ and hopeful reducing the cost. The electron microscope is being used to both observe in conjunction with photographs taken to observe this phenomenon. The electron microscope is being used to determine if the TiO₂ pigment particles are coated with polymer.

GWH/yj
1/24/75

FINCOM TIC SUBSYSTEM

R. H. CHRIST

Work is underway to provide a detailed definition of what will be provided in the TIC (Technical Information Calculations) subsystems of FINCOM. TIC will be essentially a conversion of the current FPS (Formula Processing System), which performs build-ups, breakdowns, forecast, etc., to the FINCOM system to take advantage of the computerized formula file.

We are requesting suggestions from current and potential users for desirable extensions or modifications to existing capabilities, prior to firming the design of the new system.

The new system will provide users the option of using the programs batchwise as in the current system (i. e. supply data to computer center personnel and receive results at some later time) or interactively (i. e. provide requirements directly to the computer over a low-speed keyboard terminal and receive results immediately) at higher cost.

Current plans are for the batch version of TIC to be available in the Spring and interactive capability to be added by early Summer.

RHC:mit *QAC*
1/23/75

OSHA AND RELATED GOVERNMENT REGULATIONS

R. M. KIRKPATRICK

UPDATE ON RECENT REGULATIONS AND/OR PROPOSALS

LEAD-IN-PAINT STANDARD

The Consumer Product Safety Commission (CPSC) has extended the 0.5% lead standard, established under the Federal Hazardous Substances Act. Lowering of the level to 0.06% was scheduled to take effect on January 1, 1975. This extension means that the commission considers 0.5% lead in household paints to be permissible.

VINYL CHLORIDE MONOMER

The January 1, 1975 effective date for a permanent standard on vinyl chloride setting an exposure limit of one part per million of air averaged over any eight-hour period has been stayed as a result of a court suit. OSHA, meanwhile, will continue to enforce the 50ppm requirement spelled out in the temporary emergency standard that expired in October 1974. Vinyl chloride monomer is suspected of causing angiosarcoma in factory workers. The court stay is based on a claim that the respirators needed to comply with the law are not in sufficient supply for all companies to comply.

ASBESTOS STANDARD

The OSHA Asbestos Regulations 1910.93a includes, in its definition of asbestos, a mineral form (tremolite) that is found in some talcs, but is not generally considered an asbestiform material. Through the extensive efforts of members of the National Paint and Coatings Association (NPCA) Occupational Health Task Force, a clarification of the regulation was obtained from OSHA. This now allows talc manufacturers to certify their material is "asbestos free" and the user is then exempt from regulation.

In monitoring for asbestos OSHA field personnel have been issued the following guideline for the microscopist:

- A. Particles must appear to be fibrous rather than as crystals or slivers.
- B. The maximum diameter of a fiber to be counted is 3 microns.
- C. The maximum length of a fiber to be counted is 30 microns.
- D. The length to width ratio must be 5 or more to 1, that is, 5 times or more longer than wide.
- E. The separate or individual fibers must contain fibrils or the "bundle of sticks" effect.

If monitoring of your operations using talc is done by the OSHA inspector you are advised to keep a retain sample.

NOISE STANDARD

The Environmental Protection Agency has asked OSHA to review its proposed noise exposure standard. EPA claims the proposed 90 decibel level for an eight hour work day is too high and recommends 85 decibels. EPA's criteria support a level of 75 decibels for an ultimate health goal and believes that reduction to 85 decibels is an important step to achieve that goal.

GOVERNMENT TRADE NAME SURVEYS

On the heels of a National Occupational Hazard Survey (NOHS) by the National Institute of Occupational Safety and Health we are now confronted with a Consumer Product Safety Commission Survey. These two surveys are very similar, both requesting ingredient identifications of products selected by the survey. Under the NOHS survey we have been requested to complete forms on over 200 F&F products. Currently we have 70 requests for composition from CPSC which we are delaying action pending an appeal for clarification by the NPCA. The NOHS survey requests information on any ingredient in a formula over 1% by weight. The CPSC survey asks for anything over 0.1% by weight.

NEW HAZARDOUS MATERIALS WARNING SYSTEM

The National Institute of Occupational Safety and Health (NIOSH) is proposing a new three-part warning system to alert workers to potentially hazardous materials in the work place. The system is based on the use of placards posted in work areas, labels on hazardous materials containers, and material safety data sheets spelling out the toxicity, flammability, and reactivity of each substance, as well as information on safe handling procedures, proper emergency care in the event of overexposure, and disposal methods.

AIR SHIPMENTS

Shipments of F&F products by air may soon present additional problems to those we are now experiencing. The nations airline pilots will begin a voluntary embargo on February 1, 1975 on transporting hazardous materials that they claim endanger the lives and safety of their passengers. The pilots plan to insist that the bulk of hazardous materials be shipped only on cargo plans and then only in the quantities now considered safe for passenger aircraft. The ban will include explosives, acids, gases, flammables, etiological agents declared dangerous by the U. S. Dept. of Transportation.

RMK
RMK:mit
1/21/75

SAMPLING FOR VARIABLES

J. T. BYGOTT

I was recently asked to design a sampling program to assure the quality of header production at the Leominster Plant. In past sampling programs which have been designed for F&F activities we have been using attribute sampling plans. These plans are of the type used when the control testing grades the product on a Go - No Go basis.

The most important measurement in header production, however, is its length which is measured in centimeters. When a product characteristic is measured on a quantitative basis it is possible to base the sampling plan on the mean and standard deviation of the sample. This is called a variables sampling plan and because of the precise measurements required, as opposed to the usual attribute inspection plan which merely grades the product as defective or non-defective, it is possible to obtain the same level of assurance with a much smaller sample size.

In the quality control program for sampling header production a sample of 12 is all that is needed from each lot. A lot is a full box of 1000 headers. If we were to use an attributes sampling program for the same level of assurance it would require the inspection of 80 headers, or almost 7 times as many measurements. This is even more impressive when we realize that there are eight boxes being filled simultaneously at each machine location and there are on the average, 9 machines running for a total of 72 lots of 1000 headers each being produced at a given time. This means a total of 864 samples needed for the variables plan compared to the 5760 samples we would need for the similar attributes plan.

In addition, by using the same mean value calculated from each sample I have set up a quality control testing program which gives upper and lower control limits for the control of header lengths. If the mean value of the sample is outside the control limits it would be an indication that the expected variability has been exceeded and an assignable cause is present in the production process which should be found and corrected before it is necessary to begin rejecting a lot of headers.

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