

Ideas Exchange Column

I/EC's features bring in lots of fan mail. Readers want information, and they pass along ideas. Ideas Exchange Column is a careful screening of this correspondence. This is not a place for praise or criticism; it is a source of technical questions and their factual answers.

Silicon Monoxide

DEAR MR. WEAVER:

From the I/EC Report [I/EC 50, 22 A (March 1958)] by D. G. W., is the material silicon monoxide classified? I have tried to learn something about it since I first heard it mentioned on television and have found nothing.

J. D. DOYLE
Raw Fastener Co.
102 Westfield St.
Providence 7, R. I.

Mr. Weaver's Answer:

I do not believe that the material silicon monoxide is classified information any longer. I was informed that the final four coatings, including the two silicon monoxide film, were put on at the Engineering Research and Development Laboratories, Fort Belvoir, Va. I feel sure you can get information from them on this chemical.

You may be able to get some information from Dr. Kurt Stehling, Project Vanguard, Naval Research Laboratory, Washington, D. C.

Ceramic Filters

DEAR MR. FIRST:

The article on Ceramic Filters for High Temperature Gas Filtration [I/EC 50, 81 A (June 1958)] was noted with interest.

We have several filtering problems but they are at lower flow rates than noted in the article. The particle size removal (to 2.0 microns) and pressure drops are in the range needed for our application. Also, the filters would be used for gas analysis and this would require that the filters be inert and not give off any volatile material that would contaminate the sample. There is the possibility of sulfur dioxide gas and dilute solutions of sulfurous and sulfuric acid coming in contact

with the filter. The filter must resist attack from these sample constituents. Fiberfrax may meet our requirements.

Where can I obtain additional information on sheet filter paper and small filter cartridges?

D. F. ROSS
Development Department
Bailey Meter Co.
1050 Ivanhoe Road
Cleveland 10, Ohio

Mr. First's Answer:

Fiberfrax is inert to sulfur dioxide, dilute sulfuric and sulfurous acids, and to all common chemicals except HF. The paper filter cartridges described in this article were manufactured by Flanders Filters, Inc., Riverhead, N. Y. The Fiberfrax paper was manufactured by the Hurlburt Paper Co., South Lee, Mass. One grade of paper is available from which all organic or volatile matter has been removed.

Problems in Testing Materials

DEAR MR. YODEN:

In your article on page 82 A (I/EC, April 1958) you conclude that "Precision and accuracy labels can be arbitrary, depending upon the point of view." You arrived at this by allowing the measurement by any one of a group of laboratories to be taken arbitrarily as the standard.

If, on the other hand, you select one measurement—that from a piece of equipment "which can be regarded as a standard (perhaps by reason of careful calibration at some qualified agency)," then the set of constant errors are not really samples from a universe of errors. They may or may not be randomly distributed. We can, of course, calculate the "standard deviation of the set," but I do not see that precision of measurement is involved.

Can we speak of precision of

measurement involving measurements by many different pieces of equipment?

ALEXANDER LEHRMAN
210 West 101st St.
New York 25, N. Y.

Dr. Youden's Answer:

The paragraph you refer to was somewhat altered editorially. As I submitted the text it read as follows: "It is well to think of the attitude that might be taken if, instead of two sets, there were a great many sets of equipment—one of them, as before, taken as the standard." The revision made it more concise but says should where this was not meant.

The point I did have in mind was that the collection of equipments could be thought of as a super population. That the instruments, as calibrated by the manufacturer, would receive adjustments distributed more or less normally about the manufacturers own reference standard. Indeed, if these calibration errors could be ascertained they become a measure of the precision of the calibrating process. Any one instrument sold to a laboratory and used over and over again would introduce its particular calibration error into each and every measurement. From this point of view this particular calibration error is a constant error affecting the accuracy of all the measurements made with this instrument. From the viewpoint of a warehouse filled with instruments with normally distributed calibration error, any instrument picked at random for shipment carries with it a random error reflecting the precision of the calibration made by the manufacturer.

Your last sentence can be answered by the above argument but I agree that common usage would not involve the term precision in this setting. We do, instead, assign a particular correction to each instrument.