

SCHWARZ LABORATORIES, INC.

(Name of Product) _____

LOT MARK: _____

PREPARED BY: _____

ELEMENTARY ANALYSIS: _____

CHROMATOGRAPHIC ASSAY: _____

% PURITY: _____ APPROVED: _____

**Some
SCHWARZ
Fine Chemicals
for Industry
and Research**

●
Purines and
Pyrimidines
Phosphorylated
Adenosine
Compounds
Cozymase
Nucleosides
and
Nucleotides
Nucleic Acids
and
Metallic
Nucleates
Sugar
Phosphates
Glutathione
Sulphydryl
Reagents
Sugars
Triphenyl
Tetrazolium
Chloride
Deoxynucleosides
Optically
Standardized
Amino Acids
Radioactive
Chemicals

How High Quality is Assured in SCHWARZ Biochemicals

High Specifications Are Established

A specification sheet delineates the quality of every chemical manufactured by Schwarz. These specifications are prepared in our Research Laboratories and are based on careful literature searches for the correct values.

Each Lot Must Meet These Specifications

Every lot of Schwarz compound is analyzed in our Control Laboratories before it leaves the production laboratory. Each assay must meet the specifications set forth. The assay slip must be approved by the head of our research group.

Complete Records Are Kept For Each Lot

A lot number appears on *every* shipment of fine chemicals made by Schwarz. A copy of the analysis of each lot is filed in our Order Department—so every purchaser instantly may be given data he may need.

Extensive Research Is Maintained

Schwarz research is intensively directed to the commercial production of cell substances. Schwarz Laboratories was the first and in many cases is the only manufacturer of a number of important biochemicals.

All Operations Are Guided By Long Experience

Schwarz Laboratories has a long record of accomplishment and leadership in manufacturing biochemical intermediates. It is the oldest and largest manufacturer in the world of nucleic acid and its related derivatives. You can rely on Schwarz.

SCHWARZ LABORATORIES, INC.

230 Washington Avenue

Mount Vernon, New York

LETTERS

The editors take no responsibility for the content of the letters published in this section. Anonymous letters will not be considered. Letters intended for publication should be typewritten double-spaced and submitted in duplicate. A letter writer should indicate clearly whether or not his letter is submitted for publication. For additional information, see Science 124, 249 (1956) and 125, 16 (4 Jan. 1957).

Reference Citations

The citation of references in scientific papers should enable the reader to locate the specific point in the referent article quickly and efficiently. The usual method of citing a reference does not accomplish this purpose, for, ordinarily, only the first page of the article or the inclusive pages are given in the reference. Only in the case of books is the page number given. When a highly specific point is made, which may be buried in a table, footnote, or paragraph, it frequently becomes a very difficult task to locate and verify the information, especially when the paper is long or involved. We have run into this difficulty, especially in citations for enzymatic inhibitors, activators, melting points and other physical constants, and data and procedures which may be incidental to the main subject of the paper.

It is, therefore, suggested that when a highly specific point is referred to in a paper, the usual reference be given in whatever style the journal requires, followed by a more specific citation in parentheses. The following hypothetical example will illustrate this point. A. N. Jones and J. A. Smith, *J. Biol. Chem.* 89, 54 (1984) (p. 56), (56), or (56, Table III), or (56, paragraph 2), and so forth.

The attention of editors of scientific journals to this matter is recommended.

MORRIS N. GREEN

Newton Centre, Massachusetts

HERBERT N. SCHLEIN

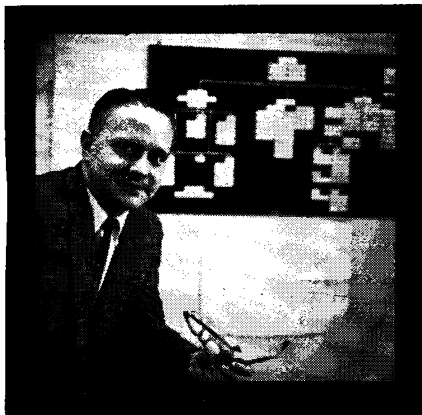
West Roxbury, Massachusetts

When authors of papers supply the information, Science does just what Green and Schlein ask for, although not exactly in the form that they suggest.

Tools for Communication

Language is our box of tools for thinking and for communication. The tools (words) ought to be kept sharp (precisely defined). The invention of new tools (words and symbols) for new uses (concepts), and for the old ones too, is to be encouraged. The sooner an inconvenient tool is replaced by a more effective one, the better.

I have a pet aversion, namely, the term *milligrams percent*, meaning milligrams of solute in 100 milliliters of solu-



qualifications?

"With the right qualifications," says Dr. Frank C. Brooks, Director of the Combat Operations Research Group of Technical Operations, Incorporated, "a scientist who wants to grow fits in here. We're a growing research organization with freedom to think, in an atmosphere of creative opportunity. Right now, at Fort Monroe, Va. and Monterey, Calif., we're looking for an

Applied Mathematician or Logician

who combines strong backgrounds in logic and mathematics, with a knowledge of computer logic and experience in computer applications. We also need an

Experimental or Theoretical Physicist

preferably on the Ph.D. level with two years of experience beyond the degree.

The positions at Fort Monroe are on research and analysis teams tackling theoretical problems in military organization and tactics, using combat models and war games. At Monterey, the emphasis is on the experimental study of combat, using the techniques of design and analysis of experiments and high speed computing."

Address:

ROBERT L. KOLLER
Operations Research Group



TECHNICAL OPERATIONS, INCORPORATED

South Avenue
Burlington, Massachusetts

tion. Percent and per mille and parts per million are easy and have convenient symbols: %, ‰, and ppm. It is true that it is inconvenient to write 0.015%, or 0.15‰, or concentration of 1.5×10^{-4} , or 150 ppm. To write 15 mg percent, which is present custom in our clinical laboratories, seems to me not much of an improvement. Fifteen milligrams percent does run off the tongue quite smoothly. One hundred fifty parts per million, however, runs just as smoothly and is only 12 percent longer.

Now I have an invention. It is to use, instead, the East Indian word for 100,000, namely, *lac*. Fifteen milligrams percent then becomes 15 per *lac*.

R. R. NEWELL

Stanford University School of Medicine,
San Francisco, California

Insect Control by Radiation

In the article "Current status of insect control by radiation" [*Science* 124, 1011 (1956)], Charles C. Hassett gives a table of costs per ton for a 50,000-roentgen dose from various sources in which some of the data appear to be misleading. In particular, I think that the figures given for electron accelerators are a little unrepresentative and, in this connection, I would like to call attention to data given by Wolfgang Huber [*Western Canner and Packer* (Aug. 1956)]. Huber shows that, for a dose of 50,000 roentgens (approximately 0.05 Megarep) at 50-percent utilization, machines are available that can treat more than 100 tons per hour at a cost of 40¢ per ton or less.

I should also like to point out that there appears to be a discrepancy in Hassett's stated cost of the cobalt-60 irradiation unit: "\$10 per ton (5¢ per pound)."

M. C. CROWLEY-MILLING

Accelerator Laboratory,
Metropolitan-Vickers Electrical
Company, Manchester, England

The article by Huber, referred to by M. C. Crowley-Milling, appeared after my article had been written and submitted for clearance; hence, it could not be included in my discussion. The data cited actually reinforced my conclusions: that these machines will soon make large-scale radiation economically feasible.

With reference to Crowley-Milling's second point, the manuscript submitted to *Science* shows the correct values: "\$10 per ton (0.5¢ per pound)." This typographic error unfortunately passed both *Science's* proof reading and mine.

CHARLES C. HASSETT

Entomology Branch,
Chemical Warfare Laboratories,
Army Chemical Center, Maryland



Amplification

The billion-fold amplification of the image left by light in silver halides, a problem which has interested many scientists, is only one of current problems being attacked by Technical Operations, Incorporated. Your association with Technical Operations' scientific staff can mean comparable amplification.

for your career as a

Chemist

It can also mean:

- simple, sensible salary policies
- management by scientists
- long-range security
- unusual joint company-employee savings plan

Senior scientists will find limitless opportunity in experimental research and development—in chemistry, physics, nucleonics and electronics. Challenging positions are available in theoretical work in physics, operations research, and other fields.

*Dr. Bernard Manning, of Technical Operations' Chemistry Group.

address: Robert L. Koller

**TECHNICAL
OPERATIONS**
INCORPORATED

Research and Development
for business, industry and government

6 Schouler Court
Arlington 74, Massachusetts