PROPERTIES:
Molecular weight ........... 159.83
Atomic weight ............. 79.916
Specific gravity
at 20/15°C. ............. 3.120
Pounds a gallon
at 20°C. ............... 26.0
Boiling point ............. 58.8°C.
Freezing point ............. -7.2°C.
Freely soluble in alcohol,
ether, carbon tetrachloride,
chloroform, concentrated HCl,
aqueous solutions of inorganic bromides

SPECIFICATIONS:
Bromine, not less than ........... 99.7%
Specific gravity
at 20/15°C., not less than .... 3.1
Chlorine, not more than ........ 0.15%
Iodine .............. None
Non volatile, less than ......... 0.01%
Water Content ........ 0.003% Max.

A NEW BROMINE PLANT* at El Dorado, Arkansas,
will provide a large, dependable source of high-quality bromine at lower
delivered cost in volume. This added capacity to our present production
from plants at Saint Louis and Manistee, Michigan permits active research
by you on this basic chemical element to take advantage of bromine's
unusual and unique properties and characteristics. Investigate the possi-
bilities of bromine and bromides in your business.

* A joint-venture project of Michigan Chemical Corporation and Murphy Corporation of El Dorado, Arkansas.

WHAT BROMINE OFFERS YOU

HIGHER YIELDS
Bromine compounds give higher processing yields in: Quaternary salt forma-
tions; Grignard reactions in the aromatic series; nitrile formations; hydrolysis to
carbinols; Ullmann reactions, and Reformatsky reactions.

PROCESSING ADVANTAGES
Bromine is handled as a liquid—does not require pressurized equipment.
Oxidation potential of bromine is lower than that of elemental chlorine or fluor-
ine. This minimizes decomposition of hydrocarbons in halogenation reactions.
Melting points of bromides are higher than those of chlorides or fluorides. This
usually makes isolation easier—an important advantage to the research chemist.

NEW PRODUCT OPPORTUNITIES
Bromine imparts greater fire resistance to organic compounds than low molecular
weight halogens. This property has proved useful in fire extinguisher fluids
and in fire proofing cloth and has application in plastics and coatings.
New pharmaceuticals are possible with bromine compounds as intermediates.
Bromine and compounds, which readily release bromine, are active germicides,
bactericides and algicdes.

Michigan Chemical will be glad to aid you with your present bromide
needs, or to help you in basic bromine research. Write or phone us.

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Berkeley radioisotope instrumentation may be used to:
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2. Map thyroid gland activity and determine isodose curves
3. Locate thyroid carcinoma metastases
4. Localize brain tumors
5. Measure blood and plasma volume
6. Measure red cell volume and survival time
7. Measure circulation time and cardiac output
8. Radioassay diagnostic or therapeutic doses

Write for "Radioisotope Lab File"—a detailed explanation of different methods, procedures, equipment, A.E.C. reg., etc.

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centrifuge model CM

... for routine centrifuging

Designed for the moderate budget, the Model CM is a heavy-duty Centrifuge for all ordinary applications where very high speeds are not essential. It is an unusually versatile unit with interchangeable analytical heads for spinning tubes and bottles in the angle and horizontal positions and basket style heads for filtration and clarification.

EMPHASIS ON FUNCTIONAL EFFICIENCY

All operating units are completely enclosed in a handsomely modern functional cabinet of two piece construction, which incorporates shelves for extra heads and features International’s new “Stor-a-Door” for storing shields and trunnion rings. Controls are easily accessible and indicators are on eye-level angle for utmost efficiency.

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Finger Touch Brake, for safe, smooth deceleration.

Autotransformer, stepless speed control without heating.

Electric Tachometer, non-mechanical continuous speed indication.

Permanent Speed and Force Table, for quick reference.

Two-Piece Construction, for use as bench-Model Centrifuge when desired.

SPECIFICATIONS

Speed — 1200 to 4500 r.p.m. — 290 to 3200 G.

Capacity — 15, 50, 100 ml. tubes; 250 ml. bottles; 3 liter baskets.

Height — 39", Width — 20", Depth — 23".

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Write for Bulletin #392 to
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Farrand Grating Monochromators are small, compact and convenient to use with microscopes, colorimeters, photometers, and similar instruments and can be set up with auxiliary equipment for making transmission, absorption, emission, radiation, reflection, fluorescence and phosphorescence measurements or used for irradiation purposes.

The dispersing elements in the Farrand Monochromators are reflection type replica gratings (14,000 lines per inch) made from master gratings of highest efficiency and resolution. The masters are produced in our own plant on the Farrand-Strong Ruling Engine which we manufacture in accordance with the design of Dr. John Strong of Johns Hopkins University.

Bulletin No. 811R upon request.

FARRAND OPTICAL COMPANY, INC. Bronx Blvd. and E. 238th St., New York 70, N. Y.
Kodak reports to laboratories on:

non-hygroscopic acetylcholine iodide... a better chance of getting through to the besieged brain... recruiting talent for high-energy physics

A delightful business
You sit one fine morning reading your mail and lo, there is a letter from a researcher at a medical school in the green hills of Vermont who wants to know why you don’t put up acetylcholine as the quaternary iodide. Somehow, possibly by reading it in a book, he seems to have learned that acetylcholine iodide is not hygroscopic at all, whereas that well known vasodilator acetylcholine itself and its well known bromide (Eastman 2117) absorb so much water from the air that to try to weigh them out accurately is a nuisance. There doesn’t seem to be a solitary reason in the world why you can’t put up acetylcholine iodide. You even think of a way to make it from starting material less costly than acetylcholine. You try it and it works and the iodide is non-hygroscopic. That particular researcher is pleased at what an agreeable fellow you are, and you are pleased at the prospect of all the acetylcholine iodide that all the other researchers are going to buy from you.

So now all you have to do is to advertise that Acetylcholine Iodide (Eastman 7209) costs $2.60 for 10 g, and is one of some 3500 highly purified organic chemicals sold by Distillation Products Industries, Eastman Organic Chemicals Department, Rochester, N. Y. (Division of Eastman Kodak Company).

Movies with comment
As between 55 pages of typescript to detail the progress on a certain project for last month and six minutes of Kodachrome movies to do the same, which has the better chance of getting through to the besieged brain?

Since you can’t say everything without words and since you have to be quite rich to afford a full-dress sound movie that is looked at once or twice and filed for the record, you use a magnetically recorded commentary. At the time we process the film for your dealer (and you can, if you wish, specify us as your favorite color film processor), we can lay down a Kodak Sonotrack Coating along the edge. While the Kodascope Magnetic-Optical Sound Projector shows the picture, appropriate extending remarks are spoken into the microphone. Any remarks that seem less than appropriate when the projector plays them back with the picture have merely to be respoken. Automatically the boo-boo is wiped clean and replaced by wiser words.

This projector we have just brought out now. We hadn’t thought it wise to take anybody’s money for such a machine until enough organizations had used our design without trouble and had liked the way it sounds.

From Eastman Kodak Company, Cine-Kodak Equipment Sales, Rochester, N. Y., one may expect an honest attempt at collaboration on sensible procedures for using inexpensive sound movies in technical communication and documentation.

Little black tracks
Rochester, a city which gets a fair amount of its living from the photographic emulsion, has been the site for the past six years of great international conferences on nuclear particle physics. It is mere coincidence that photographic emulsions are the source of much of the raw data that the savants come to trade, ponder, and debate. Yet, because we make some of the photographic emulsion they use, we are perhaps more awed than our butchering, baking, and candlestick-making fellow-townsmen at the mighty intellectuality focussed on the microscopic tracks of black specks that mark the births, encounters, and deaths of nucleons, leptons, mesons (light and heavy), and hyperons. Here men and women strain every known resource of thought and mathematics to build a logical structure strong enough to hold these “elementary” particles until next year’s conference, when parts of it will surely come crashing down as new evidence is presented.

Not the least remarkable aspect of this is the virtual certainty that here and there in the land there must be a kid (now in Cub Scouts or possibly trying to understand rock ‘n’ roll) who, a few years from now, will be reading the proceedings of these conferences with a smile of tolerance for the pitiful errors of the physicists who preceded him. A parent or teacher who suspects he knows such a kid has a chilling responsibility.

Scientific American recently carried an article, “The Tracks of Nuclear Particles,” pitched at those who have no knowledge of the subject or its vocabulary but who are blessed with vigorous, inquiring minds. We have bought 2,000 reprints to give away. Requests should be addressed to Eastman Kodak Company, Professional Goods Division, Rochester, N. Y.

Price quoted is subject to change without notice.

This is one of a series of reports on the many products and services with which the Eastman Kodak Company and its divisions are ... serving laboratories everywhere

10 AUGUST 1956