same as that in which they are formed by the nuclear reactions, a matter which may be of some interest.

By the use of less carrier it should be possible to attain higher concentrations.

*Preparation of antimony compounds.** The phenylstibinic acid was prepared according to Schmidt [2], and the triphenylstibine by the method given in *Org. Syntheses* [3].

Szilard-Chalmers reaction by means of $(C_6H_5)_3Sb$. The compound is dissolved in benzene (1 g in 5 ml), and the solution clarified if necessary by means of charcoal, which is filtered off. The solution is irradiated with slow neutrons in the cyclotron.

After the irradiation a sample of the solution is saved for comparative activity measurements. The main part of it is mixed with the same volume of an aqueous solution containing 2 % tartaric acid and 0.05 % potassium antimonyl tartrate, and the solutions are shaken together for 15 minutes. (It seems to be of importance for the yield to use an adequate amount of aqueous solution and to shake long enough.) After separation the solutions are filtered clear, and the organic solution is ready for a new irradiation. From the aqueous solution Sb_2S_3 is precipitated with H_2S, washed and dried. The sulphide prepared in this simple manner may not have the correct composition, but that is of little importance in the present experiments.

1. Maurer, W., and Ramm, W. *Z. Physik* **119** (1942) 602.
2. Schmidt, H. *Ann.* **421** (1920) 188.
3. *Org. Syntheses*, Coll. vol. I, 2nd ed., New York (1946).

Received May 24, 1948.

---

* Much of the experimental work has been carried out by Mr. K. Halvarson, Ing., to whom my gratitude is due.

A New „Daylight-device" for Titrations

K. RICHTER AND BENT BARFOD

Philips Ltd., the Neon-factory, Copenhagen,
and
Medicinalco Ltd., the Chemical-Biological Laboratories, Copenhagen, Denmark

The work in the analytical laboratory would be greatly facilitated if the micro titrations which have to be carried out in broad daylight in order to obtain accurate readings (*e. g.* iodometric titrations) could be performed with the same precision by artificial light.

The so-called »daylight-bulbs» which so far have been on the market, do not produce light of such a quality that very slight colour changes near the end-point of the titration can be read with the precision necessary in micro titrations.

We have succeeded in constructing an artificial »daylight device» which satisfies all our demands.

The light-source is a helical, high-voltage fluorescent lighting tube which with a current of 25 mA will produce light having a luminous flux of about 100 lumen. The nature of the light justifies the term: daylight of a colour temperature of about 5000° K. The tube will stand about 8000 lighthours.

A leak transformer having a primary voltage of 220 V and a secondary no load voltage of 1500 V has been used for the operation of the above fluorescent lighting tube. The drop in voltage between the electrodes of the tube will amount to about 300 V at 25 mA. It is therefore sufficient to use a transformer having a no load voltage of 6—700 V if such a transformer is available. The consumption will in the latter case be 6—8 W.

The helical light-source has a total diameter of 6.5 cm. The transformer and the electrodes of the tube are insulated mounted in a lattice case (height 14.5 cm, length

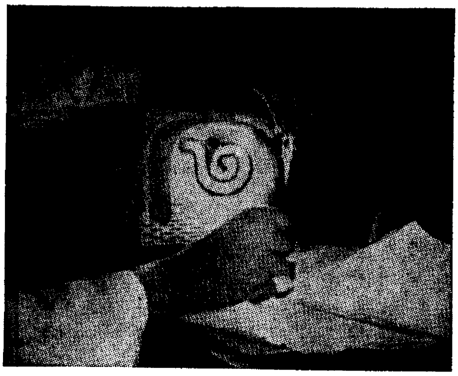

Fig. 1. The daylight-device in use.

29 cm, depth 13.5 cm). The case has four supporting legs which elevate the center of the lamp to 14 cm above the table. This is the distance found suitable for our purposes.

The light is shielded on two sides by a 6 cm wide cover.

The lamp is placed as illustrated by the photograph. The light falls obliquely from the left hand side down on the titration vessel. The colour of the liquid is thus observed against a background of non-reflecting white (a sheet of filter paper). If the light is mounted below the titration vessel, the end-point cannot be determined with the same accuracy as with the arrangement shown on the photograph. The light cover prevents direct light from reaching the eyes of the analyst. The case serves very conveniently as a support for the left hand which operates the cock of the micro burette.

Using this lighting device the colour at the end-point of the titration is clearly observed and at the same values as for titrations carried out in daylight, even when liquids of very low normalities are used (0.002 *N*).*

---

* The daylight-device can be obtained from PHILIPS Ltd. the Neon-factory, Copenhagen, Denmark. The complete apparatus is not yet put into serial production, but the tube and transformer, without mounting, will cost about 100 Danish crowns.

Received June 16, 1948.

The Synthesis of 1,2-Diiodoethene

ALEXIS C. PAPPAS

Universitetets Kjemiske Institutt, Blindern — Oslo, Norway

This paper deals with a method for the synthesis of 1,2-diiodoethene (acetylene-diiodide), which was invented in studying analytical methods for determining impurities in acetylene generated from calcium carbide and acetylene from storage cylinders and studying methods for purification of acetylene for laboratory use.

Among the analytical methods that may be used for the quantitative determination of gaseous phosphorus compounds in acetylene, the oxidation of these impurities by the action of iodine in an aqueous potassium iodide solution proposed by Mauricheau — Beaupré[1] is recommended. From the amount of iodine used for the oxidation the content of phosphine is calculated by using an empirical factor. This method was tried. It proved, however, impossible to obtain conformable results.

To purify acetylene from gaseous phosphorus, arsenic and sulphur compounds the method of Conn, Kistiakowskey and Smith[2] was used. The crude acetylene was passed through wash bottles containing iodine in aqueous potassium iodide solution. The acetylene leaving this solution had a characteristic odour. If the solution in the wash bottles was allowed to stand only for a few days with acetylene, the solution became pale and long needle-shaped crystals were formed. At the same time the purifying capacity of the solution diminished and became very low.

As will be shown in this paper, the cause of these two phenomena is the formation of 1,2-diiodoethene.

According to Beilstein's Handbuch der Organischen Chemie[3] diiodoethene may be prepared by the method of Berthelot, by the action of acetylene on iodine at an