atom concerned has the α-configuration. In an α-D-fructopyranose the 2-OH is in the α-orientation and the 2-CH_2OH in the β-orientation. The carbon centers in α-D-glucose, as shown in formula I, are: 1α, 2α, 3β, 4α, 5β.

In the Fischer–Rosanoff system of nomenclature as defined by Hudson,[6] the enantiomer of α-D-glucose of formula II is called α-L-glucose, but the true meaning is conveyed more accurately by the designation "α"-L-glucose, for the prefix is used merely in a trivial sense and does not bear the connotation of configuration. Since the actual configurations are established with certainty, it would seem rational to abandon the trivial designations in favor of prefixes that have configurational significance. The enantiomer of α-D-glucose is the exact optical opposite at all centers, including C_1, and is properly described as: 1β, 2β, 3α, 4β, 5α.

The proposed system can be distinguished from that in current use by including in the name a number indicating the carbon atom whose configuration is defined by α or β. Thus I is 1α-D-glucose (or 1α-D-glucopyranose); II is 1β-L-glucose; methyl α-D-fructopyranoside is more specifically described as methyl 2α-D-fructopyranoside. For purposes of discussion it may be convenient to state that 1α-D-mannopyranose is the 2β-epimer of 1α-D-glucopyranose, or that methyl 1α-L-idopyranoside is the 5α-epimer of methyl 1α-D-glucopyranoside. The important relationship discovered by Hudson[1] can be so stated that one rule is applicable to all types of cyclic sugars of both the D- and L-series: in a pair of glycosidic epimers, the isomer with the glycosidic hydroxyl or alkoxyl group in the α-orientation is invariably more dextrorotatory than the β-epimer. A relationship discovered by Isbell[7] can be stated as follows: a 1α-D-pyranose, in which C_1 and C_5 are α and β, respectively, or *trans*, is oxidized much more slowly than the 1β-epimer in which they are β and β, or *cis*.

(6) C. S. Hudson, "Historical Aspects of Emil Fischer's Fundamental Conventions for Writing Stereo-Formulas in a Plane," *Adv. in Carbohydrate Chem.*, **3**, 1 (1948).

(7) H. S. Isbell, *J. Research Natl. Bur. Standards*, **18**, 505 (1937), RP 990; H. S. Isbell and W. W. Pigman, *ibid.*, **18**, 141 (1937) RP 969; H. S. Isbell, *J. Chem. Educ.*, **12**, 96 (1935).

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Polytetramethylene Sebacate: Pyrophoric Lead as an Ester Interchange Catalyst

BY C. S. MARVEL* AND JOHN H. JOHNSON[1]

In preparing polytetramethylene sebacate from butane-1,4-diol and dimethyl sebacate with a litharge catalyst, one run gave a better grade of polyester than had been obtained before. In this polyester sample there was a black deposit that appeared to be finely divided lead. As a result, pyrophoric lead[2] was tried as a catalyst in this interchange reaction and found to work well. The use of a wide variety of finely divided metals as catalysts for the preparation of polyethylene terephthalate from ethylene glycol and dimethyl terephthalate has been described[3] but no mention was made of pyrophoric lead.

The polyesters were prepared in an apparatus similar to that described by Hardy[4] from 11.8 g. of dimethyl sebacate and 5.0 g. of butane-1,4-diol. The charges were heated with the 0.1 g. of catalyst under varying conditions and then the polyesters were purified by solution in chloroform, filtration and reprecipitation with acetone. The following cases seem sufficient to indicate that pyrophoric lead is a satisfactory catalyst in this type of reaction. The yields are essentially quantitative.

Run No. 1: 0.1 g. of litharge as catalyst; reaction mixture heated for two hours at 183° and atmospheric pressure, then for one hour at 259° and 0.1 mm. pressure. The polymer was isolated and the intrinsic viscosity taken in 0.4% solution in chloroform at 25.5°; $[\eta]$ 0.61.

Run No. 2: Same catalyst as No. 1; reaction mixture heated three hours at 155° and atmospheric pressure and one hour at 155° and 0.03 mm. pressure; $[\eta]$ 0.33.

Run No. 3: 0.1 g. of pyrophoric lead; reaction mixture heated two hours at 172° and atmospheric pressure and six hours longer at 1 mm; $[\eta]$ 0.98.

Run No. 4: Same catalyst as No. 3; reaction mixture heated three hours at 172° and atmospheric pressure, then three hours at 0.1 mm.; $[\eta]$ 0.55.

Anal. Calcd. for $C_{14}H_{24}O_4$: C, 65.60; H, 9.44. Found: C, 65.45; H, 9.63.

The polyesters obtained with pyrophoric lead were whiter than those from the litharge runs. The polymers all melted at 64–64.5°.

(2) King, "Inorganic Preparations," D. Van Nostrand Company, New York, N. Y., 1936, p. 24.

(3) British Patent, 578,079.

(4) Hardy, *J. Soc. Chem. Ind.*, **67**, 426 (1948).

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UNIVERSITY OF ILLINOIS
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Preparation of Naphthyl Acid Phosphates[1]

BY ORRIE M. FRIEDMAN* AND ARNOLD M. SELIGMAN†

Methods for the histochemical demonstration of alkaline phosphatase[2] and acid phosphatase[3] have been developed utilizing as substrates the calcium salts of α- and β-naphthyl acid phosphates. Following enzymatic hydrolysis of these substrates, coupling with a suitable diazonium compound, results in the deposition of an insoluble azo dye at the site of enzymatic activity.

Although the calcium salts of these phosphoric esters are readily prepared[2,3] their poor solubility in water requires their use in a fine suspension for

* Harvard University Research Fellow, Chemistry Department, 1946–1949.

† Harvard University Assistant Professor of Surgery, Medical School.

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(2) (a) Menten, Junge and Green, *J. Biol. Chem.*, **153**, 471 (1944). (b) Manheimer and Seligman, *J. Nat. Cancer Instit.*, **9**, 181 (1948).

(3) Seligman and Manheimer, *ibid.*, **9**, 427 (1949).

* Editorial Board 1943–.

(1) Allied Chemical and Dye Corporation Fellow, 1948-1949.