LIV.—*Zinc Dextrosate.*

By ALFRED C. CHAPMAN, Demonstrator of Chemical Technology,
University College, London.

VARIOUS compounds of dextrose, with the oxides of barium, strontium, calcium, lead, and copper have been described by Pélégot, Brendecke, and other chemists, but no compound of dextrose with oxide of zinc appears to have been noticed. When an ammoniacal solution of zinc hydrate is added to a concentrated solution of dextrose in 90 per cent. alcohol, a white, curdy precipitate immediately falls.

4 grams of thoroughly washed zinc hydrate were dissolved in the smallest possible quantity of strong aqueous ammonia, and this was then added to a solution of 5 grams of dextrose in about 400 c.c. of 90 per cent. alcohol. After standing for 12 hours, the clear supernatant liquid was poured off, and the white precipitate transferred to a perforated porcelain plate placed in a funnel and connected with a filter-pump.

After having been thoroughly washed with alcohol, and allowed to drain in a current of air, it was placed under the receiver of an air-

pump and dried to a constant weight in a vacuum over sulphuric acid.

By this method I obtained rather more than 4 grams of the dry zinc dextrosate

Results of Analysis.

I.	0.428 gram	gave	0.290 gram	CO ₂	and	0.178 gram	H ₂ O.
II.	0.362	"	0.248	"	"	0.149	"
III.	0.500	"	0.204	gram	ZnO.		
IV.	0.482	"	0.1965	"			
V.	0.500	"	0.205	"			

Calculated for C ₆ H ₁₂ O ₆ .2ZnO + 3H ₂ O.		Found				
		I.	II.	III.	IV.	V.
C.	18.19	18.45	18.67	—	—	—
H.	4.54	4.60	4.56	—	—	—
Zn	32.83	—	—	32.74	32.71	32.90

This compound, when treated with water, is decomposed into dextrose and zinc oxide. The zinc in Analyses III and V was determined by treating a weighed quantity with water, heating for some time, filtering off the zinc oxide, and weighing. The dextrose in the filtrates was also estimated.

The following are the results:—

Calculated for C ₆ H ₁₂ O ₆ .2ZnO + 3H ₂ O.		Found.	
		(a.)	(b.)
Dextrose.	45.46	45.5	45.9
Zinc oxide	40.91	40.8	41.0
Water	13.63	*13.7	*13.1
	100.00	100.0	100.0

Zinc dextrosate is a white, amorphous substance. It is very hygroscopic and parts with its moisture with very great difficulty. It is insoluble in alcohol, ether, and chloroform, but is easily soluble (probably after decomposition) in dilute acids. When heated, it decomposes, decomposition commencing at a temperature of about 65° to 70°. In one experiment, a solution from which the zinc dextrosate had been separated as above described on standing for several weeks deposited small needle-shaped crystals, but the quantity was far too small for any investigation.

* The water by difference.