

tion 2. This is contrary to the conclusions of Iredale,³ who interpreted his data to mean that reaction 2 was negligible compared to the recombination. However, his data may be interpreted equally well in a second way; and in this case, the results are in accord with the findings on the photooxidation. At present, work is in progress to determine which of the two processes is predominant in methyl iodide photolysis.

DEPARTMENT OF CHEMISTRY
STANFORD UNIVERSITY
STANFORD UNIV., CALIF.

RECEIVED JULY 20, 1942

Vapor Pressures of Indene, Styrene and Dicyclopentadiene

BY P. E. BURCHFIELD

The vapor pressures of indene, styrene and dicyclopentadiene were determined over temperature ranges. The pressure-temperature data were desired for the development of distillation procedure for the separation of the components of light oil solutions.

Experimental.—The compounds used in this investigation were purified by recrystallization. The process of purification and the physical properties of the purified compounds are described elsewhere.¹ The vapor pressures were determined by the method developed by Booth, Elsey, and Burchfield.² The temperature was measured by means of a calibrated thermometer graduated to 0.1°. The necessary stem corrections were calculated and applied.

Due to the reactive nature of the compounds studied, a time factor was imposed upon the vapor pressure measurements with the exception of those of styrene. Two pressure readings, separated by a ten-minute time interval, were taken at equal temperatures for each determination. The vapor pressures of styrene at the three highest temperatures were determined by employing a new sample for each measurement, thus reducing the possibility of error through polymerization. Depoly-

TABLE I

VAPOR PRESSURE DATA OF INDENE, STYRENE AND DICYCLOPENTADIENE

Compound	Clausius-Clapeyron constants		No. 4 measurements	Temp. range of measurements, °C.	Average % deviation from mean
	A	B			
Indene	7.919	-2291	13	56.2 to 181.8	1.4
Styrene	7.929	-2103	7	33.5 to 116.3	1.1
Dichloropentadiene	7.925	-2218	6	40.1 to 90.8	0.6

(1) Smoker and Burchfield, "Cryoscopic Analysis of Light Oil Hydrocarbons," unpublished.

(2) Booth, Elsey and Burchfield, *THIS JOURNAL*, **57**, 2066 (1935).

merization was noticeable in the case of dicyclopentadiene at 100°.

The calculated constant, determined by methods of least squares, for the simplified, integrated Clausius-Clapeyron equation, and other pertinent data, are summarized in Table I.

RESEARCH DEPARTMENT
UNITED GAS IMPROVEMENT CO.
PHILADELPHIA, PA.

RECEIVED SEPTEMBER 4, 1942

A New Fructosan Isolated from *Yucca mohavensis*, Sarg.

BY KEENE P. DIMICK AND BERT E. CHRISTENSEN

Recently in connection with the chemical investigation of the *Yucca mohavensis*, Sarg. it was observed that its fructose content (3-5%) increased to as high as 60% on mild acid hydrolysis of the dried stem. This suggests the possibility of the presence of a considerable amount of fructosans which may be stored in the stem as a plant food. Further work on this material resulted in the isolation of a polyfructosan. This fructosan was first obtained from the 70% alcoholic extract of the stem of the *Yucca mohavensis* and comprised approximately 20% of the dry weight. It appeared to be similar to the compound Graminin, isolated from rye flour by Schlubach and Koenig,¹ in that it was a white hygroscopic powder, soluble in water and pyridine, and forms an addition product with ethyl alcohol.

Experimental

Isolation of the Fructosan.—The stem of the *Yucca* plant was stripped of its bark, cut into small pieces, dried at 60° and then ground in a small mill. The meal was then subjected to exhaustive and continuous extraction with petroleum ether, ether, absolute alcohol and 70% alcohol in the order given. The extract from the 70% alcohol, constituting 40% of the dry stem, was used in this study.

Twenty grams of the extract was dissolved in water and the solution made up to 100 ml. To this was added an equal volume of hot concentrated barium hydroxide suspension containing 20 g. of the hydrated base. When 200 ml. of 95% ethanol was added to this mixture, a heavy precipitate settled out. After cooling, the precipitate was removed and washed with 10% ethanol.

This material was suspended in 100 ml. of water, the barium removed with carbon dioxide, and the filtrate decolorized with 1 g. of charcoal. The compound was again precipitated with barium hydroxide and the treatment repeated.

To remove the last traces of barium the solution was treated with a small amount of dilute sulfuric acid until one drop would cause no further turbidity. By increasing the alcohol content of the aqueous solution the product was

(1) Schlubach and Koenig, *Ann.*, **514**, 182 (1934).