PRINCETON UNIVERSITY
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Frick Chemical Laboratory

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Professor Michael Heidelberger
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620 West 168th Street, New York

My dear Professor Heidelberger:

There is a remarkable similarity of properties between those reported for cyclo-octatetraene and the known properties of styrene. It was my understanding that a number of organic chemists wonder whether the products obtained by Willstätter and his co-workers really did represent the properties of cyclo-octatetraene. It was my understanding also that the late Professor Kohler spent a considerable amount of time and energy in attempting to obtain cyclo-octatetraene. This suggested to me that he himself was somewhat uncertain that the material previously obtained actually represented the compound sought. I am listing on the enclosed sheet some of the data of the two compounds which suggested the possible identity of the two. The only property which seems to deviate in my view is that on page 519 of your reprint: "The spectrum of the hydrocarbon shows no absorption bands but continuous absorption in the violet beginning at λ = 462$\mu\mu$ at 5 mm. and 490$\mu\mu$ at 30 mm. thickness of layer." I wonder if these absorption spectra were made in the liquid system. If so they cannot be very convincing and what one really ought to do is to examine the absorption spectrum in the vapor phase.

Very sincerely yours

Hugh S. Taylor.

HST:LD
Encl.

Styrene	Cyclooctatetraene
(1) $B.pt_{17} = 43$ (2) $B.pt_{760} = 146$	(1) $B.pt_{17} = 42.2$ (2) $B.pt_{715} = 133-135$
(3) $n_D^{21} = 1.5446$	(3) $n_D^{20} = 1.54225$
(4) $d_{15}^{15} = 0.9234$	(4) $d_4^{\circ} = 0.912$
(5) $d_o^{\circ} = .9251$	(5) $d_4^{20} = .920; .923; .925$
Dibromide	Dibromide
(6) M.p. 71.5-72 (73) (2nd report) easily loses HBr	(6) 70-71.5 (71) easily loses HBr
Tribromide (from alcohol)	Tribromide
(7) 60° sharp	(7) M.pt. 55° - solvent not mentioned (unsharp.)
Hydrobromide	Hydrobromide
(8) $C_6H_5-CH(Br)-CH_3$ (cannot be distilled at 760) $B.pt_{10} = 84-86$	(8) $B.pt_{13} = 85-87$ decomposes easily
(9) Does not decolorize Br_2 in $CHCl_3$. Other isomer $C_6H_5-CH_2CH_2Br$. $Bp_{11} = 92$	(9) Does not decolorize Br_2
(10) H_2SO_4 orange yellow	(10) H_2SO_4 orange yellow
Ethyl cyclohexane	From cyclooctene
(11) $B.pt_{755} = 132-133$	(11) B.pt. 149°, M.pt. 14°
	(12) From octatetraene $B.pt_{15} = 39-42$ does not crystallize 5 -14°
(13) $n_D^{20} = 1.4324$	(13) $n_D^{20} = 1.4586$

Main Differences in 11-13