

Table 2. MOLE FRACTIONS OF ISOMERS FORMED IN THE NITRATION OF TOLUENE AND CHLOROBENZENE BY NITRIC ACID IN ACETIC ACID SOLUTION AT 0° C

Pressure (atm.)	Toluene			Chlorobenzene		
	Nitro isomer:			Nitro isomer:		
	2-	3-	4-	2-	3-	4-
1	0.560	0.020	0.420	0.247	—	0.753
1,200	0.550	0.022	0.428			
2,000	0.543	0.021	0.433	0.204	—	0.796

donating (activating) or electron accepting (de-activating) properties.

Experiments at atmospheric pressure⁶ have established that a change of solvent alters the ratios of isomers formed in the nitration of alkyl benzenes by nitronium salts. The effect almost certainly arises from changes of dielectric constant and solvation. Presumably similar factors operate when the dielectric properties of the nitrating solution are altered by an applied pressure, and they are supplementary to the simple steric effect. Moreover, it is possible that compression may alter the distribution of electrical charge around the benzene rings. We hope to distinguish these factors more clearly in future work.

D. W. COILLET*
S. D. HAMANN

C.S.I.R.O.

Division of Physical Chemistry,
Melbourne.

* Present address: Department of Chemical Engineering, University of Sydney.

¹ Gonikberg, M. G., Prokhorova, N. I., and Litvin, E., *Izv. Akad. Nauk. S.S.S.R. (Otd. Khim. Nauk.)*, No. 8, 1495 (1962).

² Gonikberg, M. G., Prokhorova, N. I., and Litvin, E., *Doklady Akad. Nauk. S.S.S.R.*, **148**, 105 (1963).

³ Gonikberg, M. G., *Zhur. Fiz. Khim.*, **37**, 477 (1963).

⁴ Coillet, D. W., and Hamann, S. D., *Trans. Farad. Soc.*, **57**, 2231 (1961).

⁵ Olah, G. A., and Kuhn, S. J., *J. Amer. Chem. Soc.*, **84**, 3684 (1962).