

Chlorotrifluoroethylene 에 브롬화 수소의 부가반응.
 소량 생성물들의 확인

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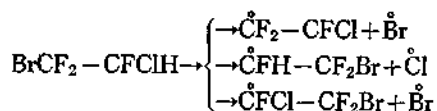
The Addition of Hydrogen Bromide to Chlorotrifluoroethylene.
 The Identification of the Minor Products

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The catalytic addition of hydrogen bromide to chlorotrifluoroethylene has been previously reported in the literature¹⁻⁴ and the only product reported is 1-bromo-2-chloro-1, 1, 2-trifluoroethane. The present work reports the isolation and identification of the following products, 1, 2-dichloro-2-bromo-1, 1, 2-trifluoroethane, 1, 2-dibromo-1, 1, 2-trifluoroethane and 1, 2-dibromo-2-chloro-1, 1, 2-trifluoroethane along with the major product 1-bromo-2-chloro-1, 1, 2-trifluoroethane (I). These minor products are all explainable on the basis of the operation of a free radical brought about by pyrolysis of the major product (I),



and the pyrolysis of $\text{CF}_2\text{Br}-\text{CFCIBr}$ to yield $\overset{\cdot}{\text{C}}\text{F}_2-\text{CFCIBr}$

Experimental

The steel catalyst chamber filled with 16-mesh activated carbon is heated to 175° and a large excess of olefin (6 parts) to hydrogen bromide (1 part) is used. The flow rate of trifluorochloroethylene is kept at about 40-45 g/hr. Over 3000 g. of product was collected and subjected

	% by weight b. p. /630mm. Hg		
I $\text{CF}_2\text{Br}-\text{CFCIH}^{1,2}$	92.5		46°
II $\text{CF}_2\text{Cl}-\text{CFCIBr}^5$	0.5:	$\frac{n_D^{20}}{n_D^{25}}$ 1.3920 1.910	66°
III $\text{CF}_2\text{Br}-\text{CFBrH}^3$	2.4		66.5°
IV $\text{CF}_2\text{Br}-\text{CFCIBr}^6$	2.7		86.5
V $\text{CF}_2=\text{CFCl}$	1.9		

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to fractionation. The product distribution was as follows:

Compound I, II, III and IV were identified by comparison of their physical properties and infrared spectra with authentic known samples.

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