

## NOTE

### POLYHALO-ORGANOMETALLIC AND -ORGANOMETALLOIDAL COMPOUNDS

#### XVII\*. FORMATION OF TETRAKIS(TRIMETHYLSILYL)ALLENE FROM SOME ALIPHATIC POLYCHLORO COMPOUNDS

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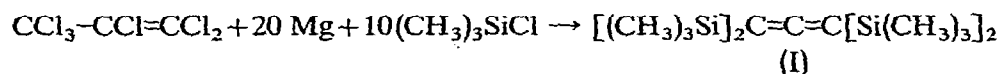
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(Received October 12th, 1967)

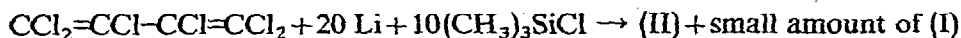
As part of our studies on thermally stable organosilicon compounds we have recently reported the production of tetrakis(trimethylsilyl)allene (I) in 30–52% yields from the interaction of hexachlorobenzene, (trimethylsilyl)pentachlorobenzene or 1,4-bis(trimethylsilyl)tetrachlorobenzene with a liberal excess of chlorotrimethylsilane and lithium in tetrahydrofuran<sup>1</sup>. This compound was prepared previously by West, Carney, and Mineo<sup>2</sup> from the tetralithium derivative of propyne. Tetrakis(trimethylsilyl)allene was also prepared from bromopentafluorobenzene, chloropentafluorobenzene, (trimethylsilyl)pentafluorobenzene and 1,4-bis(trimethylsilyl)tetrafluorobenzene when treated under the above conditions, but in low yields<sup>3</sup>. In marked contrast, hexafluorobenzene did not react under similar conditions.

(I) has also been prepared by the interaction of tetrakis(trichlorosilyl)allene<sup>4</sup> and methyllithium<sup>5</sup>.

In an extension of the studies on highly halogenated types we have found that hexachloropropene reacts with a liberal excess of chlorotrimethylsilane and lithium or magnesium at room temperature to give 37–42% and 41–52% yields of (I), respectively; at 0° a 65% yield of (I) was obtained from hexachloropropene, chlorotrimethylsilane and magnesium.



Experiments under similar conditions with different metals with a view to effecting selective reactions have been less rewarding. Sodium and barium only form a trace of (I) whereas aluminum, zinc and beryllium do not react to give (I). In addition interaction of hexachloro-1,3-butadiene with chlorotrimethylsilane and lithium under similar conditions gives a large quantity of a hitherto unidentified solid (II) m.p. 276–277° which infrared spectroscopy shows to contain Si-Me groups but no allenic group; however, a small, but significant, amount of (I) is isolated as a byproduct.



\* For Part XVI see ref. 6.

