

## SOME CHEMICAL REACTIONS OF FLUOROGRAPHITE

Karel Klouda

Institute of Nuclear Research, Řež (Czechoslovakia)

Antonín Pošta and Václav Dědek

Department of Organic Chemistry, Prague Institute of Chemical Technology, 166 28  
Prague 6 (Czechoslovakia)

Fluorographites  $(\text{CF}_{0,83-1,2})_n$  were prepared by a direct reaction of diluted fluorine with graphite in temperature range 450-480 °C. X-Ray diffraction analysis indicated an increase of carbon layer spacing from 337 pm in graphite to 585 pm in fluorographite.

Fluorographite  $(\text{CF}_{0,9})_n$  is reduced by  $\text{LiAlH}_4$  in diethyl ether, tetrahydrofuran and dioxane to give 'hydrographite'  $(\text{C}_6\text{H}_{1,1-1,32}\text{F}_{0,06-0,15})_n$ . X-Ray diffraction analysis showed the carbon layer spacing decrease in the reduction product to 342-346 pm. Alkylmagnesium halides also reduce C-F bonds in fluorographite with partial elimination of hydrogen fluoride. Interlayer distance in  $(\text{C}_6\text{H}_{4,4}\text{F}_{0,37})_n$  was 386 pm.

Reaction of fluorographite  $(\text{CF}_{1,08})_n$  with hydroxylamine hydrochloride in pyridine gave the black fluorographite of the formula  $(\text{CF}_{0,81-0,89})_n$ . X-Ray diffraction study of this compound indicated an increase of the carbon layer spacing from 585 pm in the starting white fluorographite  $(\text{CF}_{1,08})_n$  to 640 pm in the new black fluorographite.