

UNCLASSIFIED

AD NUMBER
AD400763
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Foreign Government Information; 06 OCT 1961. Other requests shall be referred to US Library of Congress, Attn: Aerospace Technology Division, Washington, DC.
AUTHORITY
ATD ltr, 2 Dec 1965

THIS PAGE IS UNCLASSIFIED

UNCLASSIFIED

AD **400 763**

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA



UNCLASSIFIED

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

400763

43916

G/025/62/000/002/003/004
I041/I242

STEP 2.00

AUTHOR: Fischer, C. and Liebscher H.

TITLE: Studies on the fluorination behaviour of UO_2 powders of various activities.

PERIODICAL: Kernenergie, no. 2, 1962, 112-113

TEXT: The U/O ratio and fluorination of various uranium dioxide powders were investigated as a function of the conditions of their preparation. The powders were prepared from $UO_4 \cdot xH_2O$ by thermal decomposition under dry or wet conditions, followed by reduction with hydrogen at temperatures from 550 to 1000°C.

Card 1/3

Studies on the fluorination....

The uranium peroxide was precipitated by means of H_2O_2 from uranyl nitrate solutions at pH values of 1.0 to 3.5 and at 30, 40 or 60°C. Slight activity changes resulted from the various precipitation conditions. The U/O ratio decreased from about 2.3 to less than 2.1 with increasing reduction temperature, while the pretreatment of the amorphous UO_2 with water vapor further inactivated the powders. Fluorination with anhydrous HF was carried out batchwise at 475°C inside an induction-heated graphite crucible within a nickel reactor. The more active powders left less than 0.1% of unreacted UO_2 after 30 minutes, but most of the reaction occurred within thirty seconds. By contrast a deactivated sample was still 20% unreacted after half an hour. Electron microscope examination of the resultant fluorides showed extensive

Card 2/3

sintering of the products. There are 3 figures and 2 tables

ASSOCIATION: Institut für angewandte Physik der Reinststoffe, Dresden; Director: Prof. Dr. E. Rexer (Institute of Applied Physics of Pure Materials, Dresden; directed by Prof. Dr. E. Rexer)

SUBMITTED: October 6, 1961