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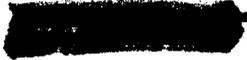
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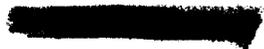
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ADMINISTRATIVE REPORTS

- UCRL-44 LIST OF REPORTS RECEIVED IN THE UCRL INFORMATION DIVISION
FOR THE MONTH OF JANUARY, 1948
University of California Radiation Laboratory
February 2, 1948 11 pages (Confidential)
- HW-8721 BIWEEKLY LIST OF ADDITIONS TO THE CLASSIFIED FILES - January
19, 1948 through January 30, 1948
Hanford Engineer Works February 2, 1948 11 pages (Secret)

CHEMISTRY REPORTS

- K-124 PHYSICAL PROPERTIES OF CHLOROTRIFLUOROETHYLENE POLYMERS AS
A FUNCTION OF MOLECULAR WEIGHT
II. MOLECULAR FRACTIONATION, DENSITY, VISCOSITY, MOLECULAR
WEIGHT AND THE CORRELATION OF THESE PROPERTIES OF CHLORO-
TRIFLUORETHYLENE POLYMERS
J. L. Garrard, et al, January 15, 1948 36 pages (Unclassified)

This paper describes the molecular fractionation of the polymer, the determination of the density, viscosity, and molecular weight of the various fractions, and the correlation of these properties.

- ANL-4110 STUDIES IN COUNTER-CURRENT SOLVENT EXTRACTION FOR THE
DECONTAMINATION OF ENRICHED URANIUM FROM THE PROPOSED HIGH
FLUX RESEARCH PILE
H. Evans, S. Vogler and H. H. Hyman January 28, 1948
33 pages (Secret)

Preliminary investigations are described to demonstrate the feasibility of a countercurrent solvent extraction process for the recovery of decontaminated U-235 from the proposed heterogeneous high flux research pile. Laboratory and semi-works operations are described, and estimates are made of performance to be expected from a two-cycle counter-current solvent extraction process. An oxidizing cycle and a reducing cycle are proposed to permit the recovery of neptunium and perhaps plutonium in partially decontaminated form.

M-4196

SUMMARY OF DATA REGARDING REMOVAL OF IODINE FROM DISSOLVER
OFF GAS
R. P. Schuman (General Electric) July 23, 1947 13 pages
(Secret)

Preliminary experiments on scrubbing of I_2 from air- N_2O_4 mixtures showed that the I_2 could be removed by $C_6H_3Cl_3$ along with a little of the N_2O_4 , as long as the concentration of I_2 in $C_6H_3Cl_3$ is less than three milligrams per liter of $C_6H_3Cl_3$. About 600 to 670 liters of $C_6H_3Cl_3$ will be required to just remove all the I_2 (2.0g) from the dissolver gas if equilibrium is attained between the scrubbing liquid and the incoming gas. This amount of liquid will also dissolve about 6 kg of N_2O_4 . The N_2O_4 can be removed from the solution without removing appreciable amounts of I_2 by washing with water. The I_2 then can be extracted by washing the solvent with a very dilute solution of $NaHSO_3$ and precipitated as AgI .

HEALTH AND BIOLOGY REPORTS

UR-2

URANIUM DIOXIDE STUDIES
N. J. Ashenburg January 30, 1948 60 Pages (Restricted)

The chronic toxicity from exposure of animals to uranium dioxide has been determined at 2 atmospheric concentrations, 1 and 10 mg U/m^3 . At the 1 mg level, 20 dogs and 174 rats were exposed; at the 10 mg level similar numbers of dogs and rats were exposed and in addition 25 rabbits and 30 guinea pigs. Exposure occurred for 6 hours daily except on weekends for a total of approximately 1600 exposure hours during the year, following a 30-day animal conditioning period for the collection of control data on the criteria under study.

Examination of the animals at the termination of the one year exposure showed that the level of 1 mg/ m^3 of UO_2 dust did not effect changes in any of the criteria studied and was thus considered a "safe" level of exposure for animals. The 10 mg level produced extremely mild renal pathological changes in 40% of the dogs and 10% of the rabbits, the only two species showing these effects. Likewise, no biochemical changes were observed throughout exposure, but some increases in urinary protein of certain dogs and rabbits were seen. Thus the purpose of these studies were fulfilled, namely the determination of "safe" and "borderline" levels of exposure for a period of one year to uranium dust.

As is to be expected from the insolubility of uranium dioxide, large amounts of uranium (average 1000 ug/g) were retained in the lungs at the end of one year at the 10 mg level, but little accumulation of uranium occurred in the bone and kidney. Accumulation of even greater amounts of uranium was detected in the pulmonary lymph nodes in dogs and rats. No hematological changes of importance were noted.

- ██████████
- M-4180 HEALTH INSTRUMENT SECTION - MANUAL OF STANDARD PROCEDURES -
100 and 200 AREAS
C. M. Patterson May 1, 1946 344 pages (Confidential)
- M-4181 HEALTH INSTRUMENT SECTION - MANUAL OF STANDARD PROCEDURES -
COUNTING ROOM - SPECIAL STUDIES
C. M. Patterson May 1, 1946 207 pages (Confidential)
- M-4182 HEALTH INSTRUMENT SECTION - MANUAL OF STANDARD PROCEDURES -
300 AREA
C. M. Patterson May 1, 1946 265 Pages (Confidential)
- HW-8674 SPECULATIONS ON LONG RANGE WASTE DISPOSAL HAZARDS
H. M. Parker January 26, 1948 10 pages (Secret)

Present disposal procedures may be continued, in the light of present knowledge, with the assurance of safety for a period of perhaps 50 years. Projection of the problem to future geological ages, as proposed by some authors, appears to be irrelevant in view of the technological progress in corrective measures that can be anticipated. Major foreseeable disasters would not seriously jeopardize the health of communities dependent on the river. In the worst case, radical curtailment of the use of river water may be required.

METALLURGY AND CERAMICS REPORTS

- LAMS-665 METHYL METHACRYLATE CASTING RESIN
J. S. Church January 8, 1948 22 pages (Restricted)

This report describes work done to improve the casting characteristics of methyl methacrylate resin. The experimental program was initiated with the objectives of decreasing casting time, bubble formation and shrinkage. It has been found that by use of a common solvent for monomer and polymer, a polymer concentration in monomer can be attained greater than any previously reported in preparation of a methacrylate casting resin. Incorporation of this greater amount of polymer has produced the desired effects. A bibliography of relevant literature is included to which reference is made in the text.

PHYSICS REPORTS

- UCRL-31 HALF-SCALE MODEL TESTS ON THE THREE QUARTER WAVE R. F.
SYSTEM FOR THE 184-INCH FREQUENCY MODULATED CYCLOTRON
R. L. Anderson December 30, 1947 (Restricted)

Performance curves and test results on a half scale model of the radio frequency system designed to accelerate protons

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in the Berkeley 184-inch cyclotron are presented. This report is a sequel to K. R. Mackenzie's report on the three quarter wave radio frequency system for frequency modulated cyclotrons.

LA-101 STATISTICAL FLUCTUATIONS IN THE WATER BOILER AND THE DISPERSION OF NEUTRONS EMITTED PER FISSION
F. de Hoffmann June 27, 1944 22 pages (Secret)

Short time fluctuations in neutron intensity of the water boiler were investigated with the boiler running at critical. A theoretical deviation is given connecting those fluctuations with the quantity $\sqrt{V - \lambda}$, that is, the average number of neutrons per fission. Experimental results for the fluctuations of the boiler are given.

A-7-390:16 METHOD OF DETERMINING SOLID ANGLES
R. Murray, G. W. Schmidt November 25, 1946 14 pages (Secret)

Rapid dependable methods for computing solid angles for the determination of critical conditions for arrays of adjacent containers are developed. A compilation of formulas used in such computations is given. Three cases are discussed: point to rectangle, point to disk and cylinder to cylinder.

PROGRESS REPORTS

ISC-10 HISTORY OF THE AMES PROJECT UNDER THE MANHATTAN DISTRICT TO DECEMBER 31, 1946
E. I. Fulmer (Iowa State College) December 9, 1947 87 Pgs. (Secret)

A review of all the work at Ames done under contracts with the Manhattan District.

UCRL-41 MEDICAL AND HEALTH DIVISIONS QUARTERLY REPORT FOR OCTOBER 1947 to JANUARY 1948
University of California Radiation Laboratory February 4, 1948 55 pages (Restricted)

CR-PRG-43 PROGRESS REPORT FOR OCTOBER AND NOVEMBER, 1947
W. B. Lewis (Chalk River) 42 pages (Secret)

P-863 PROGRESS REPORT FOR THE MONTH OF NOVEMBER, 1947
Iowa State College 11 pages (Secret)

M-3240 TECHNICAL PROGRESS REPORT FOR OCTOBER 20 THROUGH OCTOBER 26, '46
A. B. Greninger (Hanford Engineer Works) October 31, 1946 10 pages (Secret)

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M-3243 TECHNICAL PROGRESS REPORT FOR OCTOBER 27 THROUGH NOVEMBER 2, '46
A. B. Greninger (Hanford Engineer Works) November 6, 1946
10 pages (Secret)

M-3273 TECHNICAL PROGRESS REPORT FOR NOVEMBER 24 THROUGH NOVEMBER
30, 1946
A. B. Greninger (Hanford Engineer Works) December 5, 1946
10 Pages (Secret)

M-3347 TECHNICAL PROGRESS REPORT FOR JANUARY 18, 1947
A. B. Greninger (Hanford Engineer Works) January 23, 1947
12 pages (Secret)