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Zerwekh

OFFICE MEMORANDUM

TO : K. J. Schiager, H-8
THRU : R. D. Baker, CMB-Division Leader
FROM : G. R. Waterbury & Al Zerwekh
SUBJECT: Transuranic Waste & Development Program (A412) Monthly Report for
October, 1974
SYMBOL : CMB-1

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1507
Report

1. Corrosion Studies. Tests of coated and uncoated mild steel sample coupons in air with 50 and 100% relative humidity are continuing, but samples were not taken for analysis during this reporting period. The fibre drums ordered from Continental Can Company for experimental purposes were shipped October 7. We are awaiting delivery.
2. Radiolysis Studies. The study of the effect of pressure on gas generation, using two cylinders containing wastes contaminated at the strong level (62 mg ²³⁸Pu per 52.5 g waste matrix), showed that the wastes in the first cylinder, fitted with a 103.4 kPa gauge, have repeatedly generated full scale pressure and the equivalent of 2700l of gas on the basis of a 210-l drum. The pressure in the second cylinder, which is fitted with a 689.5 kPa gauge, has reached 669 kPa. Fig. 1 shows a comparison of the rates of gas formation in the two cylinders. A sample, which duplicates the first cylinder with respect to age, contents, and contamination level, has been kept in a freezing compartment at -13°C for 14 days. The rate of pressure increase during this time has been 2.96 kPa per day. The rate of pressure increase was 3.69 kPa per day for this cylinder when it was at room temperature, and this rate has stayed the same for a duplicate cylinder which has been kept at room temperature. The 20% difference in rate appears to be significant. ^{ff}Analyses show that a tan powder distributed throughout the cellulose matrices in the cylinders after radiolytic attack contains approximately 50% of the TRU contaminant. This powder was not found in cylinders containing other types of waste, eg, Hypalon (chorosulfonated polyethylene).



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The ^{238}Pu -contaminated trash generated at LASL is now being packaged in plastic bags and tin cans inside 115-liter mild steel drums and placed in retrievable storage at the LASL disposal site (Area G, Mesita del Buey). Each two drums are stored in a sealed concrete cask in an exclusive-use trench. A sheet metal cover is placed over two rows of casks, and 1 m of soil back-filled over the trench. Gas samples will be withdrawn from representative drums and from inside and outside of the casks, and temperatures will be measured inside drums, outside drums, and outside casks. We hope to obtain "real life" data to compare with results of our laboratory experiments.

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GRW:tb

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