

1982

a) 95% of .970 g =  $\overset{\text{GAS}}{\boxed{.9215 \text{ g F}}} \times \frac{1 \text{ mol F}}{18.99840 \text{ g F}} = \boxed{.0485 \text{ mol F}}$

5% of .970 g =  $\boxed{.0485 \text{ g H}} \times \frac{1 \text{ mol H}}{1.00794 \text{ g H}} = \boxed{.0481 \text{ mol H}}$

1:1 HF

b) F in the gas  
.9215 g

Total F  
 $4.267 \text{ g} \times \frac{1 \text{ mol UF}_6}{352 \text{ g UF}_6} \times \frac{6 \text{ mol F}}{1 \text{ mol UF}_6} \times \frac{18.99840 \text{ g F}}{1 \text{ mol F}} = \text{1.381 g F}$

$\frac{.9215 \text{ g}}{1.381 \text{ g}} \times 100 = \boxed{66.7\% \text{ in gas}}$

$100 - 66.7 = \boxed{33.3\% \text{ in solid}}$

c) IN THE SOLID

U comes from UF<sub>6</sub>

$$\begin{array}{r} 4.267 \text{ g UF}_6 \\ - 1.381 \text{ g F} \\ \hline 2.886 \text{ g U} \\ \div 238.029 \end{array}$$

$$\begin{array}{r} .01212 \\ .012 \end{array}$$

U

$$\begin{array}{r} \text{F} \\ 1.381 \text{ g F} \\ - .9215 \\ \hline .4595 \text{ g F} \\ \div 18.99840 \end{array}$$

$$\begin{array}{r} .024186 \\ .012 \end{array}$$

F<sub>2</sub>

$$\begin{array}{r} \text{O} \\ 3.730 \text{ g solid} \\ - .4595 \text{ g F} \\ - 2.886 \text{ g U} \\ \hline .3845 \text{ g O} \\ \div 15.9994 \end{array}$$

$$\begin{array}{r} .02409 \\ .012 \end{array}$$

O<sub>2</sub>