Problem
Enrichment-2

The gaseous diffusion method has been proposed for use in producing BF_3 enriched to 90% in ^{10}B. How many kgs of BF_3 feed (natural Boron) are needed to produce 1 kg of enriched ^{10}B with 8% tails?

B-10= 19.9 %
B-11 = 80.1 %

$$\frac{F}{P} = \frac{(x_p - x_w)}{(x_f - x_w)}$$

$$= \frac{(90 - 8)}{(19.9 - 8)}$$

$$F = \frac{82}{11.9} \cdot 1 \text{ kg of P}$$

F=6.89 kg of B (nat)

MW of BF_3 = 10.7 + 3 • 19 =67.7

$$\frac{67.7}{10.7} = 6.33 \text{ kg } BF_3 \text{ per kg of B(nat)}$$

$$6.33 \ \frac{kg\ BF_3}{B(nat)} \cdot 6.89\ kg\ B(nat) = 43.6\ kg\ of\ BF_3$$