

$$\frac{578}{2.5 \times 10^{10}} = 2.31 \times 10^{-8} \text{ cm}^2.$$

The cross section per oxygen atom then becomes $6.9 \times 10^{-31} \text{ cm}^2$, and since O^{18} has an abundance of .2%, its cross section would be $3.5 \times 10^{-28} \text{ cm}^2$. It must be emphasized that this cross section is based on the assumption that UX_2 and O^{19} β -rays are very similar.