

Question #47824, Chemistry, Other

How many grams of sodium iodide, NaI, must be used to produce 15.3 g of iodine, I₂

Answer:

$$n = m/M$$

$$M(\text{NaI}) = 150 \text{ g/mol}$$

$$M(\text{I}_2) = 254 \text{ g/mol}$$

$$n(\text{I}_2) = \frac{n(\text{NaI})}{2} = m/M = 15.3/254 = 0.06$$

$$n(\text{NaI}) = 2n(\text{I}_2) = 0.06 * 2 = 0.12$$

$$m(\text{NaI}) = 0.12 * 150 = \mathbf{18 \text{ g}}$$