



Aliquot Practice Problems

A prescription calls for 30 mg of drug in a total of 1 gram. How can you fill this prescription using 95% accuracy?

$$\text{LWQ} = 6 \text{ mg} \times 100\% / 5\% = 120 \text{ mg}$$

We need to multiply our drug by a factor to an amount $\geq$ MWQ. The factor should be an integer number

We will multiply the drug (30 mg) by 4 or more

$$\text{Drug } 30 \times 4 = 120 \text{ mg}$$

$$\text{TT (total mixture)} = 120 \times 4 = 480 \text{ mg}$$

$$\text{Diluent} = 480 \text{ mg} - 120 \text{ mg} = 360 \text{ mg}$$

Then from this mixture (trituration) we will weigh a portion (aliquot) that contains 30 mg drug. This portion is 120 mg (equals the drug weighed as we used the same multiplication factor).

Now we have 30 mg drug in 120 mg powder, but we need 30 mg in total 1 g.

So we will add diluent to make the 120 mg up to 1 g. Diluent = $1000 - 120 = 880 \text{ mg}$.

A prescription calls for 15 mg of drug in a total of 2 gram. How can you fill this prescription with 97% accuracy?

$$\text{MWQ} = 6 \text{ mg} \times 100\% / 3\% = 200 \text{ mg}$$

We need to multiply our drug by a factor to number $\geq$ MWQ. We will multiply our drug (15 mg) by 14

$$\text{Drug } 15 \times 14 = 210 \text{ mg}$$

$$\text{TT (total mixture)} = 210 \times 14 = 2940 \text{ mg}$$

$$\text{Diluent} = 2940 \text{ mg} - 210 \text{ mg} = 2730 \text{ mg}$$

Then from this mixture we will weigh a portion (aliquot) that contains 15 mg drug. This portion is 210 mg (equals the drug weighed as we used the same multiplication factor).

Now we have 15 mg drug in 210 mg powder, but we need 15 mg in total 2 g. We will add diluent to make the 210 mg up to 2 g

$$\text{Diluent} = 2000 - 210 = 1790 \text{ mg}.$$