

ASSAY Marianna Christodoulidou-F16183**Analyt:** Sodium Carbonate Decahydrate**Volumetric solution:** 1M Hydrochloric acid**Titre of volumetric solution:** 1.0054**Type of titration:** Acid base titration

Titration No.	m [g] (4 decimal places) or V [ml]	Consumption of VS [ml]	ASSAY
1.	1.0111g	6.98ml	36.78
2.	1.0054g	6.75ml	35.77
3.	1.0068g	6.55ml	34.66
4.	1.0005g	6.52ml	34.72
Average			35.48

STATISTICAL EVALUATION:**Range:**

$$R = X_{\max} - X_{\min} = 36.78 - 34.66 = \mathbf{2.12}$$

Standard deviation (estimated from range):

$$sd = K_n \cdot R = k_4 \cdot 2.12 = 0.4857 \cdot 2.12 = \mathbf{1.0297}$$

Relative standard deviation:

$$(1.0297/35.48) \cdot 100 = \mathbf{2.9022}$$

$$RSD = (SD/AVERAGE) \cdot 100 =$$

Equations for Assay:

$$1) \quad x (\%) = (V \cdot f \cdot m \cdot 100) / q$$

$$X = (6.98 \text{ ml} \cdot 1.0054 \cdot 52.99 \text{ mg} \cdot 100) / 1011.1 \text{ mg} \\ = 36.78$$

$$2) \quad x (\%) = (V \cdot f \cdot m \cdot 100) / q$$

$$X = (6.75 \cdot 1.0054 \cdot 52.99 \cdot 100) / 1005.4 = 35.77$$

$$3) \quad x (\%) = (V \cdot f \cdot m \cdot 100) / q$$

$$X = (6.55 \cdot 1.0054 \cdot 52.99 \cdot 100) / 1000.5 = 34.72$$

CONCLUSION (*does your sample meet/not meet Ph. Eur.*):

I think it doesn't meet pharmacopeia because our content is says that Na₂CO₃ is about 36.7-40% but we found just one sample at this range, the rest are lower. Our average is 35.48% is lower than the above range. So maybe it doesn't meet pharmacopeia.