Project Solubility Analysis 2025

Prepared by: Mr. Uyeki - Date: July 11, 2025

Executive Summary

This report summarizes the solubility tests conducted on various solvent mixtures for drug formulation development. Data was collected from multiple experiments and analyzed to identify optimal solvent systems.

Introduction

Solubility plays a critical role in drug bioavailability and formulation stability. This study aimed to evaluate solubility limits and identify promising solvent mixtures.

Methods

- Solvents tested: Ethanol, Water, Acetone
- Drug compounds: Compound A, Compound B
- Tests conducted at 25°C and 37°C
- Analytical techniques: UV-Vis spectrometry, HPLC

Results

Solvent Mixture	Compound A Solubility (mg/mL)	Compound B Solubility (mg/mL)
Ethanol-Water 50:50	12.5	8.3
Ethanol-Acetone 70:30	14.8	10.1
Water-Acetone 60:40	9.7	7.4

Figure 1: Solubility trends across solvent mixtures (see attached graph)

Discussion

Ethanol-Acetone 70:30 showed the highest solubility for both compounds, suggesting its suitability for formulation. Temperature variation impacted solubility moderately.

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Conclusion

The ethanol-acetone solvent system at 70:30 ratio is recommended for further formulation development. Additional studies at varying pH levels are suggested.

Appendix

- Raw data files
- Graphs and charts