Lab Report: Experimental Analysis of Various Oil-Based Mixtures

Report ID: 1460

Overview

This report details the experimental results of various oil-based mixtures tested using multiple types of spectroscopy, rheometry, and conductivity measurements. Each test sample comprises a distinct combination of ingredients. The experiment aims to analyze the physical and chemical characteristics of these mixtures.

Materials and Instruments

Instruments Used:

Sample Analysis

Sample Set 1: Coconut Oil, Beeswax, Glycerin

Sample Set 2: Coconut Oil, Beeswax, Vitamin E

Result: Medium viscosity indicating intermolecular interactions within the emulsion are moderate.

Instrument: Viscometer VS-300

Sample Set 3: Jojoba Oil, Glycerin

Sample Set 4: Jojoba Oil, Vitamin E

Sample Set 5: Almond Oil, Beeswax, Glycerin

Sample Set 6: Coconut Oil, Cetyl Alcohol, Vitamin E

Sample Set 7: Almond Oil, Glycerin

Result: Moderate conductivity, which is characteristic of Almond Oil's electrolyte property enhanced by Glycerin's polar nature.

Instrument: Viscometer VS-300

Conclusion

The varying physical and chemical properties observed in each test sample highlight the complex interactions between the components of each oil-based mixture. Insights into viscosity, conductivity, and spectroscopic characteristics enable deeper understanding of these formulations, paving the way for potential applications in skincare, pharmaceuticals, and organic materials development.

Appendix A: Random Data Notes

Experimental Tables

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| --- | --- | --- | --- | --- |
| **Sample** | **Instrument** | **Measurement** | **Unit** | **Observations** |
| Coconut Oil, Beeswax, Glycerin | CM-215 | 1500.0 | μS/cm | Semi-solid texture |
| Coconut Oil, Beeswax, Vitamin E | R-4500 | 500.0 | Pa-s | Medium viscosity |
| - | VS-300 | 4909.72 | cP | Enhanced thickness |
| Jojoba Oil, Glycerin | UV-2600 | 1.2 | Abs | Moderate absorption |
| Jojoba Oil, Vitamin E | NMR-500 | 15.0 | ppm | Ether/carbonyl presence |
| Almond Oil, Beeswax, Glycerin | FTIR-8400 | 800.0 | 1/cm | O-H stretching |
| Coconut Oil, Cetyl Alcohol, Vitamin E | Alpha-300 | 700.0 | nm | Surface plasmon resonance |
| Almond Oil, Glycerin | CM-215 | 1200.0 | μS/cm | Moderate conductivity |
| - | VS-300 | 7443.88 | cP | Viscous nature |

Note: Experimental anomalies suggest further repetitive trials to obtain comprehensive behavioral data across varied environmental conditions.