Lab Report: Analysis of Oil-Based Mixtures

Report ID:1682

Introduction

This report details a series of analytical tests conducted on various oil-based mixtures using multiple advanced instruments. The purpose of these analyses is to understand the physicochemical properties and interactions between different components in each mixture. The tested mixtures involve a combination of oils (such as coconut, jojoba, and almond) with other ingredients like cetyl alcohol, glycerin, beeswax, and gum.

Instruments and Reagents

Reagents and samples involved include coconut oil, jojoba oil, almond oil, cetyl alcohol, glycerin, beeswax, and gum. Below are detailed observations and results grouped by the respective instruments used.

Experimental Observations and Measurements

1.Microplate Reader MRX

Sample: Coconut Oil and Gum

2.FTIR Spectrometer FTIR-8400

Sample: Jojoba Oil and Cetyl Alcohol

Table 1: FTIR Peaks Descriptions

|  |  |  |
| --- | --- | --- |
| **Peak (1/cm)** | **Functional Group** | **Comments** |
| 1720 | Carbonyl | Indicative of ester presence |

3.PCR Machine PCR-96

Sample: Almond Oil, Cetyl Alcohol, and Glycerin

4.Four Ball Tester FB-1000

Sample: Jojoba Oil and Glycerin

5.Rheometer R-4500

Sample: Coconut Oil, Beeswax, and Glycerin

6.Ion Chromatograph IC-2100

Sample: Almond Oil, Beeswax, and Glycerin

Table 2: Ion Concentration Comparison

|  |  |  |
| --- | --- | --- |
| **Component** | **Concentration (mM)** | **Inferred Impact** |
| Glycerin | 5.2 | Major active solute |

7.Conductivity Meter CM-215

Sample: Almond Oil and Gum

8.Titrator T-905

Sample: Jojoba Oil, Cetyl Alcohol, and Glycerin

Additional Observations & Mixed Results

Viscosities Measured via Viscometer VS-300

Additional Note: Reflects a stable, shear-resistant gel formation with potential applications in cosmeceuticals.

Sample: Coconut Oil and Glycerin

Conclusion

The collected data underscore unique interactions and properties inherent to specific oil and additive mixtures. The analytical performance and physicochemical characteristics, such as the optical density of coconut oil/gum blends or the notable viscosity of coconut oil/glycerin mixtures, offer compelling insights for future product formulation and development. This comprehensive, albeit sporadically organized, catalog of results provides a rich foundation for potential industrial applications.

Appendix

Randomly arranged data details, experimental snapshots, and equipoise replicate results are available upon request for further analysis. Inquiries should reference Report\_1682 for specific data retrieval.