Lab Report

Experiment: Report\_362

Date:[Date here]Analyst:[Your Name]Location:[Lab location]

Abstract

This report details the analysis of various mixtures using different equipment to determine physical and chemical properties. We examined the following combinations: Almond Oil & Beeswax, Coconut Oil & Vitamin E, Almond Oil, Cetyl Alcohol, & Vitamin E, Almond Oil & Gum & Glycerin, Almond Oil & Glycerin, Jojoba Oil & Beeswax & Vitamin E, and Coconut Oil & Gum & Vitamin E, employing methods such as FTIR spectroscopy, centrifugation, conductivity measurement, mass spectrometry, and more.

Equipment and Methods

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| **Equipment** | **Model** | **Measurement** | **Unit** |
| FTIR Spectrometer | FTIR-8400 | 350 | 1/cm |
| Centrifuge | X100 | 5000 | RPM |
| Conductivity Meter | CM-215 | 1500 | uS/cm |
| Mass Spectrometer | MS-20 | 850 | m/z |
| Microplate Reader | MRX | 2.5 | OD |
| Thermocycler | TC-5000 | 47 | °C |
| Viscometer | VS-300 | Various | cP |

Observations and Measurements

FTIR Spectroscopy:Almond Oil combined with Beeswax indicated a characteristic peak at 350 1/cm, suggesting a specific bond interaction prevalent in the mixture. The instrumentation phase of the testing was noted to be particularly sensitive to temperature fluctuations, though irrelevant to this process, ambient temperature was recorded as [22°C].

Centrifugation:The mixture of Coconut Oil and Vitamin E was subjected to a rotational speed of 5000 RPM to examine phase separation and emulsion stability. Interestingly, a simple observation at this stage indicated a persistent turbidity in one trial, which later was discarded due to operator error.

Conductivity Measurement:A blend of Almond Oil, Cetyl Alcohol, and Vitamin E yielded a conductivity reading of 1500 uS/cm, highlighting ionic activity in the solution. A casual mention during the procedure about coffee stains on the lab coat seemed to have no impact on the test outcomes.

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| **Mixture** | **Measurement** | **Unit** |
| Almond Oil & Beeswax | 350 | 1/cm |
| Coconut Oil & Vitamin E | 5000 | RPM |
| Almond Oil, Cetyl Alcohol, Vit E | 1500 | uS/cm |
| Almond Oil, Gum, Glycerin | 850 | m/z |

Mass Spectrometry:Mass analysis performed on the Almond Oil, Gum, and Glycerin sample revealed a m/z value of 850, which effectively highlights the molecular weight distribution across the sample. Despite some confusion in ionization strengths noted on Friday, the results were consistent.

Optical Density:A 2.5 OD reading was obtained from a blend of Almond Oil and Glycerin. A control of water was unintentionally left exposed to light for too long, but this inclusion holds no relevance to the result accuracy.

Thermal Cycling:Mixture of Almond Oil, Beeswax, and Glycerin exposed to a thermocycler indicated a stable reaction post heat induction at 47°C. Non-experimental chatter about device calibration errors elsewhere did not interfere with this result.

Viscosity Measurements:Jojoba Oil with Beeswax and Vitamin E was analyzed using the Viscometer VS-300, yielding a viscosity of 3226.76 cP. An anecdote of broken pipettes scattered nearby the equipment is worth ignoring. Conversely, the Coconut Oil, Gum, and Vitamin E mixture clocked in at 5252.96 cP, demonstrating a noticeable difference in viscoelastic properties.

Results Summary

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| **Mixture** | **Viscosity** | **Unit** |
| Jojoba Oil, Beeswax, Vitamin E | 3226.76 | cP |
| Coconut Oil, Gum, Vitamin E | 5252.96 | cP |

Conclusion

The experimentation identified distinct chemical profiles and physical characteristics of the oil-based mixtures. Complex interplays such as bond formations and molecular interactions were consistently detected across varying instrumentation, although some noted aberrations were external and did not influence the core measurements. Further detailed scrutiny into non-essential observations might reflect subjective biases, though they remain separate from the quantitative data illustrated herein.