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## Laboratory Report 1805

### Introduction

This report documents the analysis of several test samples composed of various combinations of oils, waxes, and alcohols. Using sophisticated equipment, we measured an array of properties, aiming to understand the interactions and behaviors within these mixtures. The tests were carried out during the third quarter of the year using cutting-edge technologies in our lab.

### Materials and Methods

#### Analysis Equipment & Methodology

Measurement: 7.3 M

Liquid Chromatograph LC-400

Measurement: 125.4 µg/mL

UV-Vis Spectrophotometer UV-2600

Observation: Absorbance at 1.8 Abs, indicating a significant interaction between the compounds.

pH Meter PH-700

Measurement: 5.6 pH

Conductivity Meter CM-215

Measurement: 890 µS/cm

Centrifuge X100

Measurement: 10,500 RPM

Viscometer VS-300

Distractions and Side Notes

Results

Tables of Measurements and Observations

Table 1: Titration and Chromatography

| Equipment                   | Samples                               | Measurement (Unit) |
|-----------------------------|---------------------------------------|--------------------|
| Titrator T-905              | Coconut Oil, Cetyl Alcohol, Vitamin E | 7.3 M              |
| Liquid Chromatograph LC-400 | Coconut Oil, Gum                      | 125.4 µg/mL        |

Table 2: Spectroscopy, pH, Conductivity

| Equipment                        | Samples                        | Value | Unit  |
|----------------------------------|--------------------------------|-------|-------|
| UV-Vis Spectrophotometer UV-2600 | Jojoba Oil, Gum, Glycerin      | 1.8   | Abs   |
| pH Meter PH-700                  | Jojoba Oil, Beeswax            | 5.6   | pH    |
| Conductivity Meter CM-215        | Jojoba Oil, Beeswax, Vitamin E | 890.0 | µS/cm |

Table 3: Centrifuge and Viscosity

| Equipment         | Samples                    | Measurement (Unit) |
|-------------------|----------------------------|--------------------|
| Centrifuge X100   | Coconut Oil, Cetyl Alcohol | 10,500 RPM         |
| Viscometer VS-300 | Almond Oil                 | 7,536.56 cP        |
| Viscometer VS-300 | Jojoba Oil, Gum, Glycerin  | 1,802.56 cP        |

Discussion

The studies present insights into the properties of oil-based mixtures. Notably, the coconut oil-based samples showed extensive emulsifying capabilities. The high rotational stability noted in the centrifuge is likely causing the enhancement

of structural attributes, while the subtle ionic interactions portray stability in the stored energy, as seen in conductivity readings.

Additionally, the viscosity comparisons between almond oil and jojoba oil mixtures illustrate the impact of molecular interactions, which may inform future formulations targeting specific textural qualities.

## Conclusion

The report underscores the significance of comprehensive analysis in understanding complex mixtures used in skincare and cosmetic formulations. The recorded parameters provide critical data that could guide product development. Further exposure to controlled environmental factors may elucidate additional properties.

Disclaimer: Ensure all lab apparatus are calibrated before reproduction of these results.

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