Lab Report: Analysis of Oil Mixtures - Report\_609

Introduction

The purpose of this study is to analyze various oil and ingredient mixtures using distinct analytical instruments. Each grouping of oils and associated ingredients was tested as a unique sample to investigate properties such as chemical composition, absorbance, structural characteristics, viscosity, and pH levels.

Observations and Procedures

During the analysis, each sample was prepared and assessed under controlled lab conditions. The instruments used included Gas Chromatograph GC-2010, UV-Vis Spectrophotometer UV-2600, X-Ray Diffractometer XRD-6000, Rheometer R-4500, pH Meter PH-700, and Viscometer VS-300. All readings were taken with precision but subject to minor contextual variables, such as ambient temperature and sample purity.

Instrumental Analysis and Results

Gas Chromatography

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Instrument** | **Sample** | **Ingredient** | **Measurement** | **Units** |
| GC-2010 | Coconut Oil | Cetyl Alcohol | 354.2 | ppm |
| GC-2010 | Almond Oil | Gum, Vitamin E | 622.7 | ppm |

Spectrophotometry

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Instrument** | **Sample** | **Ingredient** | **Measurement** | **Units** |
| UV-2600 | Jojoba Oil | Gum | 0.85 | Abs |
| UV-2600 | Jojoba Oil | Beeswax, Glycerin | 1.25 | Abs |

Note:

Cocnut Oil hinders some spectral readings; users must recalibrate.

X-Ray Diffraction

Rheometric and Viscosity Studies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Instrument** | **Sample** | **Ingredient** | **Measure** | **Units** |
| R-4500 | Almond Oil | Cetyl Alcohol | 475.3 | Pa-s |
| VS-300 | Coconut Oil | — | 5089.35 | cP |
| VS-300 | Jojoba Oil | Gum | 1986.42 | cP |
| VS-300 | Almond Oil | Beeswax, Glycerin | 7221.01 | cP |

pH Measurement

Additional Observations:

Random dispersions were noted in the visual consistency of Jojoba-derived samples. The uniformity differs slightly when compared against Coconut derivations, potentially due to inherent molecular structures.

Data Anomalies:

Conclusion

This analysis provides insight into the properties of oil-ingredient mixtures, highlighting key metrics across multiple variables. Deviations in anticipated values underscore the importance of environmental control during assessments. Future investigations should strive for additional parameter stabilizations to refine the consistency of results.

References:

This report contains all relevant data; discrepancies or omissions are topic to ongoing audits.