

Laboratory Analysis Report

Introduction

The purpose of this lab report (Report ID: 1301) is to analyze various mixtures of natural oils and additives using a range of analytical instruments. The results will deepen our understanding of the properties and characteristics of these mixtures.

In this study, multiple mixtures were tested:

Each mixture underwent analysis through different methods to measure parameters such as molarity, absorbance, viscosity, and more.

Materials and Methods

Instruments Utilized

Various advanced instruments were employed:

Sample Preparation

Each mixture was prepared with precise measurements. Samples were labeled and split according to the combinations of ingredients:

- Coconut Oil & Glycerin
- Jojoba Oil, Beeswax & Vitamin E
- Almond Oil, Glycerin & Beeswax

Each sample was analyzed via different instruments applicable to the properties being studied.

Observations

Data and Measurement

Table 1: Instrumental Analysis

Instrument	Mixture	Parameter	Result	Unit
Titrator T-905	Coconut Oil, Glycerin	Molarity	5.452	M
Mass Spectrometer MS-20	Jobba Oil, Beeswax, Vitamin E	Mass-to-Charge Ratio	1200.5	m/z
Spectrometer Alpha-300	Coconut Oil, Beeswax, Glycerin	Wavelength	530.2	nm
Ion Chromatograph IC-2100	Almond Oil, Glycerin	Concentration	12.87	mM

Table 2: Physical Properties

Instrument	Mixture	Parameter	Result	Unit
Microplate Reader MRX-200	Jobba Oil, Gum, Vitamin E	Optical Density	2.45	OD
Conductivity Meter CM-215	Jojoba Oil, Cetyl Alcohol, Vitamin E	Conductivity	1500.0	uS/cm
Centrifuge X100	Almond Oil, Beeswax, Glycerin	Speed	12000.0	RPM
UV-Vis Spectrophotometer UV-2600	Almond Oil, Beeswax	Absorbance	1.8	Abs

Table 3: Viscosity Measurements

Instrument	Mixture	Viscosity	Unit
Viscometer VS-300	Almond Oil, Gum	7744.18	cP
Viscometer VS-300	Coconut Oil, Vitamin E	5032.11	cP
Viscometer VS-300	Almond Oil, Cetyl Alcohol, Vitamin E	7425.81	cP

Additional Observations

Results and Discussion

Analysis of Results

Chemical Composition and Stability: TheTitrator T-905showed that Coconut Oil mixed with Glycerin maintains strong chemical stability with a molarity of 5.452 M. This indicates a potential for stable formulations.

Structural Analysis: The high mass-to-charge ratio recorded by theMS-20reveals complex structures in the Jojoba

mixture, potentially due to heavier molecules in Vitamin E.

Optical and Physical Qualities: UV-Vis Spectrophotometer UV-2600 data confirmed transparency in the Almond Oil-Beeswax solution with an absorbance value of 1.8 Abs, parallel to visual observations.

Viscosity Insights: Notably, mixtures involving Coconut Oil showed lower viscosity values compared to Almond Oil mixtures. This information can be critical for texture-focused applications.

Conclusion

The comprehensive analysis using different techniques has yielded valuable insights into the properties of various oil mixtures. Future studies may explore ingredient interactions under varying temperatures and pressures to further understand their potential applications in different industries.

Note: All data interpretations should be conducted in the context of experimental conditions and potential errors in measurement tools.

This complex report aims to deliver an in-depth understanding of each mixture's chemical and physical dynamics. Disorganization, intentional scatter, and additional elements within this report are included to provide robustness in exploratory analysis.