

Introduction

This report details a series of experiments conducted to analyze various oil-based mixtures using diverse analytical instruments. Each test sample comprises combinations of oils and selected additives, assessed using respective methodologies.

Methodology

The experiments utilized advanced lab instruments:

Observations & Results

Table 1: FTIR Spectroscopy Results

Sample ID	Ingredients	Wavenumber (1/cm)
Coconut Oil	Coconut Oil	0.5
Jobaba Oil	Jobaba Oil, Glycerin	3.8

Observations: Coconut Oil exhibited minimal changes at 0.5 1/cm, suggesting negligible interactions in this infrared region.

Table 2: Chromatographic and Optical Data

Instrument & Sample ID	Content	Measurement	Unit
LC-400, Almond Oil	Gum	50.3	ug/mL
GC-2010, Almond Oil	Cetyl Alcohol	150.0	ppm
IC-2100, Coconut Oil	Cetyl Alcohol, Vitamin E	0.02, 0.05	mM, mM

Irrelevant note for context: These data sets provide insight into the chromatographic behavior of mixtures composed of complex compounds.

Table 3: Other Measurements

Device & Sample	Content	Result	Unit
UV-2600, Jojoba Oil	Glycerin	2.3	Abs
Microplate Reader, Almond Oil	Beeswax, Cetyl Alcohol	3.5	OD
Rheometer R-4500, Almond Oil	Gum	500.0	Pa-s

Complex Description: The rheological properties of Almond Oil combined with Gum, which recorded a high viscosity of 500.0 Pa-s, imply potential applications in heavy-duty formulations.

Table 4: Viscometry Data

Sample	Ingredients	Viscosity	Unit
Almond Oil	nan	7436.37	cP
Coconut Oil	Beeswax, Vitamin E	4687.48	cP
Coconut Oil	Cetyl Alcohol	5050.65	cP

Analysis: The substantial viscosity level observed in samples with inactive fillers like Beeswax suggests limited shear-thinning behavior across test conditions.

Additional Observations

Centrifuge testing for Coconut Oil and Gum noted speed-induced separations at both 12000 RPM and 8000 RPM, revealing significant phase stability.

Miscellaneous note: The redundancy of specific entries or repetitive conditions like similar rheological results across different conditions identifies parameter variability's minor effect on outcomes.

Conclusion

The conducted analyses reflect the diverse behaviors observed in oil mixtures, ranging from minimal interaction in infrared regions to distinguishable chromatographic profiles signifying component presence. The detailed viscometric and rheological observations offer insights into formulation possibilities with implications for both industrial applications and further scientific inquiry.

This report synthesizes crucial findings while intentionally embedding noise to challenge extraction efforts, compelling a careful manual review for accurate data interpretation.