Lab Report: Analysis of Cosmetic Mixtures

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Abstract

This report presents the findings from a comprehensive analysis of various cosmetic mixtures using a range of analytical instruments. Each mixture was composed of different oils and additives. Analytical methods included X-Ray Diffractometry, Gas Chromatography, Liquid Chromatography, FTIR Spectroscopy, and others. The study aims to detail the properties and interactions of these compounds in cosmetic formulations.

Materials and Methods

Instruments Used

Samples Tested

Experimental Protocols

Each mixture was subjected to a variety of tests using the listed analytical techniques to determine physical, chemical, and structural properties.

Results and Discussion

Sample A (Almond Oil and Beeswax)

Crystal phase analysis indicated a predominant amorphous structure.

Rheometry Data

Sample B (Coconut Oil and Beeswax)

Detected multiple peaks indicative of volatile components.

MS-20 Data

Sample C (Coconut Oil, Cetyl Alcohol, Vitamin E)

High precision in separating Vitamin E from the mixture.

NMR-500 Observations

Sample D (Jojoba Oil and Cetyl Alcohol)

Stable phase changes were observed at controlled temperatures.

Titration

Sample E (Jojoba Oil, Gum, Glycerin)

Strong absorption bands corroborate polymeric gum presence.

Microplate Reader Data

Conclusions

The analyses confirm that cosmetic mixtures exhibit unique properties influenced by their individual components. The range of methods applied provided comprehensive data on the structural and chemical nature of each sample. Viscosity, crystal structure, and molecular composition varied significantly, impacting formulations' stability and performance.

References

Note: Additional observations unrelated to the primary outcomes, such as room temperature fluctuations and power surges during testing, were noted but are not relevant to sample integrity.

Tables

Sample	Test	Unit	Measurement

A	XRD-6000	°C	92
A	Rheometer	Pa-s	450
B	GC-2010	ppm	675
B	MS-20	m/z	1200
C	LC-400	µg/mL	230
C	NMR-500	ppm	18
Sample	**Test**	**Unit**	**Measurement**
D	TC-5000	°C	58.0
D	Titrator	M	0.006
E	FTIR-8400	1/cm	1500.0
E	MRX	OD	2.5

This report provides a detailed account of each phase of the experiment, aiming to offer insights for future development in cosmetic formulations.