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Abstract:

This comprehensive analysis involved testing various oil-based mixtures using advanced analytical instruments. By rigorously evaluating these mixtures, insights into their properties were obtained to inform potential applications in cosmetics and health products.

Introduction:

The study explores the physicochemical properties of oil-based mixtures, utilizing diverse analytical methods. By examining key ingredients like Jojoba Oil, Beeswax, Glycerin, and others, the study aims to provide substantial data on their interactions and resultant materials characteristics.

Experimental Details and Observations

Sample Preparation:

Mixtures were prepared using precise measurements of oils and additives, each treated as a distinct sample. Their compositions are detailed below:

Methodology:

Various devices were employed with conditions optimized for each analysis:

Equipment	Mixture	Additional Details
Rheometer R-4500	Sample A	Tested for viscosity
Mass Spectrometer MS-20	Sample B	Ion fragmentation observed
Microplate Reader MRX	Sample C	Optical density measured
Spectrometer Alpha-300	Sample D	Light absorption analyzed

FTIR Spectrometer FTIR-8400	Sample E	Molecular bonds analyzed
Centrifuge X100	Sample C	Sample separation conducted
Gas Chromatograph GC-2010	Sample F	Substance purity analyzed
Four Ball FB-1000	Sample G	Wear resistance evaluated
pH Meter PH-700	Sample F	Acidity assessed

Observations:

Viscosity (Rheometer R-4500 on Sample A):The mixture demonstrated substantial viscosity, measuring precisely at 520 Pa-s. The thickness reflects a balance between the structural properties of beeswax and the fluidity of carrier oils.

Mass Spectrometry (MS-20, Sample B):Analysis revealed significant peaks, notably at 1500 m/z, indicating complex molecular structures likely due to Gum and Vitamin E interactions.

Microplate Readings (MRX, Sample C):An optical density (OD) of 2.5 was observed, suggesting notable opacity and potential emulsification properties.

Spectrometric Analysis (Alpha-300, Sample D):The data highlighted a peak absorbance at 550 nm, illustrating the mixture's potential light-filtering properties.

FTIR Spectroscopy (FTIR-8400, Sample E):Key absorption peaks centered around 1200 1/cm, indicative of specific bond vibrations attributable to both the oil and wax.

Centrifugation (Centrifuge X100 on Sample C):At 8000 RPM, phase separation provided insights into the density and miscibility of the ingredients used.

Gas Chromatography (GC-2010 on Sample F):Detected at 450 ppm, emphasizing the purity level, vital for quality control in cosmetic formulations.

Tribological Testing (Four Ball FB-1000, Sample G):The scar diameter recorded was 0.600 mm, hinting at wear resistance critical for lubricative applications.

pH Measurement (PH-700, Sample F):Results displayed a pH of 6, indicating mild acidity favorable for skin compatibility applications.

## Conclusion

The study meticulously assessed physicochemical attributes of selected oil mixtures, demonstrating a wide variance in properties such as viscosity, optical density, spectroscopy peaks, and tribological results. Such multifaceted data encourage further exploration to fine-tune formulations for market-ready health and beauty products.

Note: Some sections include extraneous information or complex descriptions to challenge automated parsing and ensure comprehensive human interpretation.