Application Note RAD002

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RAD002 - Regulation Of raw material identification in cosmetics

Introduction

The safety of cosmetic products is an important issue for manufacturers, suppliers, and regulators. The EC Cosmetic Regulation 1233/2009 of the European Parliament and Council requires all cosmetic products in the EU market to be manufactured according to Good Manufacturing Practices (GMP) described by the ISO 22716 standard. In addition, the International Cooperation on Cosmetic Regulation (ICCR)—a joint effort by the US, EU, Japan, and Canada—agreed to implement ISO 22716 in their respective regions, wherever possible.

- Identify through packaging
- Achieve quality initiatives
- Pass/fail results in seconds

Minimize fluorescence—maximize efficiency

Fluorescence interference is a common problem when identifying raw materials or colored packaging materials with handheld Raman analyzers using a 785nm laser excitation source. With a higher excitation wavelength of 1064 nm, signal blocking fluorescence is minimized. Figure 1 shows the advantage of using a handheld Rigaku Progeny 1064 nm analyzer over a 785 nm handheld analyzer for the identification of lanolin.

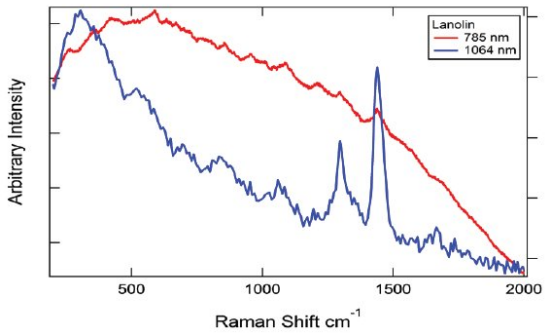


Figure 1: Results of lanolin using 785 nm vs. 1064 nm.

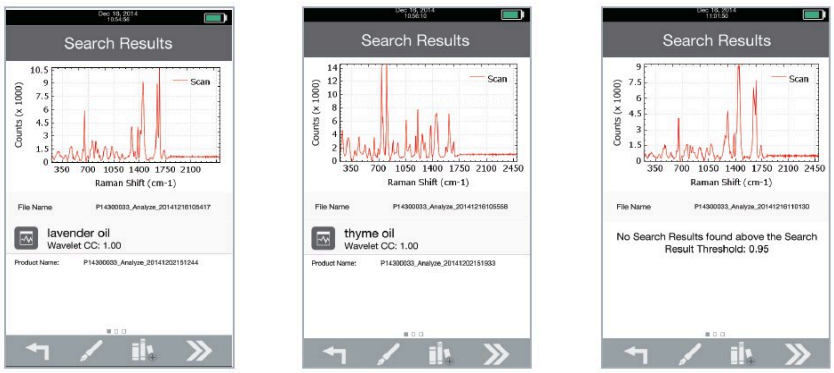
Case study of essential oils and adulterated essential oils

Twelve different types of commercially available essential oils were measured:

- anise

- basil
- geranium
- ginger
- lavender
- lemon
- nutmeg
- orange
- patchouli
- peppermint
- sage
- thyme

Forty-five spectra of each oil were collected over three different days and each oil was correctly identified by Progeny in every measurement (see Figures 2-4).



Figures 2-4: Raman spectrum of lavender, thyme and basil oil adulterated with soybean oil analyzed with a Progeny 1064 nm handheld analyzer.

We also investigated a sample of basil oil adulterated with soybean oil (20% soybean oil). The analysis was able to distinguish between the pure basil oil and the adulterated basil oil (see Figure 4).

Conclusion

These analyses demonstrate the analytical advantages of using handheld Raman 1064 nm laser excitation vs. 785 nm laser excitation for the identifi cation of oils used in the manufacturing of cosmetics. Manufacturers can now perform lab-quality analysis at any point during their production process, enabling stronger quality programs.

For more information

Vargas Jentzsch et al., *Cosmetics* 2015, **2**(2), 162-176; doi:10.3390/cosmetics2020162

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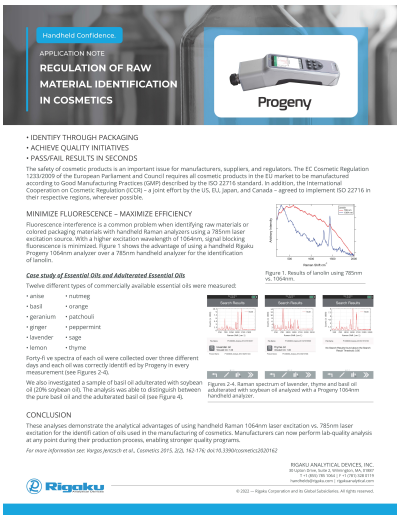
Handheld Confidence

APPLICATION NOTE

REGULATION OF RAW MATERIAL IDENTIFICATION IN COSMETICS

Progeny

• IDENTIFY THROUGH PACKAGING
• ACHIEVE QUALITY INITIATIVES
• PASS/FAIL RESULTS IN SECONDS

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MINIMIZE FLUORESCENCE – MAXIMIZE EFFICIENCY

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Rigaku

RIGAKU ANALYTICAL DEVICES, INC.

Related products

Progeny

Handheld Raman for raw material identification and finishe d product authentication using 1064 nm Raman analysis.