Qi technologies

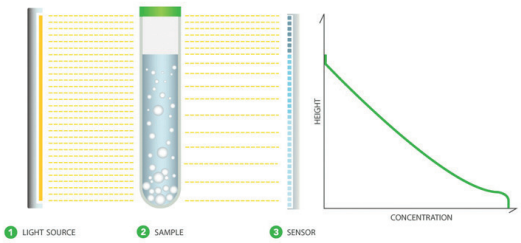
APPLICATION NOTE

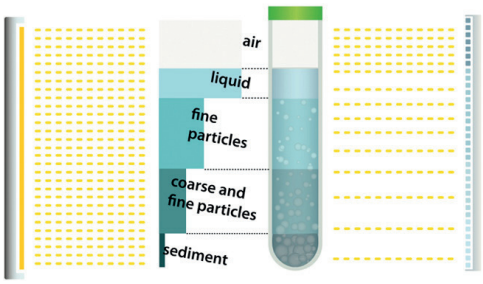


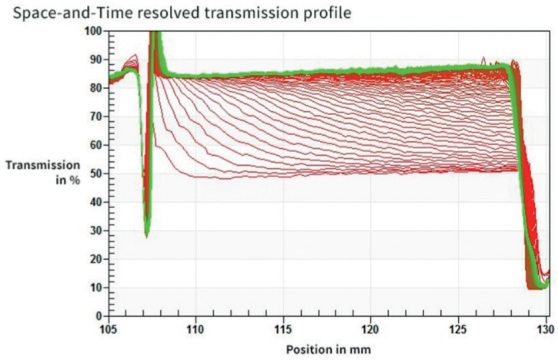




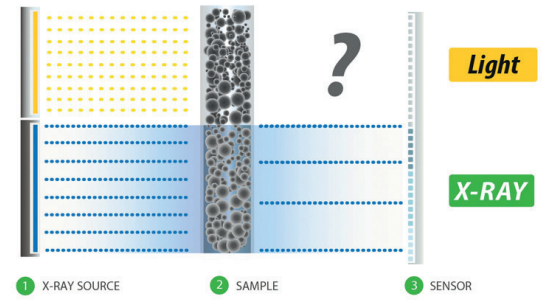
Accelerated Stability Tests of Cosmetics Scrubs - Combined Measurements with LUMiSizer 651 and LUMiReader X-Ray

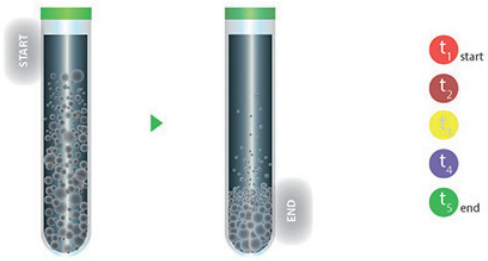


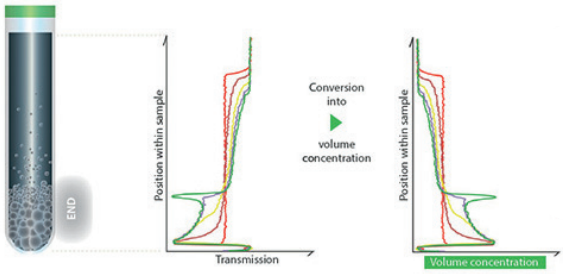




STEP® Technology - LUMiSizer







STEP® Technology - LUMiReader X-Ray

INTRODUCTION

Natural and/or sintetic exfoliants have been used successfully for years in a variety of exfoliating and body cleaning product formulations–shower gels, scrubs, hand cleansers and facial products.

Cosmetic scrub products are generally comprised of two primary components:

- Product Base - vegetable oils & butters, mineral oil, gels, liquid cleanser, lotion or cream
- Exfoliant - sea salt, sugar, pumice, herbal powders or a combination of multiple exfoliants.

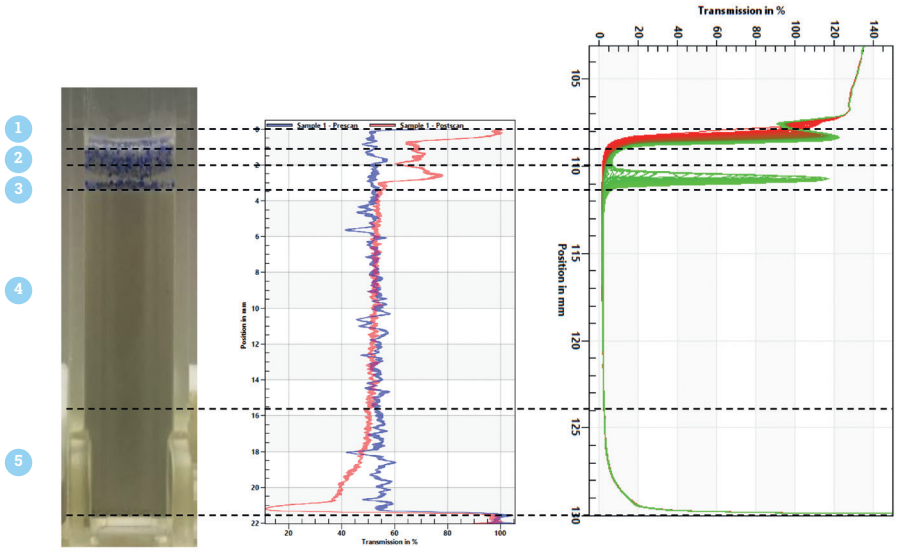
MEASUREMENTS

Four different cosmetic scrubs, as reported in table, have been tested by a combination of detection technique based on the LUM STEP-Technology® with NIR light and x-ray transmission

- A pre-scan of sample in the LUMiReader X-Ray to record initial x-ray transmission profile
- An accelerated separation analysis in the LUMiSizer
- A final scan of sample in the LUMiReader X-Ray to record final x-ray transmission profile (concentration profiling)

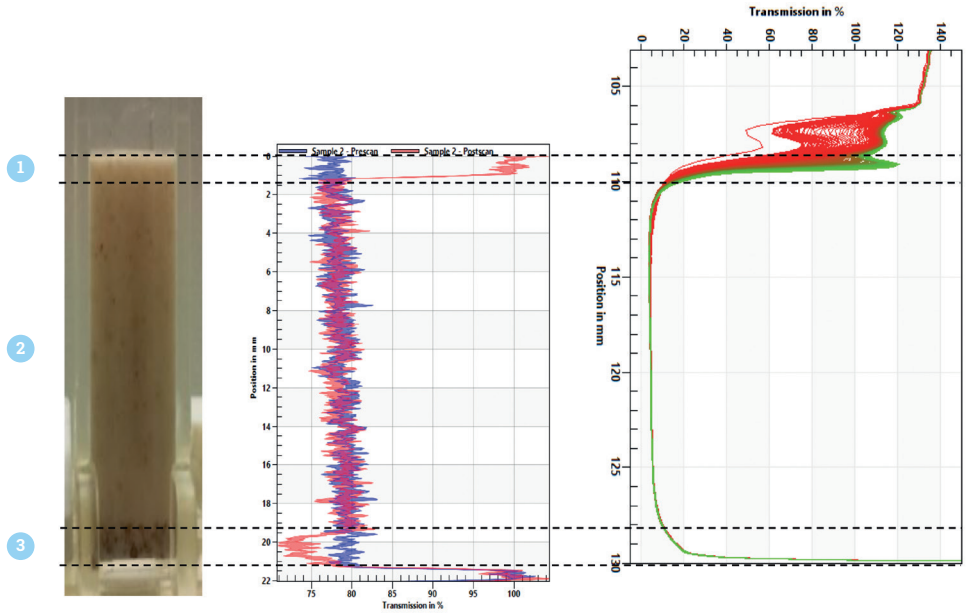
Sample	Product	Exfoliants
Sample 1	Face Scrub	White Clay, Pumice, Perlite
Sample 2	Face Scrub	Perlite, Buritì Pulp Powder
Sample 3	Purifying Mask	White Clay
Sample 4	Body Scrub	Bamboo Microgranules

SAMPLE 1



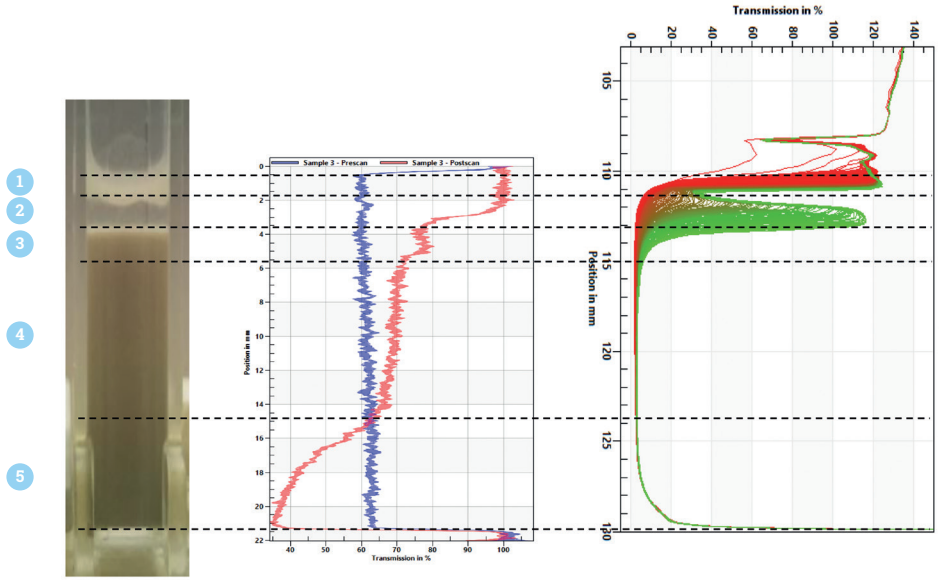
1. **Oil phase - Creaming:** Visible in NIR and X-Ray
2. **Perlite phase - Creaming:** Visible in X-Ray (NIR cannot discriminate from sediment)
3. **Perlite & Oil Mixture - Creaming:** Visible in NIR and X-Ray
5. **White Clay sediment - Precipitation:** Visible in X-Ray (NIR cannot detect the gradient)

SAMPLE 2



1 **Oil phase - Creaming:** Visible in NIR and X-Ray
3 **Exfoliant sediment - Precipitation:** Visible in X-Ray

SAMPLE 3



1 **Oil phase - Creaming:** Visible in NIR and X-Ray
2 3 **Water phase and sediment:** Visible in X-Ray (NIR cannot discriminate them)
5 **White Clay sediment:** Visible in X-Ray (NIR cannot detect the gradient)

CONCLUSIONS

LUMiSizer:

- Characterize different types of samples directly in original concentration at temperatures relevant for storage, transport and application.
- Determine storage the temperature influence on the separation.
- Analyse in 2-18 h and/or at elevated temperature, depending on the type, instead of waiting for months and years.
- Give fast and reliable results for up to 12 samples simultaneously

LUMiReader X-Ray:

- Characterizes samples with fillers, when optical methods do not detect changes.
- Characterizes concentration gradients for sediments after accelerated separation for samples in opaque dispersions.

STEP-Technology

Dispersion Analyser **LUMiSizer®**

Stability Analyser **LUMiFuge®**

Separation & Sediment Analyser **LUMiReader® X-Ray**



Direct and Accelerated Separation



Real-time Separation
Concentration profiling after accelerated separation

Qi technologies

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