

## Application Note AN N213

# Monitoring of a Liquid Silicone Mixing System

Determination of four different Silicone Oil Concentrations. Silicones are consumed in thousands of ways in many different industries, primarily electrical, plastics, rubber, paper, textile, paint, automobile and construction industry. The properties of silicones are unique and numerous.

This application shows the feasibility of monitoring mixing processes online with NIR spectroscopy. Here, four different silicone products were mixed by a commercial mixing machine and then measured in the laboratory with fiber optic probes using a fixed path length. The results show a very good correlation between the NIR values and the reference values.

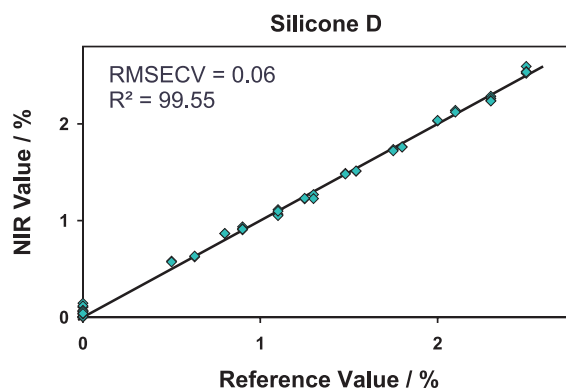
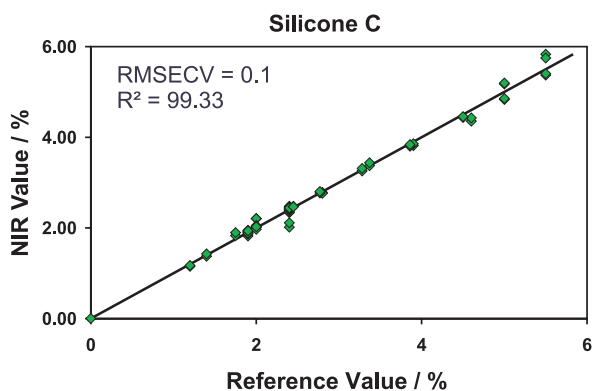
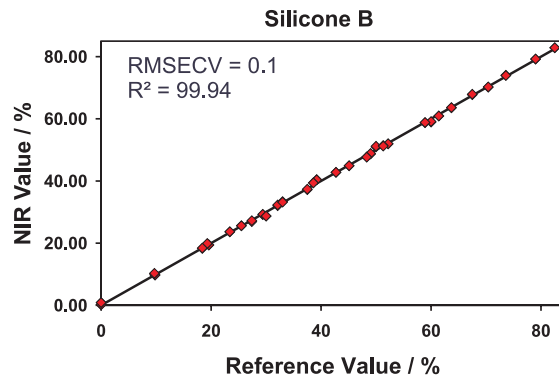
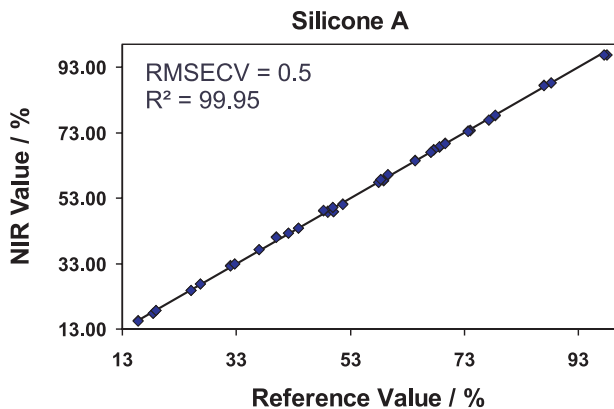
The method could be easily transferred online, with fiber optic probes being installed inside or directly behind the mixing chamber.

### Calibration Examples:

■ Silicone A	16 - 98 ± 0.5 %
■ Silicone B	0 - 85 ± 0.1 %
■ Silicone C	0 - 5.8 ± 0.1 %
■ Silicone D	0 - 2.5 ± 0.06 %

The FT-NIR spectrometer MATRIX-F with the fiber optic probes is a fast, precise and non-destructive tool to effectively and cost efficiently help you with your analytical tasks.

Bruker Optics offers individual application support by NIR scientists and engineers, as well as technical service, maintenance and training courses on the OPUS software (OPUS/IR, QUANT, IDENT,...) for the benefit of all FT-NIR instrument users.



● **Bruker Optik GmbH**

Ettlingen · Deutschland  
Phone +49 (7243) 504-2000  
Fax +49 (7243) 504-2050  
info.bopt.de@bruker.com

**Bruker Optics Inc.**

Billerica, MA · USA  
Phone +1 (978) 439-9899  
Fax +1 (978) 663-9177  
info.bopt.us@bruker.com

**Bruker Shanghai Ltd.**

Shanghai · China  
Phone +86 21 51720-890  
Fax +86 21 51720-899  
info.bopt.cn@bruker.com

[www.bruker.com/optics](http://www.bruker.com/optics)

Bruker Optics is continually improving its products and reserves the right to change specifications without notice.  
© 2013 Bruker Optics BOPT-4000967-01