

S07(T)-OP-3

New quality assurance challenges with recent mid-infrared models

Frédéric Dehareng, Clément Grelet

Valorisation of Agricultural Products department, CRA-W, Gembloux, Belgium

During the last two decades, IR technology has evolved, allowing the generation of more precise Fourier transform infrared (FT-IR) spectra. In parallel, computer technology has also advanced, facilitating rapid matrix calculations. This combination of factors allows the extraction of more information from the IR spectra. Researchers and instrument manufacturers have looked beyond the traditional applications such as Fat, protein or Lactose predictions. Additional models have been developed offering many new applications, which are or can be of great interest to the dairy sectors. FT-IR spectra can now be exploited for the quantitative determination of other major and minor components, such as fatty acids, minerals or Beta-hydroxybutyrate, as well as for qualitative applications. A lot of these new models are indirect models. It means that the information predicted for a component are not directly related with its influence on the milk spectra, but depends of its interrelationships with other milk component variations who can be detected by the spectra. For some of these new parameters, the quality assurance (QA) described in traditional guidance is difficult to follow or cannot be implemented. New solution approaches need to be proposed to solve this problem. The objective of this presentation is to present a general overview of the problem and some possible solutions proposed by different groups.

Keywords: mid-infrared, spectrometry, calibration models, FTIR, quality assurance, guidance, standardization