Modeling for updating drifted models.

Real use of the orthogonalization methods in industry.

➢ Context / client need

ARKEMA, international player in Chemicals industry and leader of the French market, develop its own spectroscopic calibrations for online monitoring of products and processes. For several years, models have been ran and regularly updated by the CERDATO teams in Serquigny, France.

At a problem appearance, the historical model failed. To correct this problem, the teams tried to add new samples, in vain. It seemed thus necessary to use more powerful algorithms.

➢ Ondalys Solution

Ondalys worked with the CERDATO team training them at the orthogonalization methods, in particular the Dynamic Orthogonal Projection (DOP) method. This method was presumed the best adapted to their problematic. Then, Ondays helped them in implementing the update of their historical model. This DOP method allows to update a model using only few standardization samples.

➢ Results / Client benefit

The model corrected with DOP gave better results than those obtained with a classical update (exhaustive model). Moreover, it allowed to diagnose problem occurred on the production line.
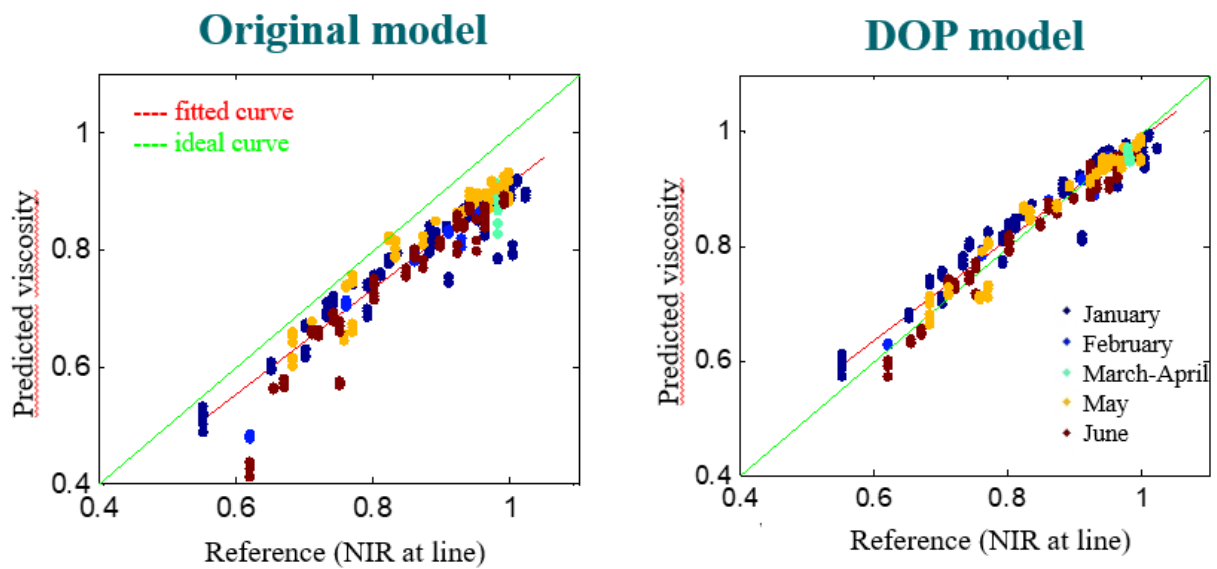
Viscosity prediction of an independent dataset (data 2015)

➢ Publications / Communications

HEBERT Perrine, MONTAGNIER Safia, GUILMENT Jean, LALLEMAND Jordane & ROUSSEL Sylvie – La Spectroscopie Proche Infrarouge Sur La Ligne De Production Dans L'industrie Chimique – 16èmes Rencontres HelioSPIR (2015) – Montpellier.

LALLEMAND Jordane, HEBERT Perrine, GUILMENT Jean, MONTAGNIER Safia & ROUSSEL Sylvie – Orthogonalisation Method For Robustness Improvement Of In-line NIR Applications – CAC XVI, Chemometrics in Analytical Chemistry (2016) – Barcelona, Spain.

HEBERT Perrine, LALLEMAND Jordane, MONTAGNIER Safia, GUILMENT Jean & ROUSSEL Sylvie – Orthogonalisation Method For Robustness Improvement Of On-Line Monitoring Of Polyamide Polymerization By NIR – European Polymer Federation Congress 2017 – Lyon

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