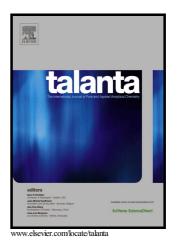
Author's Accepted Manuscript

Monitoring of tablet coating processes with colored coatings

Shirin Barimani, Peter Kleinebudde



 PII:
 S0039-9140(17)31047-0

 DOI:
 https://doi.org/10.1016/j.talanta.2017.10.008

 Reference:
 TAL18006

To appear in: Talanta

Received date: 14 August 2017 Revised date: 25 September 2017 Accepted date: 5 October 2017

Cite this article as: Shirin Barimani and Peter Kleinebudde, Monitoring of tablet coating processes with colored coatings, *Talanta*, https://doi.org/10.1016/j.talanta.2017.10.008

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Monitoring of tablet coating processes with colored coatings

Shirin Barimani, Peter Kleinebudde*

Heinrich Heine University Duesseldorf, Institute of Pharmaceutics and Biopharmaceutics, Universitaetsstr. 1, 40225 Duesseldorf, Germany

*Corresponding author. Tel.: +49 211 81 14220; fax: +49 211 81 14251. Kleinebudde@hhu.de

Abstract:

Endpoints of coating processes for colored tablets were determined using in-line Raman spectroscopy. Coatings were performed with six commercially available formulations of pink, yellow, red, beige, green and blue color. The coatings were comprising pigments and/or dyes, some causing fluorescence and interfering the Raman signal. Using non-contact optics, a Raman probe was used as process analytical technology (PAT) tool, and acquired spectra were correlated to the sprayed mass of aqueous coating suspension. Process endpoints were determined using univariate (UV) data analysis and three multivariate analysis methods, namely Projection to Latent Structures (PLS)-regression, Science-Based Calibration (SBC) and Multivariate Curve Resolution (MCR). The methods were compared regarding model performance parameters. The endpoints of all coating experiments could be predicted until a total coating time of 50 minutes corresponding to coating thicknesses between 21 and 38 μ m, depending on the density of the coat formulation. With the exception of SBC, all calibration methods resulted in R² values higher than 0.9. Additionally, the methods were evaluated regarding their capability for in-line process monitoring. For each color, at least two methods were feasible to do this. Overall, PLS-regression led to best model performance parameters.

Graphical abstract

Download English Version:

https://daneshyari.com/en/article/5140449

Download Persian Version:

https://daneshyari.com/article/5140449

Daneshyari.com