

The optimization of cleaning validation procedure for cosmetic production vessels investigated from material's aspect

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Abstract

In the cosmetics and toiletries industry, cleaning validation is used to confirm the effectiveness of a cleaning procedure and to take actions for reducing the factors that might cause the contamination of products due to incomplete cleaning of single or multi-purpose manufacturing equipment. The purpose of this study is to evaluate the parameters that have to take into consideration in the cleaning procedure of toiletries industry from material's.

In this study, the wetting and electrochemical behaviours of 304 and 316L stainless steel in the presence of three different raw materials that are frequently used in cosmetics industry were investigated by contact angle observation and electrochemical impedance measurement. The influences of electrochemical behaviour during cleaning procedure with or without surfactant were also investigated.

The results show that the wetting property of various cosmetic raw materials was influenced not only by the polarity of the raw materials but also by the type and roughness of the stainless steel used. The electrochemical impedance measurements also show that the surface status of stainless steels are strongly influence by the properties of the raw materials and the cleaning process.

In the cosmetics and toiletries industry, the standard operation procedure of cleaning procedure should be optimized via the aspect of selecting appropriate materials for production vessels and designing a energy-saving and effective procedure that can clean the production vessels to the "just right" extent according to the manufacturing products in order to achieve cost-effective and quality assurance in the manufacturing of cosmetic products .

Keywords: cosmetics, cleaning validation, contact angle, electrochemical impedance