Title: Cleaning verification: A five parameter study of a Total Organic Carbon method development and validation for the cleaning assessment of residual detergents in manufacturing equipment

Authors: Xue Li, Imad A. Haidar Ahmad, James Tam, Yan Wang, Gina Dao, Andrei Blasko

PII: S0731-7085(17)32040-X
DOI: https://doi.org/10.1016/j.jpba.2017.10.021
Reference: PBA 11552

To appear in: *Journal of Pharmaceutical and Biomedical Analysis*

Received date: 9-8-2017
Revised date: 18-9-2017
Accepted date: 22-10-2017

Please cite this article as: Xue Li, Imad A.Haidar Ahmad, James Tam, Yan Wang, Gina Dao, Andrei Blasko, Cleaning verification: A five parameter study of a Total Organic Carbon method development and validation for the cleaning assessment of residual detergents in manufacturing equipment, Journal of Pharmaceutical and Biomedical Analysis https://doi.org/10.1016/j.jpba.2017.10.021

Journal of Pharmaceutical and Biomedical Analysis

Cleaning verification: A five parameter study of a Total Organic Carbon method development and validation for the cleaning assessment of residual detergents in manufacturing equipment

Xue Li, Imad A. Haidar Ahmad, James Tam, Yan Wang, Gina Dao, Andrei Blasko*

Novartis Pharmaceuticals Corporation, San Carlos, CA 94070

Address correspondence to
Dr. Andrei Blasko
Novartis Pharmaceuticals Corporation
150 Industrial Road
San Carlos, CA 94070
andrei.blasko@novartis.com

Highlights

- Five factors were identified affecting the development and validation of a TOC based analytical method to quantify trace residues of CIP100® and CIP200® detergents on the surface of manufacturing equipment during the cleaning verification stage. These factors were the concentration and volume of the diluent, extraction method, location for TOC sample preparation, and oxidant flow rate. Key experimental parameters were optimized to minimize contamination and to improve the sensitivity, recovery, and reliability of the method.

Abstract

A Total Organic Carbon (TOC) based analytical method to quantitate trace residues of clean-in-place (CIP) detergents CIP100® and CIP200® on the surfaces of pharmaceutical manufacturing equipment was developed and validated. Five factors affecting the development and validation of the method were identified: diluent composition, diluent volume, extraction method, location for TOC sample preparation, and oxidant flow rate. Key experimental parameters were optimized to minimize contamination and to improve the sensitivity, recovery, and reliability of the method. The optimized concentration of the phosphoric acid in the swabbing solution was 0.05 M, and