

## IN-HOUSE METHOD VALIDATION OF A METHOD FOR THE DETERMINATION OF CERTAIN PHTHALATES IN TOYS, CHILDCARE AND TEXTILE ARTICLES

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Toys, plastic childcare and coated and printed textile childcare articles, containing certain phthalates in a concentration greater than 0.1% m/m of the plasticised material, shall not be placed on the market. Phthalates such as bis (2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), benzyl butyl phthalate (BBP), are restricted by the entry 51 in Annex XVII of the Regulation (EU) 1907/2006. Validated methods for the analysis of phthalates in these consumer products are an effective tool with which the market surveillance authorities can guarantee the compliance in the European framework of the Directive 2001/95/EC. A gas chromatographic - mass spectrometric (GC-MS) method was implemented for the simultaneous determination of DEHP, DBP and BBP in poly(vinylchloride) PVC matrices, considering the methodology described in CPSC-CH-C1001-09.3 [1] and ISO 14389 [2]. The aim of this study is to describe the procedure for in-house method validation following the methodology described in the EURACHEM Guide [3]. Two types of plastics matrices were used; one powdered, a certified reference material, CRM-PVC 001 Phthalates in Poly(vinyl chloride), from SPEXOrganics<sup>®</sup> and other semi rigid, a proficiency testing material, #11012, provided by the Institute for Interlaboratory Studies from Netherlands. Recovery values ranged from 85.56 to 119.9%.

In parallel, the method was validated by participating in the Laboratory Comparisons Tests (LCT3) for REACH regulated phthalates in PVC organized by the working group II of the Joint Action on Cooperation between PROSAFE and the General Administration of Quality, Supervision and Quarantine (AQSIQ) of the People's Republic of China in the Field of Consumer Product Safety.

[1] CPSC-CH-C1001-09.3, Standard Operating Procedure for Determination of Phthalates, April 2010, <http://www.cpsc.gov/PageFiles/126591/CPSC-CH-C1001-09.3.pdf>

[2] ISO 14389 (2014). Textiles. Determination of the phthalate content. Tetrahydrofuran method. International Organization for Standardization, Geneva, Switzerland

[3] B. Magnusson and U. Ornemark (eds.) Eurachem Guide: The Fitness for Purpose of Analytical Methods – A Laboratory Guide to Method Validation and Related Topics, (2nd ed. 2014). ISBN 978-91-87461-59-0. Available from [www.eurachem.org](http://www.eurachem.org)