

REACH

Screening report on the use of tris (2-chloroethyl) phosphate (TCEP) in articles



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Date: June 2018

Furniture Industry Research Association 2018

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TCEP, TCPP and TDCP risk to human health and the environment



Version Control

Any amendments or revisions made to this document are recorded here:

Version No.	Date	Author	Details of Amendments
1.0	08/06/18	S Cochrane	

Introduction

Uncertainty exists as to how the UK's EU referendum result ("Brexit" vote) will impact the prevailing chemicals legislation which includes REACH, Classification, Labelling and Packaging (CLP) and the Biocidal Products Regulation (BPR).

For now the relevant EU legislation continues to apply. It is also unlikely the UK will exit the EU before the 2018 REACH registration deadline. REACH is a complex system of EU Regulations concerning chemicals affecting the entire supply chain from manufacturers to importers and their customers.

Article 69(2) of the REACH Regulation, requires the ECHA to consider whether the use of particular chemicals in articles pose a risk to human health or the environment, particularly where these are not already adequately controlled.

The recently published screening report, an assessment of whether the use of TCEP, TCPP and TDCP in articles should be restricted, was initiated on the basis of Article 69(2). The substance TCEP is currently included in Annex XIV on the basis that it is toxic for reproduction, however this screening report also covers the carcinogenic properties of the substance.

Two other chemicals, tris(2-chloro-1-methylethyl) phosphate (TCPP) and tris[2-chloro-1-(chloromethyl)ethyl] phosphate (TDCP) were also included in the scope of the report, as it was identified that these substances have very similar properties to TCEP.

TCEP, TCPP and TDCP

TCEP, TCPP and TDCP are often used as flame retardant in polyurethane foam (PUR), with TCPP and TDCP often found together in articles. TCEP, TCPP and TDCP belong to the family of organophosphate flame retardants (OPFRs).

TCPP and TDCP are used amongst others as flame retardants in flexible polyurethane (PUR) foams in articles such as baby mattresses, car safety seats, baby slings, and residential upholstered furniture.

The structure of the three substances are similar and can be grouped as chlorinated phosphate ester flame retardants (CPE FRs, a sub-group of the OPFRs family). The physical chemical properties between TCEP and TCPP are similar, but significant differences exist in terms of the molecular weight, vapour pressure, water solubility, and the partition coefficient of TCEP and TDCP.

TCPP is an all-round flame retardant for all types of flexible PUR foams with a registered volume under REACH of 10,000 to 100,000 tonnes per year. The registered volume of TDCP under REACH is 1,000 to 10,000 tonnes per year. TDCP is more expensive and is used mainly for automotive applications.

TCEP is not currently used as a flame retardant for flexible PUR foams in the EU, but could be present as an impurity in other commercial flame retardants or in imported articles.

Screening assessment

The screening assessment identified a risk for children from exposure to the flame retardants TCEP, TCPP and TDCP in flexible polyurethane (PUR) foams in childcare articles and residential upholstered furniture. ECHA has therefore recommended that a restriction proposal is prepared.

The exposure assessment in the screening report is targeted to the exposure of infants to TCEP, TCPP and TDCP in flexible PUR foam in childcare articles and in residential upholstered furniture. The screening report identified the 'reference articles' for risk assessment as baby mattresses, safety seats, baby slings and sofas. The three organophosphate flame retardants may also be used in other articles such as pushchairs, prams, carry cots, high seats, and baby changing mats.

Migration data for TCEP, TCPP and TDCP from textile and foam samples of baby slings, a baby mattress and car safety seats were used for estimating the exposure from mouthing and from dermal contact. Dermal exposure appears to be the main route of exposure, followed by exposure from mouthing. Other routes or sources of exposure were deemed negligible in comparison.

The screening assessment identified risk for carcinogenicity from exposure of infants for all three OPFRs and for all four reference article types, with the exception of TCPP in car safety seats and TDCP in baby slings. The highest risk identified was for baby mattresses, explained by the large contact surface area and a long duration of contact. A risk for reproductive effects from TCEP and TCPP in mattresses is also identified.

The screening assessment identified a risk for children from exposure to these organophosphate flame retardants present in flexible polyurethane (PUR) foams in childcare articles and residential upholstered furniture. As a result of the assessment ECHA has recommended that an Annex XV restriction dossier is prepared.

The scope of such a restriction is outside the scope of Article 69(2) in terms of the inclusion of TDCP and TCPP and the inherent properties other than reproductive toxicity, and a request from the Commission will therefore be needed to initiate the preparation of the report. The report concludes that if a restriction report is prepared, exposure from other uses, article groups and population groups will need to be considered.

FIRA Members can access the full ECHA report at:

https://echa.europa.eu/documents/10162/13641/screening_report_tcep_tcpp_td-cp_en.pdf/e0960aa7-f703-499c-24ff-fba627060698

How can FIRA help?

If you're a producer, supplier or importer you have an obligation to understand your responsibilities regarding REACH. Whether it's a small or larger part to play in the process, it is advisable to have an understanding according to your business activity.

Research Association members have access to news feeds, updates and technical articles regarding REACH. The technical services team can offer consultation and guidance regarding this subject to meet your needs. There is also a testing facility available via FIRA to ensure that your products meet the REACH regulations.

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If you require further assistance please contact:

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