

SAFEGUARDS

CONSUMER GOODS AND RETAIL

TOYS & JUVENILE PRODUCTS, SOFTLINES

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NEW ISO METHOD FOR PHTHALATES IN TOYS AND CHILDREN'S PRODUCTS PUBLISHED: ISO 8124-6:2014

A completely new method for phthalates in toys and children's products has been published. It is based on a Chinese method and is intended to be used as a method standard in conformity assessments.

In August 2014, the International Organisation for Standardisation (ISO) published the completely new standard ISO 8124 Part 6 'SAFETY OF TOYS – PART 6: CERTAIN PHTHALATE ESTERS IN TOYS AND CHILDREN'S PRODUCTS'¹. The standard is largely based on the existing China national standard GB/T 22048-2008 'TOYS AND CHILDREN'S PRODUCTS - DETERMINATION OF PHTHALATE PLASTICIZERS IN POLYVINYL CHLORIDE PLASTIC'

The new standard is part of a family of standards under the general title "Safety of Toys". In addition to the new part 6, the following parts have also been published:

- ISO 8124-1 "Safety aspects related to mechanical and physical properties"
- ISO 8124-2 "Flammability"
- ISO 8124-3 "Migration of certain elements"
- ISO 8124-4 "Swings, slides and similar activity toys for indoor and outdoor family domestic use"

The new standard part 6 specifies a method for the determination of 6 phthalates which are regulated under a number of legislative acts for toys and children's products globally:

1. Di-n-butyl phthalate (DBP)
2. Benzyl butyl phthalate (BBP)
3. Bis-(2-ethylhexyl) phthalate (DEHP)
4. Di-n-octyl phthalate (DNOP)
5. Di-iso-nonyl phthalate (DINP)
6. Di-iso-decyl phthalate (DIDP)

The standard is applicable to toys and children's products which are manufactured from plastics, textiles, and coatings etc. The methodology involves the use of the solvent dichloromethane as the extraction medium and gas chromatography with mass spectrometry as analytical method. It has also been validated for polyvinyl chloride (PVC), polyurethane (PU) and some representative coatings.



Highlights of the new standard are summarised in Table 1.

¹ [ISO 8124 Part 6](#)

TABLE 1.

ITEM	PARAMETER	HIGHLIGHTS
1	Standard	ISO 8124-6:2014 Safety of Toys – Part 6 Certain phthalate esters in toys and children's products
2	Scope	BBP, DBP, DEHP, DIDP, DINP and DNOP in toys and children's products
3	Samples	More than 1 sample may be used to obtain sufficient weight
4	Exemption from testing	< 10 mg material from 1 sample
5	Composite testing	Up to 3 similar materials in 1 test group allowed
6	Extraction (Method A or B)	Method A Soxhlet extractor, reflux, 6 hours (minimum 4 reflux cycles per hour)
		Method B Solvent extractor, 80 °C, 1.5 hours and reflux, 1.5 hours
7	Extraction solvent	Dichloromethane
8	Analysis	Gas Chromatography Mass Spectrometry (GCMS)

DEFINITIONS

ITEM	PHTHALATE	ACRONYM	CAS	ITEM	PHTHALATE	ACRONYM	CAS
1	Di-n-butyl	DBP	84-74-2	4	Di-n-octyl	DNOP	117-84-0
2	Benzyl butyl	BBP	85-68-7	5	Di-iso-nonyl	DINP	28553-12-0
							68515-48-0
3	Bis-(2-ethylhexyl)	DEHP	117-81-7	6	Di-iso-decyl	DIDP	26761-40-0
							68515-49-1

Throughout our global network of laboratories, we are able to provide a range of services, including analytical testing and consultancy for phthalates and other chemical substances in toys and children's products for the EU, US and international

markets. Please do not hesitate to contact us for further information.

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