WECF, December 2008

# Scientific backround to Toys Guide

**The Toys Table features hazardous chemicals, which can be found in toys. It has been developed by ChemSec in line with the SIN List. It acts as background paper for WECF´s Toys Guide.**

The SIN List is a comprehensible list of substances that fulfil the criteria for Substance of Very High Concern as defined by REACH. The SIN List identifies a set of chemicals through the combined efforts of public interest groups, scientists and technical experts. The SIN List is based on credible, publicly available substance information from existing data bases, scientific studies and new research.

The SIN List is an NGO driven project to catalyze the transition to toxic free products and processes project. The aim is to fast-track the most urgent Substances of Very High Concern for substitution, by informing authorities and providing advance guidance to companies, consumers and regulators on high concern chemicals.

**More info: www.sinlist.org <http://www.sinlist.org>**

ChemSec – The International Chemical Secretariat is a non-profit organisation dedicated to working towards a toxic-free environment.

WECF – Women in Europe for a Common Future is a network of women´s and environmental organisations in 40 countries throughout Europe, the Caucasus, and Central Asia. WECF strives for a Healthy Environment for All.

| | | Product group | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Furry toys | Dolls | Wooden | Hard plastic | Soft Plastic | Electronic | Paints & crayons |
| **Possible hazardous contents** | Aniline | | x | | | | | x |
| | BFR | x | x | | x | x | x | |
| | Bisphenol-A | | x | | x | | x | |
| | Cadmium compounds | | x | | | x | | x |
| | Chlorinated paraffins | | x | | | x | x | |
| | Chromium compounds | | x | x | | | | x |
| | Formaldehyde | | | x | | | | |
| | Lead compounds | | x | | | x | x | x |
| | NP(etoxilates) | x | x | | x | x | | x |
| | Organotin compounds | x | x | x | x | x | | |
| | PFOA/PFOSA | x | x | | | | | |
| | Phthalates | x | x | | | x | x | |
| | Triclosan | x | x | | x | x | | |

| List of possible hazardous contents | Possible negative impact on health - What can it do to your child? | **Studies, Sources, background data** (not for printing, only for internal use)<br>Why is this substance dangerous? Knowledge based on what studies, background, sources? | **Function of the Chemical**<br>Why it is added to the product | |
|---|---|---|---|---|
| Aniline | Aniline is classified as a possible carcinogen (C3) and as a possible mutagenic substance (M3). Aniline is very toxic and has been found in both humans and environmental samples. | EURAR (2004); Bus & Popp (1987); SIDS | Solvent, catalyst, stabilizer, rubber accelerators and anti-oxidants compound | 57f |
| BFRs -HBCDD, Deca, TBBPA | DecaBDE has been reported to have developmentally toxic and endocrine disruptive effects. It is persistent but has been shown to have the potential to degrade to compunds with PBT/vPvB properties. Deca BDE is commonly found in humans and the environment. For TBBPA reprotoxic and endocrine disruptive effects have been reported. It is persistent and widely detected in various human and environmental samples. HBCDD is a persistent bioaccumulative and toxic substance. | DECA -Tseng et al (2008); Viberg et al (2007); Pacyniak et al (2007). EURAR (2002), IUCLID Database (2000), SIAM 16 (2003); NICNAS (2001), IUCLID Dataset (2000), IPCS (1994), Darnerud (2003); Viberg et al (2003); Rice et al (2007), Riu et al (2007).<br>TBBPA - Birnbaum & Staskal (2004); SIAM 20 (2005); SIAM 20 (2005); Haneke (2002); Darnerud (2003), NICNAS (2001); Van der Ven et al (2008), Lilienthal et al (2008); Hass & Wamberg (2002); Legler & Brouwer (2003). Birnbaum & Staskal (2004), IPCS (1995); Darnerud (2003), Haneke (2002), Meerts et al (2000), Legler & Brouwer (2003); Van der Ven et .<br>HBCDD - is concluded to be PBT by European Chemicals Bureau PBT Working Group | As flame retardents | 57d,f |
| Bisphenol-A | Bisphenol A is classified as a possible reprotoxic chemical (R3) and an endocrine disruptor (cat 1). It is associated with reproductive dysfunction, increased cancer risk, including breast and prostate, and a range of other chronic or irreversible health problems, often from very low levels of exposure. BPA is commonly detected in humans. | IUCLID Dataset, SIAM 14 (2002), EURAR (2003); SIAM 14 (2002); BIBRA (1996); vom Saal & Hughes (2005), Calafat et al (2008); Lee et al (2005) Kuehn (2007); vom Saal & Hughes (2005); Calafat et al (2008); Ramakrishnan & Wayne (2007)Takeuchi et al (2004); Krishnan et al (1993); Sugiura-Ogasawara et al (2005), BIBRA (1996), EURAR (2003); EURAR (2003); Can et al (2005); IUCLID Dataset (2002); Kuehn (2007); Gross (2007); Takahashi & Oishi (2000). vom Saal & Hughes (2005); Wada et al (2007); Brown (2008). | Component in polycarbonate and other plastics and epoxy resins, inert ingredient or stabilizer.Antioxidants, stabilizers, hardeners, photopolymers, binders, polymerisation inhibitors, prevent corrosion and contaminations. | 57f |
| Cadmium compounds | R45 : May cause cancer. R26 : Very toxic by inhalation. R48/23/25 : Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. R62 : Possible risk of impaired fertility. R63 : Possible risk of harm to the unborn child R68 : Possible risk of irreversible effects. R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cadmium shows neurotoxic effects, especially on the developing brain. | Classified CMR (Class I & II) according to Annex 1 of Directive 67/548/EEC | Pigments, paints and dyestuff. Stabilizer in plastics especially PVC. | 57a, c |
| Chlorinated paraffins | For chlorinated paraffins (CPs) carcinogenic effects have been reported and several congeners are identified PBT and endocrine disruptors (SCCPs) or likely PBT/vPvBs. They are ubiquitously found in biomonitoring studies, including in human breast milk and tissues. | IUCLID (2000), ITER; EURAR (2000); IARC, NTP (1986a); IARC, NTP (1986b), 11th ROC; PBT Working Group | Flame retardents and plastisizer | 57f |
| Chromium compounds | R45 : May cause cancer, R46 : May cause heritable genetic damage, R9 : Explosive when mixed with combustible material, R24/25 : Toxic in contact with skin and if swallowed, R26 : Very toxic by inhalation, R35 : Causes severe burns, R42/43 : May cause sensitization by inhalation and skin contact, R48/23 : Toxic: danger of serious damage to health by prolonged exposure through inhalation, R62 : Possible risk of impaired fertility, R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment, | Classified CMR (Class I & II) according to Annex 1 of Directive 67/548/EEC | Surface protection, corrosion inhibitor, dyestuff, and preservative | 57a, b, c |
| Formaldehyde | Formaldehyde is classified as a possible carcinogen (C3), also reported to be mutagenic and toxic for reproduction. It is has been detected in both humans and the environment. | IUCLID (2000), IARC (1997), Speit & Schmid (2006), OECD SIDS, IARC (2006), BfR (2006), Schmid & Speit (2007), Balharry et al (2008), IRIS, Hernandez et al (1994), OECD SIDS; IPCS; Heck & Casanova, Hauptmann et al (2004), Binetti et al (2006), BfR (2006); Bosetti et al (2008), Marsh et al (2007), NTP 2002, Thrasher & Kilburn (2001), Taskinen et al (1999); Collins et al (2001), OECD SIDS; Thrasher & Kilburn (2001) | Solvent in plywood and making of composite wood. Disinfectant, preservative, fumigant, stabilizer, a starch modifier, drying agent. | 57f |
| Lead compounds | R61 : May cause harm to the unborn child, R33 : Danger of cumulative effects, R40 : Limited evidence of a carcinogenic effect, R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment, R62 : Possible risk of impaired fertility. Lead shows neurotoxic effects, especially on the developing brain. | Classified CMR (Class I & II) according to Annex 1 of Directive 67/548/EEC | part of paints and dyestuffs, also as plasticizer in plastics (shape proofing). | 57c |
| NP(etoxilates) | Nonylphenol etoxilates are classified as endocrine disruptors (cat 1), they are the precursors of Nonyl phenol which is a persistent and bio-accumulative substance. It has been found in the environment.<br>Nonylphenol etoxilates are classified as endocrine disruptors (cat 1), they are the precursors of Nonyl phenol which is a persistent and bio-accumulative substance. It has been found in the environment. | Wada et al (2007); Hernandez et al (2007); Vazquez-Duhalt et al (2005); Hernandez-Rodriguez et al (2007), Lahnsteiner et al (2005); EUCOM (2002); Meucci & Arukwe (2006); Swaiger et al (2002); Vazquez-Duhalt et al (2005), EUCOM (2002), Meucci & Arukwe (2006), Swaiger et al (2002); El-Dakdoky & Helal (2007); Kudo et al (2004), INCHEM (2005), Shiu et al (1994); Servos (1999); White et al (1994), ERMA; Zoller (2006), Mayer et al 2007 | Surfactant used in textile, solvent and emulsifier for dyestuffs, cosmetics, household cleaners, paints and pesticides | 57f |
| Organotin compounds | Tributyltin (TBT) is an endocrine disruptor (cat 1) which is also very persistent and very bio-accumulative. It has been frequently found in humans and the environment. Triphenyltin (TPhT) compounds are an endocrine disruptor (cat 1) and is classified as both possible carcinogen (C3) and toxic for reproduction (R3). It is also very persistent and very bio-accumulative and has been found in humans and the environment. | Substance is concluded to be PBT by European Chemicals Bureau PBT Working, IUCLID, RPA 2002, EFSA 2004; Cooke et al 2008; Grun et al 2006, Antizar-Ladislao 2008, Grun et al (2006); Antizar-Ladislao 2008; Sroka et al 2008; Grun & Blumberg 2006, 2007, Grun et al 2006; Snoeij et al 1986, Snoeij et al 1986, CICADS; Environment Canada 2006, Nakanishi et al (2002) | Preservative, anti mould, catalyst in making of plastics and paddings. | 57d,f |
| PFOA/PFOSA | For PFOA carcinogenic and reprotoxic effects have been reported. It is persistent and is ubiquitously found in the environment and in humans. For PFOSA reprotoxic effects have been reported. It is a precursor of the vPvBT chemical PFOS and has been found in biomonitoring studies. | Betts 2007; 3M 2006; Allsopp et al 2005, EWG 2005, HSDB, ; Kudo & Kawashima (2003), EWG 2004; Lau et al 2006, Apelberg et al 2007, USEPA, Stump et al (1997), Starkov & Wallace (2002) | Anti stick surfaces and water, oil and dirt repellant surfaces in textile and plastics. | 57f |
| Phthalates | R60 : May impair fertility. R61 : May cause harm to the unborn child. For DINP reprotoxic effects and effects on development have been reported and it is a suspected endocrine disruptor. It has been detected in the environment and humans. | Classified CMR (Class I & II) according to Annex 1 of Directive 67/548/EEC, Masutomi et al (2004); OSPAR (2006); Lee & Koo (2007), Hauser & Calafat (2005), Gray et al (2000); Tagaki et al (2005); Lee et al (2006), McKee et al (2004), | Plasticizer, foremost in PVC plastics. | 57c, f |
| Triclosan | Triclosan is very toxic to aquatic life and endocrine disrupting effects have been reported. It is potentially bioaccumulative and has been widely found in both humans and the environment. | HSDB; Balmer et al (2004); EC-SSC; Coogan et al (2007), Darbre (2006), Gee et al (2008), Foran et al (2000), HSDB, Crofton et al (2007); Levy et al (1999); EC-SSC; Crofton et al (2007); Gee et al (2008); Allmyr et al (2006); Chen et al (2007) | Bactericide, preservative, anticeptic, disinfectant, antimicrobial, sanitizing prevent bad smell from dirty articles. | 57f |