# Chemicals in Products
# **Toys Sector Case Study for UNEP**



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# 1. Executive Summary

The toy sector case study was conducted via desk research and expert consultations, from July to January 2011.

Toys were selected as a product group for study in an earlier phase of the Chemicals in Products Project where 77% of participants chose toys as a sector to study and learn from. An extremely wide variety of materials are used in toys, from textiles to wood to plastic and like many products they have the potential to contain regulated chemicals and other substances of concern such as possible hormone-disrupters. In the EU toys are the product with the most notifications for regulatory non-compliance and while the most frequent notifications are related to small parts (a choking hazard) the second most frequent are related to chemicals in toys in excess of regulated thresholds.

Information on chemicals needed for regulatory compliance is available to the firms that participated in this study. While there is not an uninterrupted flow of information on chemicals along the supply chain – a flow that begins with material producers and continues through each supplier to the toy manufacturer, retailer and consumers – firms did state the information they need for compliance documentation is either generated by their suppliers or obtained with laboratory testing. The obstacles they identified were related to efficiency – access to information could become more efficient among supply chain actors if queries and formats were better understood. Authorities reported a need for information to control imports and exports. Producers reported a need for information on specific end-uses of the substances they supply, in order to inform their risk assessments.

Less information is exchanged on non-regulated chemicals and on regulated chemicals beyond minimum thresholds. NGOs stated consumers do not have access to the information they need to make decisions on toy purchases. Small toy manufacturers stated they do not have information, nor expertise, to know what chemicals to manage beyond what is required by law (and across the board toy safety regulations in Japan, the EU and the US were referred to as the most stringent, with a scope that is expanding to include chemicals). And large companies stated they use product testing to respond to requests for non-regulatory information. Retailers – especially specialised retailers serving an informed consumer group – report such requests do occur, though still infrequently. The study found no common system for chemicals information exchange in the sector.

The potential to enhance the access to information in the sector can be understood in terms of two sector characteristics: the nature of relationships and the market structure. While some supply chain relationships are long term and collaborative (e.g. manufacturer and supplier developing a new material) there are also very many short term relationships. Participants with successful information exchange stated it took time to establish the flow of regulatory information. Their suppliers needed a lot of support to understand the information requests and what to provide in response (format, level of detail). In short term relationships there is less time for this learning. Second, the market is structured around very many small firms each with a low buying power. They have less pull with larger suppliers and lower possibility to have their requests for information fulfilled (beyond regulation).

Two types of approaches can be considered to further the access to information on chemicals in toys. The first is a technical approach focused on the type of information and the means of accessing it. The second is a broader approach to build on the “enablers” for overcoming current obstacles to access to information, such as lack of chemicals expertise within many small or medium sized firms.

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# 3. Introduction

## 3.1. Context of the Study

This case study was carried out as part of the activities under the Chemicals in Products (CiP) Project. In May, 2009, the second session of the International Conference of Chemicals Management (ICCM2) adopted a resolution agreeing to implement a project on Chemicals in Products with the overall goal of promoting the implementation of paragraph 15 (b) of the Overall Policy Strategy of SAICM concerning the availability of information on chemicals throughout their life-cycle including, where appropriate, chemicals in products (CiP). With the view to take appropriate cooperative action, the Conference agreed to consider further needs to improve information on chemicals in products in the supply chain and throughout their life cycle, recognizing that further actions are needed to fulfil the goal that by 2020 chemicals are used and produced in ways that minimize significant adverse effects on human health and the environment.

The Conference invited UNEP to lead and facilitate the project and to constitute a Steering Group to advise on the project development and implementation. The Conference further agreed that the following tasks be undertaken:

- collect and review existing information on information systems pertaining to chemicals in products including but not limited to regulations, standards and industry practices;
- assess that information in relation to the needs of all relevant stakeholders and identify gaps;
- develop specific recommendations for actions to promote implementation of the SAICM with regard to such information, incorporating identified priorities and access and delivery mechanisms

In this context, UNEP's goal for the CiP project is to provide to ICCM3 an assessment of information needs that would allow stakeholders to practice sound management of the chemicals in products, a report on status of existing systems and the extent to which they meet the identified information needs as well as recommendations for further cooperative actions needed to ensure that required information is available, accessible and appropriate to the needs of all stakeholders. UNEP will report on the project implementation and its outcomes to the SAICM Open-Ended Working Group (in mid 2011) and to ICCM3 (in mid 2012).

To date, an extensive Scoping Phase has been undertaken by the CiP project, resulting in a focused set of case studies being carried out in the product sectors toys, electronic goods, building materials and textiles.

Within the context of the three tasks which ICCM2 assigned to the CiP project, this toys case study seeks to build upon previous work done in the sector by similar investigations (see esp. Massey, et.al., Becker and Kogg/Thidell) and to provide evidence for informed discussions and decisions on possible next steps to be taken under the activities of the CiP project.

## 3.2. Why toys?

The product category “toys” was chosen as a case study during the scoping phase of the CiP project. In Becker’s scoping survey 77% of all respondents chose toys as a sector to study and learn from.

According to this scoping study the reasons of governments and stakeholder groups for prioritizing children’s products included:

- the vulnerability of children to chemical exposures and health impacts
- increased consumption of toys
- the prevalence of imported toys with unknown material composition
- use of toxic metals in toys
- lack of information on hazards of toys
- ineffective regulation on toy safety
- reports that recalled toys may be sent to developing countries where there is little control[1], and
- potential of recycling plastics with unknown content of hazardous substances (such as brominated flame-retardants).

Since international press coverage of product recalls in 2007 due to non-compliance with regulations on chemical content public awareness has been growing. This growing awareness is reflected in EU market surveillance data. The RAPEX (Rapid Alert System for non-food consumer products[2]) annual report shows that toys were the most frequently notified product category at 28% of all notifications, with the two most important risks associated with toys being choking and too high levels of restricted chemical substances such as certain phthalates. On the other hand, NGOs note low consumer demand for information on chemicals in toys in some markets. They explain low awareness among consumers means consumers do not know what chemicals to ask for, but it does not mean that they are not interested.

## 3.3. Scope and methodology

We focused parts of this case study on the sub-product group “plastic toys” - specifically in order to map the life cycle of a toy and to select stakeholder groups to involve in our expert survey[3]. The aim of this approach was to reduce the complexity of studying a fragmented sector with heterogeneous products. However, in the course of the study, expert input and key findings actually addressed much higher level issues. Study participants did not speak specifically about plastic toys but about issues relevant to toys made of many materials and relevant for the toy sector overall. Electronic toys were excluded from this study.

In terms of the geographical scope, the study was designed to cover all regions, however the most input was received from organisations based in the EU.

[1] Government respondent from Africa to the scoping survey
[2] http://ec.europa.eu/consumers/safety/rapex/index_en.htm
[3] The product group plastic toys was selected because it features a very complex supply chain on the one hand as well as encompasses many chemicals of concern. Furthermore, the product group plastic toys forms one of the major product groups in terms of sales volume. At the same time, we assume that market structures and product life cycles of plastic toy products do not vary in such a substantial way from other toy sub-groups that results cannot be transferred.

### 3.3.1. Survey set-up

The survey consisted of a series of expert interviews with relevant stakeholder groups. Interviews were based on interview guidelines that established a framework of topics to be covered.

### 3.3.2. Survey responses

Our survey was carried out in Q3 and Q4 2010 and included 30 experts from different stakeholder groups. For a more detailed participants list, please see our list in the annex.

We assume that the majority of organisations who were willing to share their insights in our consultation were organisations with good control over toy safety, are actively interested in the issue and hence willing to share their experience. We therefore assessed our interviewee's answers as reflecting rather sophisticated approaches of dealing with chemical safety. This bias in the survey results was taken into account in their analysis.

# 4. Overview of the sector

The global toy sector is characterised by thousands of small firms and only a few large players. The majority of the world's toys are manufactured in China and the largest market for toys is the United States. The US, Europe and Japan have more regulations on toy safety than other countries and as they represent the largest markets, their regulations are referred to by global manufacturers.

The exchange of CiP information among material suppliers, producers and retailers is linked to their size and buying power, but also the nature of relationships. Long-term relationships tend to favour more effective CiP information exchange.

As is the case in many other sectors, product offerings change rapidly with the seasons and a wide variety of materials are used, including wood, polymers, metal, textiles, electronics, paints and coatings. Thus, the market is dynamic and diverse.

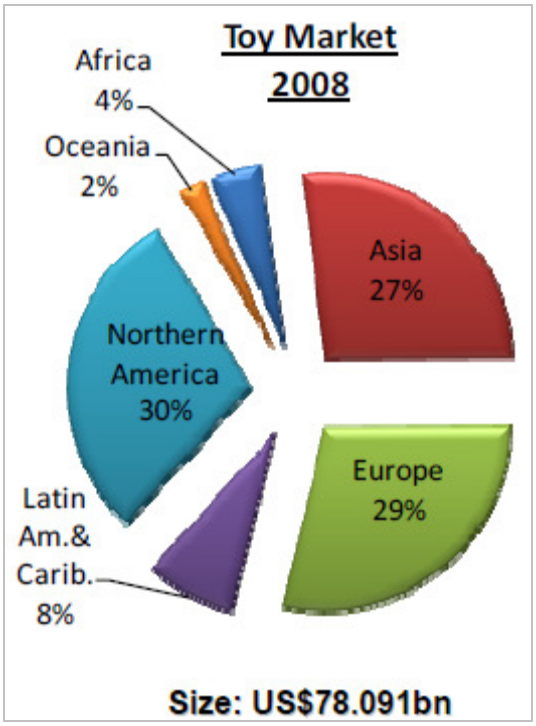
Chemicals are added intentionally to convey certain functional properties to toys, and inadvertently as contaminants from processing. Chemicals are introduced during compounding, material conversion and painting, and may also be released as gaseous emissions, dust or spills. They are also released during use, where they may be ingested, inhaled or adsorbed via the skin. A list of chemicals particularly relevant for toys is presented in section 4.7.

## 4.1. Volumes and geography

According to a study undertaken for the International Council of Toy Industries[1], the global toy market was valued at 78 billion USD in 2008 (down from 78.6 in 2007). Toys are manufactured globally but China is by far the biggest exporter of toys in the world. The United States, the world's largest toy market, imports 89% of all toys sold and 76% of these were imported from China in 2006.[2] For Europe, the world's second largest market by region at over 23 billion, some 85% of toys on the market are produced in China.

| Country[3] | Size of toy market (mil USD 2008) | Country share of toy market |
|---|---|---|
| United States | 21,510 | 26,8% |
| Japan | 5,820 | 7,2% |
| China | 4,954 | 6,2% |
| United Kingdom | 4,317 | 5,4% |
| France | 4,239 | 5,3% |
| Germany | 3,420 | 4,3% |
| Brazil | 2,773 | 3,5% |
| India | 2,091 | 2,6% |
| Australia | 1,881 | 2,3% |
| Canada | 1,872 | 2,3% |

[1] Toy Markets in the World 2009 Edition. NPD Group, June 2009.
[2] U.S. Department of Commerce Industry Report: Dolls, Toys, Games, and Children's Vehicles
[3] Toy Markets in the World for 2008, study by NPD Group in 2009.




Therefore, the Chinese toy manufacturing sector is of special relevance for the entire toy industry. According to a report by the European Commission from 2008 the Chinese toy sector consisted of 2700 companies at that time.

The communication between China and their business partners in the rest of the world influences how information is exchanged in the toy sector. Relevant to this study, it is notable that after the toy recalls in 2007 the Chinese authorities invested in product safety measures. The Chinese government currently operates a system of toy export controls which according to the EC report is “by far the most elaborate in the world”. The former state owned chemical companies in China have now also joined the International Council of Chemical Associations and signed on to Responsible Care.

### 4.2. Stakeholders concerned with chemicals throughout the lifecycle of a toy

Following Kogg/Thidell’s categorisation we can identify actors along the toy supply chain and outside the production chain.

| Stakeholder | Role or concern, toy duck example |
|---|---|
| **Along the supply chain** | |
| Producers | |
| Raw material producers (polymer & additive producers) | Supplies polymers for the toy duck; Supplies paint; Supplies additives for the polymers |
| Pre-manufacturers (compounders) | Mixes polymers and additives |
| Manufacturers (converters) | Forms the duck; Applies paints and coatings |
| Original equipment manufacturers (toy manufacturers) | May design the plastic duck and manufacture it or have a contractor manufacture it. May also simply purchase ducks from a toy trader. Puts his name brand on the duck and puts packaging on the duck |

| Stakeholder | Role or concern, toy duck example |
|---|---|
| Distributors | |
| Traders | Shop for ducks on the toy market to offer to OEMs and retailers; May import and export the ducks |
| Retailers | Purchases different colours and sizes of plastic ducks to stock on store shelves; May contract manufacture ducks under its own brand |
| Consumers | |
| Individuals | Shop for ducks in the store or online; Shop for second-hand ducks at flea markets; Donate their used ducks to children's charities; |
| Organisations | Schools or child care centres that purchase ducks or accept donated second-hand ducks |
| End-of-Life Actors | |
| Recyclers | Receive ducks in household waste or mixed recycling streams |
| Waste handlers | |
| **Outside the supply chain** | |
| Government Agencies | |
| Policy makers | Set regulations on substances that should not be in the ducks, or should not exceed certain thresholds; Commission research |
| Market surveillance agencies | Customs and commercial inspectorate check and enforce compliance |
| Non-governmental Organisations | |
| Environmental, health and safety lead | Investigate how and where ducks are made and inform the public of findings; Lobby government for better rules or enforcement for ducks |
| Consumer rights organisations | |
| Third-party Testing Firms | |
| Independent laboratories | Conduct chemical testing on the duck or verify management practices in the duck supply chain, on behalf of OEMs, pre-manufacturers, retailers, authorities or NGOs |
| Industry Associations | |
| Manufacturing industry | Resource for firms without chemicals expertise; Forum for discussion and collaboration |
| Toy industry | |

## 4.3. Stakeholders' Level of Influence or Control

A defining characteristic of the toy market is the level of control different players have over the stages of the toy life cycle. This is relevant to the flow of information on chemicals in toys because a company that controls, or participates in, product design and material development has greater possibility to obtain or generate accurate information.

Toys are brought to market in a country by OEMs, retailers or traders. This means they are the players taking responsibility to meet applicable national requirements for bringing a toy on to the market. Looking at the control each of these players exerts is important in understanding their ability to influence toy safety and CiP related information exchange.

The biggest OEMs have almost full control over product design, manufacturing and distribution. Although many of them no longer manufacture toys themselves but have out-sourced production, they typically exert a large amount of control over the manufacturing chain. They sell toys under their brand name, either domestically or internationally.

Retailers have limited influence over product design, since, except for companies that develop their own-brand toys, most retailers are not involved in toy development. They buy what is available on the market, or 'off the shelf' toys designed by other manufacturers. Nevertheless, retailers (especially the biggest) often make significant efforts to control the safety of the toys they buy.

Lastly, traders have control over distribution but no significant control over design or manufacturing. Combined with the often small size of these companies, and the fact that they might import many other types of products besides toys, this means that they are often not aware of all the relevant requirements and have less capacity to control product safety. They often source toys directly from Chinese manufacturers, choosing from a selection of toys in catalogues or at toy fairs.

Moreover, as a general rule the smaller the player, the lower its buying power, the weaker its influence on the supply chain and consequently its ability to control product safety or stipulate information exchange requirements. In addition, the buying power a company has and its “ability to handle” CiP information also determine how likely they are to get a response to any information requests. It can be the case that large suppliers deem small manufacturers unable to handle CiP information (such as ingredient lists) and thus will not provide such details.

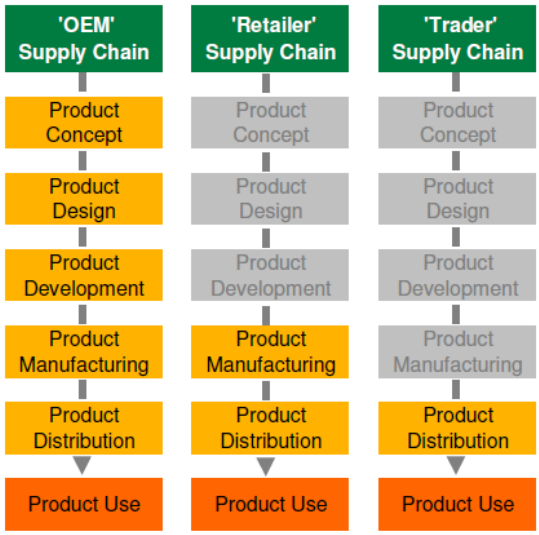
### 4.4. Nature of Relationships Among Stakeholders

The nature of relationships within each of the three different routes to market is also important to understanding current exchanges of CiP information, and the potential for future information exchange. Specifically, long term relationships tend to ease access to CiP information.

In the OEM route to market, relationships generally tend to be more long-term, though this is not always the case. In particular, large OEMs working with large manufacturers often establish long-term relationships, even collaborating on design and material development. In China, where most toys come from, a report for the European Commission identified a “hierarchy” of companies: large manufacturers tend to sell to large OEMs while small manufacturers sell to smaller traders.

In the retailer route to market, no generalisations on the nature of relationships can be made. In fact there may be several long-term arrangements as well as short-term ones with frequent changes to suppliers.

In the trader route to market business relationships, with suppliers and customers, tend to be short term and often change.




Source: European Commission, Evaluating Business Safety Measures in the Toy Supply Chain; DEKRA

## 4.5. Characteristics of the toy sector

The combination of certain characteristics of the toy market influences the way information is exchanged currently, and – in comparison with the other case studies – may explain where there is opportunity to adapt solutions seen in other sectors (and why such solutions may not have (yet) appeared in the toy industry).

| Market dynamics | Market players | Toy characteristics | Market structure | External pressures |
|---|---|---|---|---|
| • Dynamic<br>• Fast moving<br>• Fashion-driven Seasonal | • Fragmented<br>• Competitive | • Inexpensive products<br>• Heterogeneous product range | • Small market in terms of buying power/materials consumption<br>• Formal markets and informal markets | • Regulation<br>• Sensitivity<br>• Awareness in some regions |

### Market dynamics

Toys available on the market change frequently and the time from design to market is short – with a new toy introduced today and another new toy coming within a few months. However this dynamic also varies between companies and products. This puts pressure on manufacturers and their suppliers to act quickly.

The toy market is also highly seasonal. Globally, the majority of toy sales occur before, during and after the Christmas holiday period (e.g., 70% of toy sales in Europe). This means that a peak in production takes place in February, March and April and in imports around May and June. Apart from Christmas there are also smaller region-specific sales peaks, e.g. the time around Dia del Niño in April in Mexico.

**Market players**

There are a few large players, but in general the industry is comprised of many small manufacturers. Most of the EU manufacturers are small and medium-sized companies, where 80% are small firms with less than 50 employees and 5% are large companies. Also in the US there are a couple of large manufacturers and about 200 small and medium companies. This is also true in developing countries, where there are a small number of larger international companies but the majority are (smaller) domestic companies.

Some players perceive a high level of competitiveness within the industry. This results in reluctance to share information on internal processes, including who they source from. This is especially true, as in all industries, when it comes to innovative approaches that are seen as delivering competitive advantage.

**Product characteristics**

Toys are relatively inexpensive to manufacture and have a low sales price. As a product category, toys are highly heterogeneous in terms of the variety of materials used. For companies who do produce or trade very heterogeneous product portfolios or products made of many different materials this means a large effort in terms of risk management.

**Market structure**

As the majority of toy manufacturers are small firms and because they source a wide variety of materials, they do not individually exert a lot of buying power for raw materials such as wood, metal, plastics, textiles, paints or coatings. Some in the industry explain that they rely on re-purposed materials, while others (especially larger manufacturers with high consumption of select materials) cooperate with their raw material suppliers to source materials appropriate for their demand for toy products (this point on buying power relates to how likely a firm is to get a response to information requests on chemicals).

**Example grey channels**

India: The unorganised sector in India consists of producers scattered across the country of which 60% of the toy factories are in Delhi and 30% are in Mumbai. In this sector toys are produced from recycled plastics. The organised sector consists of large international toy companies. Various estimates indicate that the Indian toy market is worth $2.5 billion, of which $1.5 billion is the output of the unorganised sector, over which the government has little control. While 30% of the market is accounted for by soft toys - which along with plastic toys pose the maximum health hazard - imports account for 40% of toy merchandise, the bulk of it from China.

Mexico: In Mexico grey channels, which include distribution to the customer through street markets for example, accounts during the high season for up to 50% of the overall toy market volume.

Europe: In the EU outdated toys, toys rejected by the company that ordered them (due to quality issues for example) and plagiarised products are sold through grey channels in the form of sell-out or through online auctions.

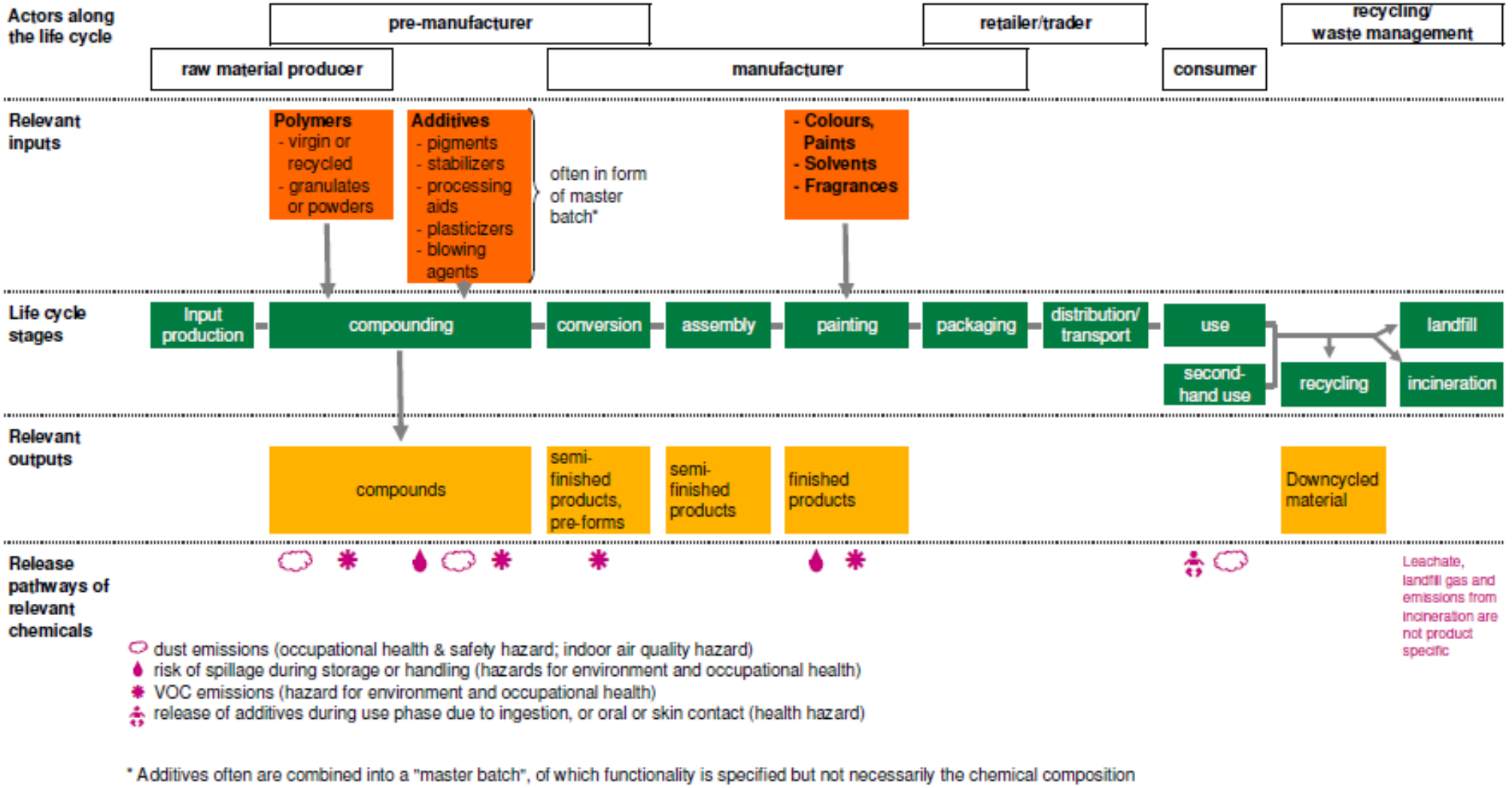
For many of the markets covered in this study, experts mentioned a phenomenon of toys arriving on the market via grey channels. Grey channels can both refer to manufacturing done outside the oversight of regulators (small domestic companies in an “unorganised sector” over which public authorities have little control) or to distribution (toys distributed without required or legitimate documentation). Compliance with respective regulatory frameworks is questionable in many of these cases. Likewise, information on chemicals in toys produced and distributed through these channels seems to be non-existent.

**External pressures**

Regulatory pressure is the main driver for the sector. The world's largest toy markets – the US, Japan and the EU – have the more stringent toy safety regulations. When it comes to the regulation of chemical content specifically, however, the scope has recently started to expand to address a larger number of chemicals. The new Toy Safety Directive in the EU, expanded among other things to include fragrances, illustrates this shift. For the majority of other countries standards for chemicals apart from selected phthalates seem to be voluntary in nature.

Research and advocacy organisations are also drivers. There are organisations in many countries that focus on highlighting the vulnerability of children, raising societal awareness on issues related to chemicals in toys and conducting related research. These organisations are more of a driver in countries with stringent legal requirements, controls and enforcement and in countries where organisations partner with businesses to improve, or scrutinize and pressure businesses by drawing attention to unsafe toys. These organisations are less of a driver in countries where legal requirements are less strict or controls almost non existent. Examples uncovered during the research include India, where toy standards for domestic manufacturers are voluntary, and African countries where one NGO reports regulation is non existent.

## 4.6. Toy product life cycle: Example Plastic toy




* Additives often are combined into a "master batch", of which functionality is specified but not necessarily the chemical composition

Chemicals can be contained in products on purpose but also as impurities or contaminants. Example: PAH due to lubricants used in the production process.

## 4.7. Chemicals and potential release pathways

A number of chemicals are particularly relevant for toys. Regulations ban some chemicals and set maximum concentration thresholds or release limits (migration).

The regulations that apply to chemicals in toys include those specific to toy safety and these differ among the largest markets (EU, US, Japan and China). In addition, toys must comply with other regulations that apply to many products, and not only to toys. These include regulations governing consumer products in general, and those governing the use of chemicals such as the EU's REACH legislation. Determining which regulations apply depends very much on the intended use of the toy (e.g., for children under the age of 3) and the materials it contains. Within REACH for example, some substances are restricted for use in toys in the EU, while other substances are restricted for use in wood, the obligations for a wooden toy would differ from those for a textile toy. Therefore, listing all substances restricted from the product category "toys" is difficult.

Whereas in some markets thorough analyses are needed to identify all regulatory requirements applying to toys (such as the EU) in other countries across the world there may be no regulations or only voluntary standards

The list of substances below includes those restricted by toy regulations in the EU, US, Japan and China, and within REACH. It is not an exhaustive list of all regulated substances but serves to illustrate the scope of the discussion. The list below also includes examples of substances that are not restricted in toy regulations, but are on the radar of some retailers and manufacturers because they are regulated in other products (textiles, food contact products). The 3 examples included here are commonly tested for in toys.

The list is informed by DEKRA chemists and toy testing experts.

| Target chemicals | Required by/in | Comment |
|---|---|---|
| Antimony | EU, US, Japan, China, ISO 8124 | Migration limit |
| Arsenic | EU, US, Japan, China, ISO 8124 | Migration limit |
| Barium | EU, US, Japan, China, ISO 8124 | Migration limit |
| Cadmium | EU, US, Japan, China, ISO 8124 | |
| Chromium | EU, US, Japan, China, ISO 8124 | Migration limit |
| Lead | EU, US, Japan, China, ISO 8124 | |
| Mercury | EU, US, Japan, China, ISO 8124 | Migration limit |
| Selenium | EU, US, Japan, China, ISO 8124 | Migration limit |
| BBP (Pthalate) | EU, US, Japan | |
| DBP (Phthalate) | EU, US, Japan | |
| DEHP (Phthalate) | EU, US, Japan | |
| DIDP (Phthalate) | EU, US, Japan | |
| DINP (Phthalate) | EU, US, Japan | |
| DNOP (Phthalate) | EU, US, Japan | |
| DiBP (Phthalate) | EU | |
| Aluminium | EU | Migration limit |
| Boron | EU | Migration limit |
| Cobalt | EU | Migration limit |

| Target chemicals | Required by/in | Comment |
|---|---|---|
| Copper | EU | Migration limit |
| Manganese | EU | Migration limit |
| Nickel | EU | Migration limit |
| Strontium | EU | Migration limit |
| Tin | EU | Migration limit |
| Organic Tin | EU | Migration limit |
| Zinc | EU | Migration limit |
| Allergenic fragrances (66) | EU | |
| Other CMR Cat. 1 & 2 (ca. 800) | EU | |
| Azo colorants and azo dyes | EU | |
| Benzene | EU | |
| HBCDD (flame retardant) | EU | |
| Persistent organic pollutant e.g. DDT, PCP, Lindane | EU, Regulated under the Stockholm Convention | |
| Examples of substances for which toys are often tested | | |
| - Covered by voluntary standard (EN 71-9, not harmonised, not part of the Toy Safety Directive) | | |
| Flame retardants (total 2) | EU | |
| Colourants (total 16) | EU | |
| Primary aromatic amines (e.g. aniline, total 9) | EU | |
| Monomers (e.g. Bisphenol A, total 5) | EU | Migration limit; Bisphenol A is also restricted in some US states, in some European countries for baby bottles |
| Solvents (total 16) | EU | Migration/Inhalation |
| Wood preservatives (total 6) | EU | |
| Other preservatives (formaldehyde, total 6) | EU | |
| Plastizisers (no phthalates, 4) | EU | Migration |
| - Covered by other regulation (currently not in toy regulations*) | | |
| PAH (16 EPA-PAH) naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, dibenz[a,h]anthracene, benzo[g,h,i]perylene, and indeno[1,2,3-cd]pyrene | Some PAH are classified as CMR 1 & 2 (*and covered in EU Toys Safety Directive 2009/48/EC, see above)<br>Other PAH are market requirements (for example for GS safety label testing in Germany) and discussed for toy regulation in the EU | |
| Tin organic compunds (dibutyltin oxide (DBTO), Bis(tributyltin) oxide (TBTO)) | Market requirement and regulated in the EU for plastics materials and food contact | |
| p-Nonylphenol and Nonylphenolethoxylate | EU for textiles, market requirement | |

In general, restricted substances include substances that are carcinogenic, mutagenic and toxic to reproduction; persistent, bioaccumulative and toxic to the environment; or very

persistent and very bioaccumulative. Release pathways at stages of the toy life cycle are illustrated in the graphic above. Release during the use phase is mentioned as the most cause for concern. Pathways include skin contact, oral contact from sucking on the toy, intestinal contact from ingesting coatings that peel off or swallowing small broken pieces. Toys may release volatile compounds that can be inhaled. Tearing, breakage or normal wear can also lead to the unintended release of substances. Worker exposure could also be an issue in regions with low enforcement.

# 5. Existing CiP information systems

## 5.1. Existing CiP systems

While there is no one system used in the industry, information on chemicals in toys is exchanged in a number of ways, each of which may be considered a type of information exchange system. The most prevalent is information flowing between direct trading partners on the basis of restricted substance lists or according to requests for product composition or "recipes". The next most prevalent is information flowing from external stakeholders to consumers, via product guides or compliance alert systems. Lastly, manufacturers provide consumers with information via product labels. The use of labels is highly prevalent if we consider labels that indicate regulatory compliance (e.g., the CE mark in the EU, the Etiquetado de Juguete in Mexico) but are nearly non-existent if we consider voluntary eco-labels (appendix 9.2).

Kogg/Thidell classified CiP information systems and using their classification, the two types most commonly used in the toy sector are manufacturer-to-customer [1] and external-stakeholder-to-consumer. The third type, manufacturer-to-consumer systems, include product labels.

| | Manufacturer to customer | Manufacturer to consumer | External stakeholder to consumer |
|---|---|---|---|
| **Type** | | | |
| | Bilateral information exchange | Labels (e.g. ISO 14024 Type 1) | Product guides (public) |
| **Leader** | | | |
| | Initiated by one company OEM or retailer | Individual companies in cooperation with 3rd parties (e.g. label issuer) | Consumer associations or NGOs |
| **Purpose** | | | |
| | Ensure legal compliance (toys related or REACH); Enable product responsibility; Conduct quality and risk management | Communicate specific (environmental) product characteristics | Facilitate consumer choice; Raise awareness of consumers, governments, industry |

We have not identified an industry-wide initiative, like a code of conduct on chemicals nor a shared list of restricted substances for the sector.

Regulation is an important driver for what information is exchanged and how it is exchanged. Documentation of compliance, for instance, is used for transferring information and in many cases this is the only information players are transferring along the supply chain. While information may not flow uninterrupted from player to player in the supply chain, it is

[1] In fact, Kogg/Thidell use "producer" in their classification but to be consistent with our terminology we changed "producer" "toy manufacturer".

commonly generated by toy testing conducted by suppliers or manufacturers either in in-house laboratories or those of third parties.

### 5.1.1. Restricted substance lists and recipe requests

At this point in the research, we have not identified a system used in the sector to exchange information on chemicals from material producers, through each supplier to manufacturers, retailers and consumers. We did identify information systems spanning parts of the supply chain. These are initiatives of single companies who also control large parts of the toy life cycle. Some participants have restricted substances lists, which they use to ensure legal compliance. This includes asking suppliers to declare that a material or toy does not contain a substance, either at all or in excess of specific thresholds. In addition, some participants use restricted substance lists to manage non-regulated substances. This may include identifying the presence of substances of emerging concern. Others request information on product (or material) composition – recipe requests – used to design product testing or in their own risk assessments.

| **Restricted substances lists** | |
|---|---|
| Information providers | OEMs or retailers provide reference lists for substances that are not to be contained or to be contained below certain limit values.<br>These lists can contain regulated substances only or also be company-own lists. Manufacturers and raw material suppliers provide information on the presence of these specific substances in their products. |
| Information user and purpose | OEMs/manufacturers use these lists (or the reference to any toy regulations) to ensure they comply with the law, but also for quality management or risk assessment purposes. They also may use the lists as reference when specifying the materials to be used in the production. Raw materials suppliers may use this information to select ingredients. |
| Content of information | Negative lists containing substances not to be used. Documentation from material suppliers or manufacturers either providing confirmation of non-presence or compliance with limit values or lists of contained substances including information on volumes/shares |
| Coverage and diffusion (number/share of users, spread, etc.) | Widely spread due to regulation. Smaller number include substances which are not regulated but important for the brand owner's quality management. |
| Responsible party/owner of information, information provision platform | Information is transferred over documentation for regulation purposes (declarations of conformity) or test reports. |
| Comments and sources | |

| Recipe requests | |
|---|---|
| Information providers | Raw material suppliers provide information on the ingredients of their materials. |
| Information user and purpose | Manufacturers and OEMs use this data to ensure compliance, ensure their own quality targets, assess the risk of their products or to design appropriate tests for the products |
| Content of information | Complete ingredients list (with CAS numbers) or<br>complete recipes (including information on masses/volumes) |
| Coverage and diffusion (number/share of users, spread, etc.) | Increasing due to REACH in the EU (to be completed…) |
| Responsible party/owner of information, information provision platform | Directly transferred to manufacturer or OEM in some cases in combination with non-disclosure agreements; In some cases information only flows to third party testing institutes. |
| Comments and sources | |

### 5.1.2. Product guides and compliance alerts

External stakeholders offer product guides to provide consumers with information on chemicals in toys (as well as other topics) and information on products that are out of compliance.

Consumer associations, NGOs and companies operate various product guides, including Good Guide, Healthy Stuff and Stiftung Warentest. Information is targeted at interested consumers and disseminated through web sites or magazines. Products are assessed against standards developed by the programme operators. (When made publicly available, these standards can serve as a reference for good practice, or the interpretation of good practice according to the standard setter). In most cases information about the toys is obtained during testing commissioned or executed by the programme operator. These databases or catalogues usually are initiatives with national outreach. There are also informational websites giving consumers guidance on chemicals in toys. These include Toys Advice in the UK and an Australian government programme on product safety. [1]

Another information initiative is RAPEX, a European system identifying products that are being recalled by their manufacturers due to not complying with European toy standards. While consumer associations use the system to inform consumers about product recalls, it was initially designed for the information exchange between market surveillance authorities of the single EU countries. Also OEMs use the platform to be informed about potential safety issues.

There is also a RAPEX-China on-line platform. It is part of a recent initiative signed by China and the EU countries called “Road Map to Safer Toys.” The initiative aims to assist Chinese manufacturers who currently do not have up to date, detailed knowledge of EU toy safety regulations. The European RAPEX System identifies consumer products banned or withdrawn from the EU market. When these products originate in China notification is sent to

[1] Toys Advice, UK: http://www.toysadvice.co.uk/MaterialsCategory.html. And Government of Australia: http://www.productsafety.gov.au/content/index.phtml/itemId/970225.

the Chinese Authority AQSIQ via the RAPEX-CHINA database. AQSIQ investigates the notifications and when necessary adopts measures to prevent or restrict further export of the notified toy to the EU. RAPEX-China enables regular, rapid transmission of data between EU and Chinese product safety administrations.

This cooperation was reported to have improved the Chinese controls considerably because it helped to identify the weaknesses of supervisory control. Please see section 6.2.8 for more information on AQSIQ's work and current challenges.

# 6. Stakeholder needs and uses, current and future

## 6.1. Overview

| **Needs and Uses of CiP Information Along the Supply Chain** | |
|---|---|
| **Manufacturers and distributors**<br>Compliance<br>- documentation, confirmation that materials/toys comply<br>Risk assessments and quality management<br>- information on the composition of materials to assess design projects, to assess materials used; information on risk and on feasible alternatives to offer a internal company positive lists of preferable materials<br>Selection of materials<br>- information on regulation and risks, as well as knowledge on chemical issues to formulate specifications of materials/products to be purchased/ordered, work with raw material suppliers to develop materials suited to their needs<br>Interpretation of regulation<br>- Understanding; develop internal policies for chemical compliance/management, also for future changes | **Consumers**<br>Certainty to buy and use a safe product<br>- confirmation that product complies with safety standards<br>"Right to know"<br>- ingredients list, or information on non-presence of certain chemicals of concern<br>Interpretation<br>- Certainty in the case of scandals |
| **Needs and Uses of CiP Information Outside of the Supply Chain** | |
| **Governments**<br>Ensure compliant products<br>- documented use of substances<br>- information of market surveillance<br>Improve regulation<br>- Scientific evidence on certain risks associated with materials<br>- information about substances contained in toys products at a general level | **NGOs**<br>Supporting consumers for informed choice<br>- General information on risks associated to materials<br>- Link between materials and substances of concern<br>Advocacy for better toys<br>- Transparency (assurance that toy manufacturers know what is in the toy and prevent harm)<br>- Information on risks and on substances contained in toy products to lobby for regulation |

Information needs and uses vary depending on the specific situation of each stakeholder group. Actors in regions with less developed regulatory frameworks, that may or may not cover chemicals in toys voiced more "basic" information needs than actors operating in an environment with more developed information flows.

## 6.2. Information uses by different stakeholder groups

### 6.2.1. Raw material producers

Raw material producers need information on how the substances they supply will be used (e.g., in a toy, in furniture, etc.) in order to conduct risk assessments and provide appropriate information to customers and other actors (this need is growing under REACH).

In turn, they provide their customers with material safety data sheets which contain information about hazardous substances, and in some cases also additional information about other ingredients. Sometimes they are also asked by their customers, or also by customers further along the supply chain like manufacturers or OEMs, to provide additional information, either a full recipe or an ingredient list. This information may be provided to the customer directly, or to a third-party such as a testing laboratory. This information is used either to assess the appropriateness for the intended use or other company specific quality assurance measures.

### 6.2.2. Pre-Manufacturers

Pre-manufacturers (or their contracted third parties) may receive information in the form of material safety data sheets from their suppliers. Compounders who mix polymers with a master batch (including pigments and additives) may ask for or may be sent Material Safety Data Sheets for components and in turn, may provide their customers with MSDS/SDS. If their relationship with their suppliers is well established or they have high buying power, they may also request and receive complete ingredient lists. In turn their customers may ask for further information, so that they can assess the appropriateness for their purposes or use the data for their risk assessment and chemicals compliance processes. In cases where MSDS/SDS are not passed along the supply chain, it can be because upstream actors do not think manufacturers need or want the technical MSDS/SDSs or because they do not directly ask for them. It is worth noting here that the chemical industry is beginning to develop safety summaries – intended as an additional source of information on chemicals that is more user-friendly than the MSDS/SDS.

### 6.2.3. Manufacturers

Pre-manufacturers and/ or manufacturers (or their contracted third parties) may receive MSDS/SDS from suppliers. But they also ask for either an assurance that materials/substance conform to a certain regulation or they request full recipe information or ingredient lists from their material suppliers. This information is used for compliance management, but may also be used for quality management or to inform toy testing, including what substances to test for and what test methods to use. Manufacturers use declarations to prepare their regulatory compliance documentation and in some cases, they may use such declarations to ascertain the use of other, non-regulated substances in their toys. Some manufacturers for this purpose also have incoming material controls to make sure they receive products in line with their specifications. There are also other management measures to control chemical compliance information, such as databases on material stock-holding to trace any contamination of materials and consequently of toys. There is currently one pilot project on using traceability systems for toys and the industry is also looking into systems to support new technical documentation requirements in the new EU Toys Directive.

Small manufacturers, for example in China, seem to face challenges to verify the claims their suppliers make about the content of materials. Many buyers (either at manufacturer or OEM

companies) do not have resources to investigate the quality of data they acquire from suppliers – despite knowing the supplier may not have the resources to generate and verify this data.

### 6.2.4. OEMs

Both OEMs and importers need to obtain compliance documentation and test results from manufacturers and sometimes also from pre-manufacturers, as they are responsible to demonstrate compliance to the authorities. Test reports from independent testing institutions are used by manufacturers, mostly because their OEM or retailer customers request this information (as opposed to in-house tests or declarations).

Large OEMs will also conduct their own lab testing on the toys they receive. They may test the toy samples sent to them before buying, and then test the order again once it is received. OEMs also use information on chemicals potentially contained in toys to assess risks. While firms often do not limit material options during the creative product development process, they will review development plans, assess chemical risks posed by the selected materials and make necessary changes before the product is approved.

Some OEMs use information on chemicals to establish a database of approved materials (in one instance a firm recently limited the variety of paint choices available to product developers to decrease risks).

OEMs may relate with their long-term materials suppliers directly to assess the appropriateness of certain materials. They may work with them to create materials that fit their internal quality standards.

Most developing counties do not produce, but import toys. With far less regulation and enforcement, importers to these countries need reliable information on chemicals in toys.

### 6.2.5. Retailers

Retailers also collect compliance documentation information and test results from OEMs and importers, or smaller retailers may have an entity such as a retail purchaser collect it on their behalf. As with OEMs, large retailers will also conduct their own lab tests on a sample of toys.

### 6.2.6. Consumers

Research uncovered the opinion that consumers want to know that the products they buy are safe. Especially in the case of scandals, when there is a spike in awareness about risks associated with a certain substance in toys, consumers reportedly exert higher demand for information on the chemical content of their toys. Consumers may use such information to make purchasing decisions. In a few instances, our expert consultation indicated consumers may contact retailers or OEMs to ask for information on chemicals in toys, though this is clearly the exception and not the rule. More specialised retailers (e.g. with a special range of healthy organic toys) receive information requests on a regular basis since they target more informed consumer groups. Also NGOs reported that they received information and advice requests related to the chemical content of products from interested consumers.

More typically, consumers have the possibility to look at labels which indicate regulatory compliance or consult product guides. Our consultation did not reveal other, industry-wide

non-regulatory information on toys for consumers to use. See “spotlight on information uses” in the next section.

### 6.2.7. End of life management

The characteristics of the toy products – low material volumes and complex materials compositions – currently make them a product category of lower value for recyclers, since sorting is efficient and worthwhile for large volume streams of the same (and ideally homogeneous) material. Toys are either part of household waste streams or streams of mixed recyclable materials. In many countries, these mixed streams go directly to automatic sorting, therefore labels that identify materials contained in the toys may not be read. Also identifying the materials in the toys is of limited use for recyclers as the composition of the mixed stream itself is typically not well known.

The information needed on the part of recyclers in recycling systems/sectors which are based on automatic sorting therefore is of more general nature. Whereas specific product-related data (linked to single product units) may at this moment not be of use for them, more aggregated data on the occurrence of different substances in certain materials (and maybe product groups) seems to be useful.

Recycling streams that are not based on public collection but on one-to-one business relations (i.e. coming from production waste from one particular production site or product line) seem to exist, although rarely. In these cases, when recycler and manufacturer work together closely information can flow easily.

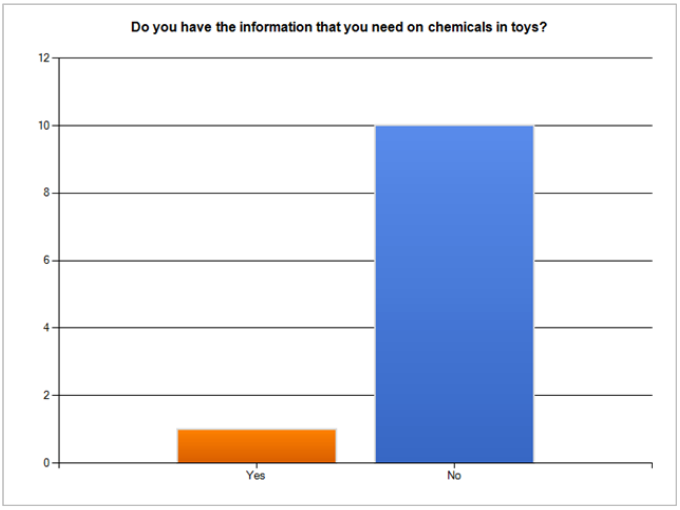
In developing countries recycling sectors tend to be less organised and employ less technology (without automatic sorting, for example), at this point we have no information about the information flow in this case.

### 6.2.8. Governments

For policy making governments need information about the risks associated with certain materials, and knowledge about which substances may be contained in which products or materials. They also need information on the feasibility of testing for or substituting single substances.

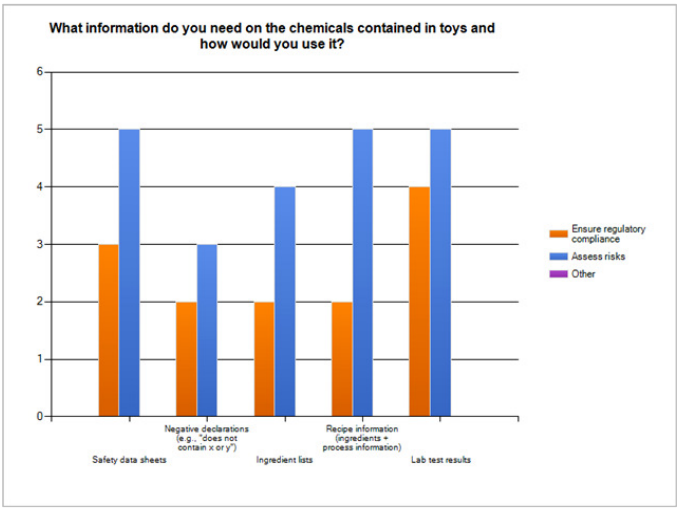
For the enforcement of regulations market surveillance institutions require documentation of products and traceability information. To conduct the assessment of provided documentation or to test respective toys they need knowledge on regulations and chemicals know-how.

Results from government survey respondents (9 of 12 respondents are located in North America)




It seems all governments need additional resources for surveillance, inspection and enforcement of existing regulations. This is often criticized by industry and NGOs alike as impeding better toy safety. One contributor commented on the need for stricter control over existing rules, rather than

a tightening of rules, as most important in the short term. In the case of several developing countries, even the basic regulations, voluntary standards or information provision requirements do not exist.




Market surveillance organisations from China have said that it would help them to conduct export controls if there was a list with restricted substances for every product, or, free public database of information on potentially harmful substances contained in commonly used materials. It was also said that the transfer of RAPEX data to AQSIQ for the use in the Chinese export controls seems to have helped considerably to identify the weaknesses of the surveillance system there. AQSIQ is piloting centralised databases to ensure that valuable information is not lost when the toys leave the country. In general, market surveillance authorities in China seem not to trust market information but conduct their own product testing. It is possible that access to information on chemicals could improve with Chinese chemical companies recent signing of Responsible Care.

### 6.2.9. NGOs

NGOs use information to raise consumer awareness and to draw attention to leading and lagging practices. Some organisations use information on chemicals in toys to conduct scientific research, and others to lobby government for new controls. They need information on the risks associated with certain substances, as well as information about the presence of substances in materials and products. At an international level they collect information from national markets to create a picture of the global situation.

For this purpose NGOs need information going beyond legal compliance, e.g. in order to research and assess the risk of new chemicals or substitutes that do not fall under any regulation yet.

In our study we found that NGOs see information exchange as a too technical way of looking at chemical safety management. In their opinion the solutions include stricter regulation and better market surveillance, since regulation is seen as the most important driver for what, and how, information is exchanged. (See “spotlight on information uses” in the next section.)

### 6.2.10. Associations

Associations use information to support member companies, either in structuring their own supply chain information exchange or in responding to questions from customers, regulators or the public. This support is often quite important to small firms with little expertise on chemicals.

In this role as provider of information and advice for their member companies associations in various sectors often help develop industry guidelines and this could be a consideration for the toy sector in future.

## 6.3. Spotlights on information flows or needs

In order to illustrate the different perspectives of stakeholders along and outside the toy supply chain as well as around the world in a more detailed way, “spotlights” were selected and are presented in the section below.

### 6.3.1. Spotlights on information flows along the supply chain: Receiving versus obtaining information

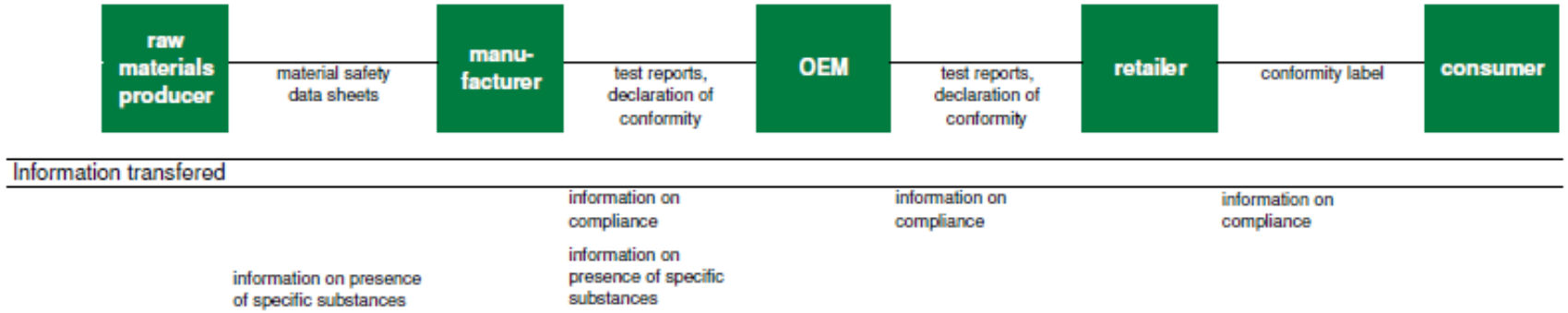
Information does not flow, uninterrupted, to each actor along the toy supply chain. Currently a primary source of information on chemical content in the toy sector is lab testing. Testing information is generated at different stages in the life cycle – as opposed to being transferred or shared along the supply chain.

This phenomenon occurs due to the requirements set on economic operators by regulation or business partners further down the supply chain. And test results are used to prove certain product specifications were met and are cited as a credible, reliable way to transfer information on chemical content.
The use of lab testing has several implications for the way information is exchanged in the sector.

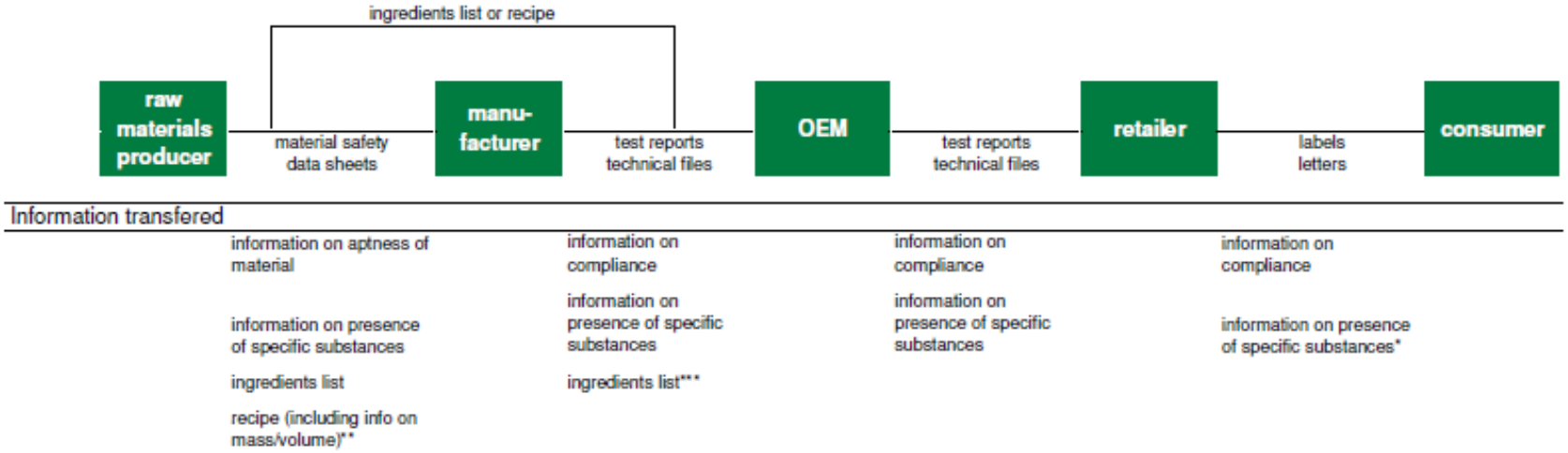
1. The fact that there is pressure to draw on testing as an information source or a “vehicle” for information transfer may have led to a minimisation of incentives to share other forms of information along the supply chain. With test reports as the prevailing and for the largest markets also the obligatory type of information transferred, actors may not ask suppliers for other information or have the need to develop other forms of information transfer. Due to this, non-regulatory but otherwise useful information may be lost, or inefficiencies may arise (e.g. high costs for product testing at different stages of the product life cycle, lack of coordination and information sharing, the inefficient practice of having an EU or US lab “check” lab documents from a Chinese supplier’s lab, for example).
2. Testing in most cases is an ex-post approach: once products (or prototypes) are finished and ready to be shipped, tests are conducted. Information retrieved from these tests usually inform downstream actors in the supply chain (i.e. OEMs or retailers) and tend be used for compliance purpose - and not necessarily as input for design decisions. To achieve prevention, governments and NGOs urge that product safety cannot be guaranteed by final product testing alone, but that it has to be embedded in the entire product development and production process.
   However, some players also conduct incoming material testing or extensive testing within their materials approval processes. These tests usually inform design decisions, including material selection.

The following diagrams provide two very different illustrations of how information may be exchanged. The diagrams also illustrate the type of information that may be exchanged, though the quality of the information (e.g., accuracy and completeness) varies. The diagram illustrates a scenario in a hypothetical market where toy chemical safety is new and regulations are less strict, while the second represents a scenario in which the OEM and retailer are located in a market where toy chemical safety regulations are established.

**Information flow Scenario 1: Basic information exchange**




**Information flow Scenario 2: More developed information exchange**




* upon request
** through 3rd party institute to ensure confidentiality
*** possibly with non-disclosure agreement

### 6.3.2. Spotlights on information needs outside the supply chain

The spotlights highlight different organisations' information needs and ideas on how to improve access to information. The ideas expressed are those of participants. They are presented as contributions to the CiP project, but are not endorsed by the authors.

#### Consumer associations

| **Germany – Federation of German consumer centres** |
|---|
| **Organisation** |
| The **consumer centres** in the 16 German federal states offer advice and information on issues of consumer protection, help with legal problems and represent the interests of consumers at the federal state level. The umbrella organisation, the Federation of German Consumer Organisations, represents the political, economic and social interests of consumers at the national level. The consumer centres are independent, predominantly state-financed and non-profit organisations. The goal of their work is to inform, advise and support consumers with regard to issues of private consumption. They provide an overview of the market and help consumers deal with complex market conditions. They also identify health and environmental aspects that could influence purchasing decisions. |
| **Where they see need for action** |
| In general, their objectives in regard to toy safety are as follows:<br>• Lower thresholds for chemicals in EU toy directives. (Toys often contain high concentrations of PAH.)<br>• At national level, more stringent control measures and increased market surveillance.<br>• Provision of information facilities for consumers. |
| **Their ideas for the improvement of the information flow** |
| • The introduction and general establishment of toy certification guaranteeing a basic level of safety. For this purpose, toys must generally be subjected to stringent testing prior to their introduction to the market.<br>• Manufacturers must be obliged to be able to retrace their entire manufacturing process.<br>• The introduction of a general toy and toy safety data base is also a possibility |

#### NGOs

| **International perspective – IPEN** |
|---|
| **Organisation** |
| The International POPs Elimination Network (IPEN) is a global network formed in 1998 of more than 700 public interest non-governmental organizations working together which share a common commitment to achieve a toxic-free future where chemical production, use and disposal does not harm people and the environment.<br>In the experience of IPEN there is a considerable difference between the works from national NGOs compared to the work in an international context. The national organisations compile information and provide studies on the local market, whereas the on an international level the amalgamation of all collated information becomes more important. Hence there is a need for an international information system. |
| **Where they see need for action** |
| • On gaining confidence of consumers<br>• On a worldwide information system covering production, waste, and retailing<br>• On guidelines for agreed to substitute compounds<br>• On a code of conduct for producers |
| **Their ideas for the improvement of the information flow** |
| IPEN's ideas on the information flow are that the issue of information dissemination should be covered from a variety of angles and a variety of measures including:<br>• Authorities should close legislative loopholes, implement those legislations and enforce control by introducing a permanent monitoring system to achieve compliance. Ideally this should be coordinated internationally, thereby avoiding that producers can use different compounds for various countries. |

**International perspective – IPEN**

- The toy manufacturers should assemble and derive with a "Production Code of Conduct" encompassing the currently available scientific information and the existing guidelines across the world. A study for comparing the various guidelines and legislations may need to form the basis for such an undertaking. In general, it should be the producer's goal to meet or better still exceed the agreed guidelines in order to gain consumer confidence and trust.
  In order to achieve the above, and in a first step those chemicals which are known to be endangering to the environment (e.g. due to their persistence) and the human health (e.g. due to their carcinogenetic characteristics) should be eliminated first.
  Then in a second step, a standard of allowed chemicals should be formed. Producers should use their creativity for using only harmless compounds. The system should not place an additional obstacle to achieving a toy industry free of harmful chemicals.
- Public institutions and NGOs should monitor the developments by independent testing. Campaigning would need to be a part of their strategy.
- The implementation of a worldwide information system covering production, waste, and retailing. There could be branches in the system for consumers and retailers.
- Social networking can play an important role in disseminating information. Links to selected internet sites should be established within the information system.
- In developing countries, where internet access is not readily available the information would need to be through focus organisations.
- **Generally, the consumer would be able to rely on the fact that if a product is available for sale that it is free of unwanted compounds.**

**Argentina – AAMA Argentina**

**Organisation**

AAMMA is the Argentina Association of Doctors for the Environment. AAMMA is an NGO working in scientific professional training and dissemination of health issues and the environment. It collaborates with INCHES (the International Network on Children's Health, Environment & Safety). AAMMA focuses on matters related to environmental changes and their impact on human health. Its goal is to promote healthy environments, chemical safety, mitigation of climate change, population survey of the issues, providing a sustainable environment for human life and wildlife.

**Where they see need for action**

- In the lack of information from the manufacturers and producers of toys concerning chemical ingredients. At present the chemicals they are most concerned with are mercury, lead, and BpA. The reason for the selection is that those are the chemicals which they know most about.
- On the regulatory environment, i.e. the Authorities. At present, it appears that with the exception of a legislation introduced in 2003 which regulates only DEHP in toys and other children and baby products there is no other regulation available.
- On establishing a database containing chemical compounds which are currently used and new chemicals which are planned to be used.
- On funding research of health effects of chemicals to infants.
- On the double standards under which the manufacturers produce toys for various countries. Specifically, they mention that an US company produces the same product for the US market with different ingredients than they produce for instance for the South American market.

**Their ideas for the improvement of the information flow**

- That the above mentioned database should contain references to health studies on prominent chemicals (e.g. phthalates including BpA, heavy metals including lead, mercury, cadmium)
- Labelling laws should be introduced.
- That impetus needs to come from the people as the governments in South America are viewed as not being responsive. The western world's advocacy on governmental action is not existent in South America.
- Based on the previous bullet, AAMMAs proposition to raise awareness in the population is by working with professional organisations. Specifically, they named the 15,000 resident paediatricians in South America, which form a respected societal group which has a lot of trust from the local population especially in the rural communities. Those paediatricians could easily disseminate information about unsafe toys and the compounds contained therein.

| **India – Toxic Link** |
|---|
| **Organisation** |
| Toxics Link is an environmental NGO, dedicated to bringing toxics related information into the public domain. They have a section that specifically researches chemicals and associated health issues, which recently focussed on chemicals and children health. Their main goal is to phase out toxics chemicals from the children's products and campaign for stricter possible standards and move towards best practices.<br>A 2006 study by toxic link found dangerous levels of lead and cadmium in PVC and soft toys sold in India (of 111 toys testes, 77 had toxic PVC materials; 88 samples that were further tested were found to contain lead and cadmium in varying concentrations). It also found that the new Indian toy safety standard is at present voluntary and is followed only in the organised toy sector. |
| **Where they see need for action** |
| • On heavy metals: Toxic link elaborates that due to lax standards of heavy metals etc. and poor surveillance of the existing standards, the manufacturers do not bother about the bad impact the toxic toys would cause.<br>• On the public information system, including proper labelling: they see a need for further clarification.<br>• At the consumers end especially the disposal seems to be problematic, mainly because there is a lack of general awareness.<br>• Present regulatory policies: These are deemed insufficient, including standards and surveillance. Because of their 2006 study and subsequent campaigning, the Government has instituted a scrutiny of toys available in India. |
| **Their ideas for the improvement of the information flow** |
| • Consumer awareness: They believe that the general awareness needs to be raised considerably. As possible routes they see a) proper labelling of products with sufficient warnings, b) establishment of an effective public information system, and c) an involvement of the media and the role of the NGOs.<br>• The trade should be fair with manufacturers adhering to standards and providing all critical info in the public domain through a labelling system. There should be proper monitoring and time for time checks by the agencies to ensure non-compliance is picked up early, properly redressed and followed up through call-back mechanisms. A penalising system should be established to support the aforementioned. |

| **Europe – Women in Europe for a common Future (WECF)** |
|---|
| **Organisation** |
| The global objective of the WECF is a healthy environment for all. Its objective in respect to toys is to achieve the complete absence of harmful substances. |
| **Where they see need for action** |
| • A manufacturer commitment to produce toys free of harmful substances.<br>• Communication on the part of the manufacturers is currently inadequate. The manufacturers frequently do not appear to know themselves which ingredients exactly are contained in their products. The consumer has practically no possibility of obtaining precise information about a certain toy.<br>• According to reports, toys that are not approved in the EU are often repacked and resold in other markets outside the EU and the USA. This leads to a substantial loss of information.<br>• As a result of recycling processes, toxic substances could be introduced into the toys. Due to their presence for a longer duration in the recycling process, prohibited substances may be introduced into the primary materials for the manufacture of toys.<br>• The labels currently being used are not consumer-friendly and frequently do not offer the consumer useful information. |
| **Their ideas for the improvement of the information flow** |
| • The introduction of an international, producer-independent label guaranteeing the consumer freedom from harmful substances.<br>• The basis for such certification is the creation of common international standards. The first step in this direction would be the harmonization of the applicable legislation in the EU and the USA. The legislation must also correspond to existing standards.<br>• Recycling regulation. |

| **Australia – National Toxic Network (NTN)** |
|---|
| **Organisation** |
| NTN is a network organisation who has 100+ members. NTN's focus is on children, the environment and health. The goals of NTN are to raise awareness and political lobbying. The basis for their activities is scientific evidence, issues uncovered by CHOICE. NTN is Australia's only national NGO working on chemicals. Sometimes NTN contacts regulators and recommends taking action on certain issues or raises questions on standards.<br>The chemicals NTN is focussing on are: brominated flame retardants, per-fluoro compounds (PFCs), mercury, heavy metals, lead, cadmium, phthalates including BpA, and PVC. NTN is concerned with PVC containing toys and highly fragranced toys. |
| **Where they see need for action** |
| • In communication of regulations, specifically, the existence of the regulations and their content. For instance, only about one year ago the ACCC in Australia set-up a product safety site.<br>• On extensive auditing of chemicals in toys from a government level. According to NTN this is not occurring. Rather the government only acts when issues have already occurred. NTN reckons that the REACH regulatory process is needed as a precautionary principle for toys in Australia. NTN should not have to tell the government that particular chemicals present a problem. The culture of regulation is not yet developed in Australia. For instance, NICNAS (National Industrial Chemicals Notification and Assessment) as the Commonwealth statutory scheme assessing industrial chemicals for their health, environmental effects and safe use, is regarded as a toothless tiger as they can only make recommendations, and no prosecution of offenders is possible. NICNAS does not have control over imports, and their review time is considered too long.<br>• The industry is only subject to voluntary recognition of guidelines. NTN is of the opinion that the self-regulating environment does not work in Australia at present. As an example a baby bottle producer is given who supplies BpA free products to Canada, but ships BpA containing bottles to Australia.<br>• The biggest myth is that people believe that if a toy is on the shelf and for sale that it is safe. I.e. if it is for sale, someone must have tested it. |
| **Their ideas for the improvement of the information flow** |
| • Labelling Laws: NTN is of the opinion that consumers have the fundamental right to know a toy's content in order to make informed decisions. The current labelling laws in Australia are too weak and too many loopholes exist. Industry is not forced to declare concentrations below 1% on the labels. For trace compounds this might be a real problem. In general, labelling helps but the manufacturers get focussed on taking out certain compounds, but then do not mention other compounds which might act as an replacement.<br>• Manufacturing standards for chemicals: NTN suggests that there should be basic compulsory standards on what the manufacturers can or cannot use. The problem is the pricing issue which influences the chosen compounds.<br>• NTN believes that in terms of disseminating information the social networking is of growing importance. Social networking is very helpful in providing information quickly. If this is supported by links to chemical databases then this plays an important role on public information. If stories and experiences are shared then many more people become aware and start doing their own enquiries, which assist in building a critical population and forces producers to clean products. Also the "mum" network is a factor to be considered. |

# 7. Gaps and obstacles in information exchange

## 7.1. Gaps

Study participants describe some **gaps in the flow of information** on chemicals in toys. Authorities indicated a gap in information available on chemicals needed to assess conformance and at another level, to inform good policy. Some note gaps could be filled with better information from companies, as well as better public information sources on the topic. NGOs reported a gap in information available on chemicals contained – intentionally, or potentially present as contaminants – in toys needed to conduct research and inform the public. Chemical and material producers indicated a gap in information available from their customers on how the chemicals and materials will be used which is needed to determine exposures, assess risks and advise on effective uses (and to fulfill REACH obligations).

Toy manufacturers do not report gaps in information on regulated substances – they indicate they have the information they need to comply with requirements on chemical content. They do report it can be difficult to obtain this information, however. In theory compliance information may flow from chemical and material suppliers all along the toy supply chain but in practice it either is generated by the toy manufacturer, OEM or retailer or leap frogs certain actors. For instance,. manufacturers or retailers conduct their own testing on the toy to ascertain presence and thresholds of certain chemicals. In another scenario, manufacturers may collaborate with material suppliers to choose or even develop a material and in this case the information on potential chemicals leap frogs over pre-manufacturers. Information exchange in the sector is most often led by single companies and, because it is regulatory driven, encompasses only some players in their supply chain (e.g., only the retailer and a test entity) as opposed to players at every stage.

It is important to point out that our survey included mostly companies with long-term trading relations. It is interesting to note whether this situation, of a more or less satisfactory information provision, differs for European companies with more short-term trading relationships where there is less collaboration to jointly improve the quality of information.

Gaps in the information flow can also exist within one company between different departments, for instance. Experts mentioned that information about materials specifications can get lost within the manufacturer company itself. If a product designer at a Chinese toy company is in contact with a US OEM they may agree on certain materials to be used. The purchasing of the materials, however, is done by the procurement department and the agreed material may not be purchased in favour of a cheaper or more readily available alternative.

Furthermore, NGOs note that the lack of a world wide approach to information systems is an important gap. Several experts quoted cases where products containing materials categorised as toxic in one market are shipped to other markets with less stringent regulation. To avoid these cases a global view is important.

## 7.2. Obstacles

**The ability to interpret and use information** on chemicals is an important obstacle to the flow of, or access to, information on chemicals. This lack of expertise impedes the demand for information and it impedes the supply of information. Study participants indicate authorities do not have chemicals expertise, which hinders their ability to know whether

compliance documentation is complete and accurate and how to prioritise inspections. To address this some authorities obtain advice from NGOs with chemicals expertise[1]. Many pre-manufacturers and manufacturers are small firms without any chemicals expertise. This hampers their ability to set purchasing specifications or pose meaningful questions to suppliers. It also means they are challenged to assess supplier documentation for completeness and accuracy. Consumers in general lack chemicals expertise and understanding of hazards and risks. This reduces their ability to determine what they consider safe or unsafe (e.g. is a toy that complies with their national regulation safe? is a toy that complies with the most stringent regulation worldwide safe? is a toy that complies and is also free from BPA safe?) and it hinders their ability to use information from industry experts and NGOs in their purchasing decisions.

**Complexity** is a second and overarching obstacle to accessing and using information on chemicals in toys. Knowing which chemicals are problematic at what levels and knowing which materials might contain those chemicals is not simple. Add the fact that toys are often made of many different materials (textiles, woods, plastics together with coatings, dyes and fragrances) and the complexity increases. Regulations differ among the largest toy markets in terms of chemicals and allowable thresholds and scientific opinion on other, non-regulated substances also differs and expands rapidly. Achieving compliance, and working to go beyond compliance, are complex even for experts. Experts from within the industry said it can be difficult to get information on chemicals when asking about certain ingredients or percent concentrations. The New Toy Safety Directive introduces new requirements for generating and obtaining information. Some small manufacturers stated they would like advice on what materials to use to ensure they comply with laws and are accepted by consumers.

Complexity, as with lack of expertise, hinders both the demand for and the supply of information. It is an obstacle to knowing exactly what information to request from whom and what information to supply or push along the value chain.

**The study revealed that chemicals in toys is not at the top of the agenda** in many markets. Concerned with other consumer safety issues, NGOs, governments, consumers and industry in these regions are not actively working on the topic at the moment. While interest may be high, resources to act may be low and regulations may not exist at all. In practice these regions are not active on the topic and hence there is not a consistent global demand. NGOs and consumer associations in developed and developing regions argue more information would raise consumer awareness (for example, by labelling products with warnings on chemicals, establishing a public information system, or involving the media and NGOs to explain potential risks).

**Regulations**, while not an obstacle, are an important driver for information exchange. Legal frameworks are seen as defining the requirements which ensure toy safety. This is true both for economic operators (especially smaller ones) as well as consumers. Actors may use the most stringent regulations as an orientation tool for assessing toys safety. Therefore, Regulation and the respective enforcement mechanisms have been identified as shaping what information is exchanged, what information is requested and the formats in which it is exchanged.

**Especially small manufacturers indicated that they have too few resources** – either to invest in more extensive chemicals management schemes or to hire or contract experts. This is an obstacle to both answering requests for information and establishing questions to ask suppliers. A diverse product portfolio, using a variety of materials is more costly in terms of

[1] NTN Australia advised the Australian state governments on which chemicals to focus

tracking data on all materials used and gathering information from all suppliers, processing it and using it to inform new designs or purchasing specifications (in terms of chemical content).

**Companies in the sector have both long and short term trading partners**. The long term relationships seem to enable effective information exchange. When European companies stated they had the information they needed on regulated substances, they did invest time to establish effective information exchange with their suppliers in terms of information content, format and quality. These coordination efforts were reported to reappear for every major change in legislation.
Short term relationships can act as a barrier to information exchange. A first time customer request can spur a lot of back and forth discussion before a supplier is able to provide information in a useable form, especially when customer and supplier are in different regions of the world and unfamiliar with each other's regulations. Small (pre-)manufacturers stated they need help with what their customers are asking them to provide, what test to carry out and what formats data should be provided. In short term relationships, there is less incentive for this capacity building. As short term relationships are a key part of business, public references or official formats were mentioned as one possible part of a solution.

**The reluctance to reveal information considered sensitive to business** is an obstacle also seen in other product value chains. Some companies claim their requests for information are declined and while this can be due to lack of knowledge (unclear, unspecific questions or nonexistent data to provide an answer), it can also be because suppliers do not want to share details of the substances they use. A substance may give a unique property to their material and be a competitive advantage; or, revealing information on substances used may enable trading partners to calculate costs and profit margins and put pressure on prices.[1] Information requests that are specific suggest the requesting party has competence to deal with chemicals information and build trust.

When it comes to exchanging information beyond direct trading partners, companies can also hesitate to provide information that will reveal who their suppliers are, in cases where a particular supplier gives them a competitive advantage.

**Market power** is both an enabler and an obstacle to the flow of information. Actors purchasing high volumes or high values from a supplier will often get fast and clear replies to their questions on chemicals. Their suppliers see the value in investing to understand and respond to requests. Low volume, low value purchasers may not receive the information they seek. For example a small manufacturer operating in one market could be asking their supplier for information that other customers do not ask for, and is perhaps not easy for the supplier to obtain.

Obstacles prohibiting a better flow of information are different depending on the overall level of information that is already flowing (which in turn varies contingent on various factors like company size, company policies, or regional regulation). To illustrate these differences three scenarios or situations are defined, ranging from low or no information exchange to high information exchange.

[1] Cases of similar abuses of IMDS data in price negotiations have been reported

Low information exchange could be the case in a supply chain for regions with low or no regulation, high information exchange could be a leading approach of a product marketed in a more strictly regulated environment.

| **Obstacles to information exchange** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Obstacles** | Complexity | Chemicals expertise | Societal priority | Regulations | Financial resources | Business relations between individual (pre)manufacturers, traders, retailers | Willingness to disclose | Market power of individual (pre)manufacturers, traders, retailers |
| | | | | | | | | |
| **Scenario 1:** Situation where very low amount of CiP information is exchanged – Low, or no regulation or market surveillance | | | ■ | ■ | | | | |
| | | | | | | | | |
| **Scenario 2:** Situation where adequate CiP information is exchanged for regulatory compliance – Regulation and market surveillance in place; Importance of topic is known; Limited resources available to process and assess CiP information | ■ | ■ | | | ■ | | | |
| | | | | | | | | |
| **Scenario 3:** Situation where high level of CiP information is exchanged for beyond compliance strategies – Beyond compliance, CiP information differentiates products, influences consumer choice; Topic is at top of the agenda, media articles and public discussion; Resources for internal risk assessment of products and materials, internal testing facilities; Expertise to specify chemicals requirements and information needs; Collaborative business relations | | | | | | ■ | ■ | ■ |

# 8. Considerations for addressing gaps and obstacles

During the course of this study, stakeholders provided insights and ideas for addressing gaps in information or overcoming obstacles (e.g., lack of expertise in small firms). We have summarised the stakeholder input into the following:

1. Enabling more effective efficient communication
2. Pooling resources and knowledge
3. Building trust and protecting proprietary information
4. Overcoming limited awareness and limited market pressure

## 8.1. Potential ways to address gaps and obstacles

### 8.1.1. Enabling more effective and efficient communication

Participants stated that it took time to establish an effective flow of regulatory information with their suppliers. The suppliers needed a lot of back and forth discussion to understand the request and what information to provide in response (format, level of detail). Therefore, the creation of common standards and formats to refer to is one possible way to enable faster communication and minimise inefficiencies in information collection.

There is currently one pilot project looking at traceability information systems for toys. One aim is to provide a vehicle to share information automatically – the supplier provides information once and the manufacturer is able to use that information to meet various requirements (regulatory documentation, investigating substances of emerging concern, answering questions from retailers or consumers) – without having to agree every time on tools and formats. For instance, the handing down of product specification information from the OEM to pre-manufacturers and raw materials suppliers can ensure information between or within companies is not lost. Another aim is that such systems lower the cost of risk management. It was also mentioned that such traceability systems could be linked to an international consumer label confirming the absence of certain harmful substances in toys (however the uptake of existing voluntary labels has been very limited to date and reasons for this should be assessed before deciding to introduce a new label).

### 8.1.2. Pooling resources and knowledge

Many smaller companies and larger companies with very heterogeneous product portfolios voiced a shared concern – if toy safety regulations are not the definition of toy safety, how are they to know what additional chemicals to restrict? They do not hold the necessary chemicals expertise to make such decisions. Among the proposed solutions is a cooperative partnership among several companies, either through the pooling of resources (chemical expertise, time, money) to obtain advice or take joint action, or via shared solutions. It was suggested the industry associations could play a supportive role here.

Stakeholders suggested cooperation could include a shared list of restricted substances that encompasses the most strict regulations worldwide or goes beyond regulation to include substances that are not regulated or for which thresholds exist. (A “green list” of materials was also suggested. Firms with little expertise stated such a list could inform selection of materials, beyond only restricting chemicals). Cooperation could also enable good practice

guidelines for specific issues or possibly lead to shared materials specifications for some materials or shared procurement (in a manner that is not anti-competitive).

One stakeholder suggested assessing the value of business-to-business type labels to identify materials that meet certain requirements. The aim would be to ease decision making in firms that currently lack knowledge on chemicals and resources.. Any label would not be targeted at end consumers but at operators in the supply chain.

### 8.1.3. Building trust and protecting proprietary information

Proprietary information must be protected to enable competition and safeguard incentives for innovation and leadership. In the context of information on chemicals, information sharing and disclosure (e.g., on fragrances, dyes) can be difficult. In order to improve information flows it is crucial to enable the effective sharing of appropriate information – whether from supplier to manufacturer or retailer to consumer or NGO, for example.

Stakeholders cite the usefulness of non-disclosure agreements, third-party expert organisations to assess information and pass on results (but not the information itself) or database solutions that guarantee a certain level of anonymity and prevent the misuse of data (e.g., determining the cost profile of a supplier). REACH was mentioned as a trigger that may lead to easier access to information in future. REACH requires companies respond to questions on the presence of chemicals. As companies increasingly receive and respond to requests for information on chemicals, it is likely that it will become easier and easier to respond to each subsequent request efficiently and without disclosing proprietary information.

To build trust between NGOs and industry, discussion forums were cited as one solution. Open discussion on mutual demands and their respective feasibility may help to educate NGOs on the complexity (what is a “safe toy? a regulatory compliant toy? one that performs beyond regulation and if so, how far beyond? what chemicals, what thresholds?) and provide industry with additional insights into consumer interests.

Labels are also often cited as serving as “trust carriers” in impersonal market places. They not only offer information to consumers but their specific performance criteria also serve as orientation for manufacturers who are looking for exactly what and how to improve. To be meaningful in addressing the issue of chemicals in society, the label operators must be neutral organisations with an expert standing. We note that while voluntary eco-label criteria do exist for some toys, uptake has been low and this may be linked to low consumer interest or knowledge.

### 8.1.4. Overcoming limited awareness, limited market pressure

Some stakeholders state there is room for knowledge-building through industry associations, NGOs and consumer associations, in order to inform consumers about existing chemical hazards of toys and answer consumer questions about choosing toys.

Stakeholders cited the potential to build consumer knowledge in order to create greater market pull for toys with fewer chemicals of concern. They speculate this may provide stronger incentives, enabling better access to (non-regulatory) information on chemicals along the supply chain (e.g., easier access to information for small firms). In turn, better

consumer knowledge may be an advantage for companies already engaged in the matter of leading chemical safety.

Any such knowledge-building needs to be adapted to the needs and infrastructures of different regions. The example from South America shows that paediatricians could be the most trusted source for information given the limited trust in governments. While government may be the preferred source in a different region, industry may be the most trusted source for information in another. In many parts of the world (for instance Orkut in Brazil) social networking can play an important role in disseminating information.

## 8.2. Major steps towards the future: Outlook

UNEP's goal for the CiP project is to provide ICCM3 with recommendations for further cooperative actions needed to ensure that required information is available, accessible and appropriate to the needs of all stakeholders.

We have compiled and summarised this stakeholder input and we present the following for UNEP and ICCM3 to critique and build upon.

We see two major areas for action to improve the access to information on chemicals in toys. The first area is a technical approach to make access to information more effective and complete, or more efficient. The second area is a broader approach to build on the "enablers" for overcoming current obstacles to access to information. This area is linked to the fact that suboptimal information flows can be caused by the high complexity of the issue – the complexity of the product chain as well as the complexity of determining which chemicals are safe or unsafe for certain uses.

### 8.2.1. Improving access to information

A possible approach for increasing stakeholder's access to information on chemicals would be the introduction of a traceability system linking available information and making it accessible to all stakeholder groups in a way appropriate for their information needs (See for example Optimum SA post-production traceability system "tag 'n trace").
The information system could:

- make communication along the supply chain more efficient by providing a common format for data collection and automating delivery
- it may help to avoid the loss of information within a company
- help to connect already existing systems
- directly link users to chemical databases and qualified internet pages.
- include information on chemicals and studies from around the world (with transparent information on the source).
- be adaptable to different stakeholder needs or regional legal requirements and other regional specifics
- it may act as a reference and resource for users (small firms) with less developed risk management systems
- in countries where internet access is not readily available the information would need to be collected and provided in another manner (focus organisations).
- allow anonymity for data providers

Several caveats for this approach should be mentioned. First, establishing a traceability information system is a rather up-market solution. The feasibility of introducing such a system for the mass market or for developing countries in the nearer future must be assessed.

Furthermore, the success of such a system depends on the availability of shared and agreed upon standards. This is no easy task and must not be underestimated.

### 8.2.2. Enabling improved access to information

As second element of improving access to information is dialogue between different stakeholder groups. The aim would be to promote a better understanding of the needs, worries and limitations, and the true feasibility of possible solutions. This dialogue should bring industry and consumers together, or it may be broader and include governments, NGOs and other stakeholders. A key focus would be the different perceptions of risks associated with chemical safety of toys. The dialogue should encompass the currently available scientific information and the existing guidelines across the world. A study for comparing the various guidelines and legislations may need to form the basis for such an undertaking.

In the previous section, we noted stakeholder recommendations for an industry-wide restricted substances list or an industry code of conduct. The dialogue process could aim to produce either, or both.

A common reference list of substances for the industry could simplify the challenge of designing to multiple international standards and help address concerns over perceived and actual risks. It could also provide guidance and therefore help especially smaller companies or operators in less regulated markets address chemicals of concern.

A code of conduct – for industry as well as other stakeholders (NGOs, consumers, governments) – could include a commitment to use the reference list from the multi-stakeholder dialogue or to disclose the use of certain substances.

This approach can be extended to forming a round table or other central institution to support signatories to the code by sharing and building knowledge, i.e. preparation of best-practice standards for signatories, shared research on material alternatives.
An international, consumer-friendly label guaranteeing the absence of certain harmful substances in toys could be issued based on such a dialogue (and possibly in combination with a traceability system).

# 9. Conclusions

In mind of the goal for the CiP project – to provide to ICCM3 an assessment of information needs that would allow stakeholders to practice sound management of the chemicals in products, a report on status of existing systems and the extent to which they meet the identified information needs as well as recommendations for further cooperative actions needed to ensure that required information is available, accessible and appropriate to the needs of all stakeholders – we present the following concluding remarks.

Information on chemicals that is needed for regulatory compliance is available to the firms that participated in this study. While there is no uninterrupted flow of information on chemicals along the supply chain – with information passed from material producers to each supplier and then to the toy manufacturer, retailer and consumers – companies in Europe did state information they need for compliance documentation is either generated by their suppliers or obtained with laboratory testing. However they did note it can be difficult in practice to obtain this information particularly when a company obtains a new supplier or there are changes in regulations requiring new information. Identified gaps related to efficiency – flows of information could become more efficient among supply chain actors.

The authorities report a need for information to assess risks on the one hand and to ensure compliance, e.g. control imports and exports, on the other hand. Chemical and material producers reported a need for information on how the substances/materials they supply will be used (e.g., in a toy for children under 3 years) in order to inform their risk assessments and information provision. NGOs stated consumers need access to information on chemicals to make decisions on toy purchases. Small toy manufacturers stated they do not have information, nor expertise, to know what chemicals to manage beyond what is required by law.

The study found no system for chemicals information exchange in the sector. We note two pilot projects on traceability systems that are currently underway.

We see two major areas for action to improve the access to information on chemicals in toys. The first area is a technical approach to make access to information more effective and complete, or more efficient. The second area is a broader approach to build on the “enablers” for overcoming current obstacles to access to information. Together, the approaches aim to improve the availability of information and the access all stakeholders have to that information, rather than ensuring an uninterrupted flow of information per se.

Stakeholder input, especially from NGOs, governments, consumer associations as well as from leading companies, indicates demand and/or support for multi-stakeholder cooperation on an industry wide list of restricted substances and/ or a code of conduct – both voluntary in nature. Such industry-wide initiatives are found in the automobile, electronics and apparel sectors for instance. These have contributed to addressing a number of the issues currently facing the toy industry and its challenge to effectively manage information on the chemicals in toys.

# 10. Annex

## 10.1. Acknowledgments

This study could not have been conducted without the contributions through interviews, conversations and email from many different experts. We specifically would like to thank these individuals and organisations for taking their time and sharing their insights.
Please note that these individuals have not reviewed or endorsed this report.

| Type of organisation | Name of organisation | Name | Region |
|---|---|---|---|
| OEM | Haba | Matthias Löhnert | Europe |
| OEM | LEGO | Thomas Tarp | Europe |
| OEM | Schleich | Dr. Andreas Weber | |
| Manufacturer (Association) | Austoy | Beverly Jenkin | Australia |
| Manufacturer (Association) | DVSI | Jürgen Jagoschinksi | Europe |
| Manufacturer (Association) | TIE | Catherine van Reeth | Europe |
| Trader/OEM | Folkmanis | Hans-Martin Bachmann | Europe |
| Material Producer | *Confidential* | | Europe |
| Material Producer | *Confidential* | | Asia |
| Material producer (Association) | Plastics Europe | Sabine Lindner | Europe |
| Material producers | Bayer Material Science | Dr. Karl-Erwin Piejko | Europe |
| Retail | Idee und Spiel | Thomas Gattermann | Europe |
| Retail | Wal Mart Mexico | Juan Camargo | North America |
| Recycler (Association) | Tecpol | Dr. Hermann Krähling | Europe |
| Government | AQSIQ | Mayson Lee | Asia |
| Government | Australian Consumer and Competition Commission | Peter Wallner | Oceania |
| Government | Federal Ministry of Environment Nigeria | Prof. Babajide I. Alo | Africa |
| Government | KEMI (Swedish Chemicals Agency) | Petra Ekblom | Europe |
| Consumer association | German Consumer Association Hamburg | Monika Büning | Europe |
| NGO | China Labour Watch | Jiang Chao | Asia |
| NGO | CSE India | Sunita Narain | Asia |
| NGO | IPEN International POPs Elimination Network | Olga Speranskaya | International |
| NGO | National Toxic Network | Jo Immig | Oceania |
| NGO | Toxic Link | Ravi Agarwal | Asia |
| NGO | Women in Europe for a Common Future – WECF | Alexandra Caterbow | Europe |
| Others (academia) | Lowell Center for Sustainable Production | Sally Edwards | North America |
| Others (environmental policy expert) | Ökopol | Heike Lüskow | Europe |
| Others (health expert) | AAMMA, Asociación Argentina de Médicos por el Medio Ambiente | Veronica Monti | South America |
| Others (Labelling organisation) | Blauer Engel / Umweltbundesamt | Susanne Heutling | Europe |
| Others (Labelling organisation) | Spiel Gut | Wolfgang Döring | Europe |
| Others (product safety expert ) | Quality Partnerships | Klaus Ziegler | Asia |
| Others (traceability expert) | Optimum SA | David Balme | Europe |

## 10.2. Additional CiP Systems information

To communicate information on chemicals (and other topics including product safety, pedagogical value, etc.) to consumer, there is limited manufacturer use of non-regulatory product labels. The table below outlines what is available, though not widely adopted in the sector currently.

| **Labels** | |
|---|---|
| Information providers | Public or private organisations provide the standards or criteria the labels are based on. Manufacturers and OEMs provide information or test reports. |
| Information user and purpose | Manufacturers, OEMs provide issuing organisations (usually independent and accredited third party organisations) with documentation; Issuing organisations execute additional tests<br>Consumers or professional buyers receive the information that a products complies with a certain set of standards. Some labels are also explicitly targeted at manufactures/OEMs serving as reference documents for good practice. |
| Content of information | Criteria can include:<br>– product safety beyond toy regulation (GS label, Lion Mark)<br>– environmental (eco-labels like Nordic Svan, Blauer Engel)<br>– general toy quality including pedagogics, aesthetics, environmental, safety (e.g., Spiel Gut) |
| Coverage and diffusion (number/share of users, spread, etc.) | Uptake of voluntary eco-labels is limited. For instance, the Nordic Svan toys standard lists a total of 4 products certified from 1 company. There are no products certified to the Blauer Engel wooden toys standard. |
| Responsible party/owner of information, information provision platform | Directly transferred to manufacturer or OEM in some cases in combination with non-disclosure agreements.<br>In some cases information only flows to third party testing institutes. |
| Comments and sources | Labels have the advantage of offering the information to consumers that some conclude is most desired by consumers: information about the safety.<br>Labelling criteria can also serve as guidelines for manufacturers who are looking for orientation on how to further improve product safety in line with current expert thinking.<br><br>For Labels there are two different approaches to be distinguished: 1) a “mass market” approach with information that confirms the toys comply with legal requirements; 2) an “elite solutions” approach with information that confirms products comply with additional rules, either in terms of safety or in more general environmental criteria. Labels are often national initiatives. They express the expert views of their issuers which can be private organisations. The political processes to harmonize the different perspectives of state-led labels may be prohibitive |

## Additional information on CiP information systems from Kogg/Thidell

| **Eco-Labels (Type 1 according to ISO 14 024)**<br>Systems operating in similar ways in several countries and regions | |
|---|---|
| Information providers | Independent 3rd party eco-labelling bodies award the eco-labels to producers whose products meet the environmental criteria of the schemes. The producers provide information controlled by external verifiers and accredited laboratories. |
| Information user and purpose | Mainly used by private consumers and professional purchasers. The eco-label is a producer means of communication to consumers and customers that their products have environmentally better performances than the bulk of products within a defined product group. Eco-labels aim at guiding consumers and stimulating environmentally sound product development. |
| Content of information | Basically, the information consists of a logo or label indicating that the product is superior in the defined product group (yes-information). Mostly, the multiple environmental criteria requirements include other aspects than chemicals. The chemical requirements often relate to restricted or accepted substances relevant for the appointed product group. The criteria documents are available for those who want to know the specifications. |
| Coverage and diffusion (number/share of users, spread, etc.) | Most eco-labelling schemes cover 10 to 100 different common consumer product groups. The market diffusion varies substantially between different schemes and product groups from insignificant to a majority of the products in the range. |
| Responsible party/owner of information, information provision platform | The “information” is transferred from the producers to the users by the label attached to the product and does not provide specific inform about chemical features of the products. The value is embedded in the trustworthiness of the eco-labelling scheme.<br>The eco-labelling bodies own the schemes, control the use and often provide information on eco-labelled products on their web sites. |
| Comments and sources | Chemical relevance for some but not all eco-labelled product groups.<br>Differences in prioritization of chemical aspects in different schemes.<br>For general information and entrances to most schemes: Global Ecolabelling Network http://www.globalecolabelling.net/, an overview at www.ecolabelling.org and web sites of individual eco-labelling schemes. |

Other CiP systems identified in the Kogg/Thidell report and of potential relevance to toys, are California's proposition 65, Interstate Mercury Education and reduction clearinghouse (IMERC), and the toy safety certification programme (TSCP).

| **California's Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1986** | |
|---|---|
| Information providers | Producers/ businesses active in the US state of California. |
| Information user and purpose | General public, consumers in the State of California. Producers/ businesses are consequently encouraged to substitute listed chemicals. |
| Content of information | Businesses must provide warnings, for instance as labels on the products, when exposing anyone to any of the listed chemicals.<br>The list contains about 800 chemicals with specified properties (carcinogenic, cause birth defects or reproductive harm). These chemicals include additives or ingredients in pesticides as well as common household products, food stuff, pharmaceuticals, dyes, or solvents. Listed chemicals may also be used in manufacturing and construction or be by-products of chemical processes. There are no acceptable concentrations established for any listed chemical in any given product. An exposure that causes a significant risk of harm from a listed chemical through the use of a product would trigger the warning requirement, not merely the fact that a listed chemical is present in a product. |
| Coverage and diffusion (number/share of users, spread, etc.) | Legally binding. However, small businesses with less than 10 employees, governmental agencies, and public water systems are exempt from the warning requirement. |
| Responsible party/owner of information, information provision platform | The governor is responsible to publish the list. It is administrated by the Office of Environmental Health Hazard Assessment (OEHHA). The listed chemicals are identified either by independent scientific committees, authoritative bodies (e.g. EPA, FDA), state or federal government agency, or meeting scientific criteria and identified in the California Labor Code. |
| Comments and sources | http://www.oehha.org/prop65.html<br>The system has a built in structure for the enforcement through lawsuits. |

| **Interstate Mercury Education and reduction Clearinghouse (IMERC) in the US** | |
|---|---|
| Information providers | Producers of articles containing mercury must report to a database. |
| Information user and purpose | The public, policy-makers, consumers, recyclers, waste management/EoL |
| Content of information | Inform consumers at the point of purchase that the product contains intentionally added mercury and may require special handling at end of life, and identify the products at the point of disposal so that they can be properly handled. |
| Coverage and diffusion (number/share of users, spread, etc.) | IMERC covers a range of products such as various electrical and electronic products, toys, thermometers. |
| Responsible party/owner of information, information provision platform | IMERC, a co-operation of 14 US States, facilitate a web site were mercury containing products are displayed. |
| Comments and sources | IMERC has additional tasks, such as informing on the risks of mercury, provide technical assistance, etc.<br>http://www.newmoa.org/prevention/mercury/imerc.cfm |

| **Toy Safety Certification Program (TSCP)** | |
|---|---|
| Information providers | A Hazard analysis and where appropriate, a risk assessment shall be performed for any products to be certified. The assessment is a responsibility of the applicant (for example, manufacturers, factories, retailers, importers and other stakeholders), who may perform the analysis/assessment in-house, or delegate |

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| | this function to a qualified third party |
| Information user and purpose | Consumers, retailers, government agencies and others. The objective of the TSCP is to provide a sustainable system to enhance the public's confidence that toys are safe. The specific requirements are stipulated by the program and the US Federal Toy Safety requirements. |
| Content of information | Producers are responsible for meeting the basic requirements of the program, which are: 1) hazard analysis and/or risk assessment for toy product design, 2) factory process control audits and 3) production sample testing to validate that the factory is producing toys that meet the requirements of the Consumer Product Safety Improvement Act (CPSIA). The chemical risk is part of the overall assessment. In particular, lead and some other heavy metal, phthalates, etc.<br>The products or packaging may bear a toy safety mark. |
| Coverage and diffusion (number/share of users, spread, etc.) | The program applies to toys that are produced for sale in USA. The Program considers information on the products in relation to the use phase. |
| Responsible party/owner of information, information provision platform | Toy Industry Association (TIA) initiated the public-private (consumer, government - manufacturer, retailer) partnership and has the final responsibility for the administration of the TSCP. TSCP is designed to be an open and global system, allowing any qualified organization worldwide to become accredited to be a toy certifying body, a factory process auditor and/or a qualified testing laboratory. Information about the program is also given in Chinese. Fees charged by the third-party service providers cover the operational costs of the program. An application fee paid by the applicant will cover the costs of administration, including the information systems platform. |
| Comments and sources | An applicant can make its test results open to selected viewers.<br>www.toyinfo.org, www.toycertification.org,<br>www.toyassociation.org/ |

| **Arnika** | |
|---|---|
| Information providers | The NGO Arnika in the Czech Republic |
| Information user and purpose | Mainly Czech consumers and the concerned public.<br>The aim is to reduce the use of PVC and plasticizers and suggest alternative products. |
| Content of information | Point out products made of PVC and suggest alternatives. |
| Coverage and diffusion (number/share of users, spread, etc.) | Medical products, |
| Responsible party/owner of information, information provision platform | Web site facilitated by the NGO. |
| Comments and sources | Campaigning against the use of PVC.<br>http://www.pvc.arnika.org/ |

| **Healthy Stuff** | |
|---|---|
| Information providers | The US non-profit organization The Ecology Centre makes tests/analyses (so far, more than 15 000) of the actual products. The organization thus serves as a third party. |
| Information user and purpose | Guidance to consumers and advocating campaigning directed to the policy-makers regarding stricter regulations on hazardous substances in consumer products.<br>There is an apparent focus on the US market. Information provided in both English and Spanish. |
| Content of information | Products tested and rated due to detected levels of chemicals of concern (lead, cadmium, mercury, arsenic, chlorine/PVC, bromine/flame retardants, antimony, tin, and chromium (detected by XRF technology).<br>Consumers can also get guidance to products with less/no content of concerned chemicals. |
| Coverage and diffusion (number/share of users, | The Healthy Stuff database contains test results for more than 5 000 products in the categories apparel and accessories, cars, toys, pet products, products for kids. |

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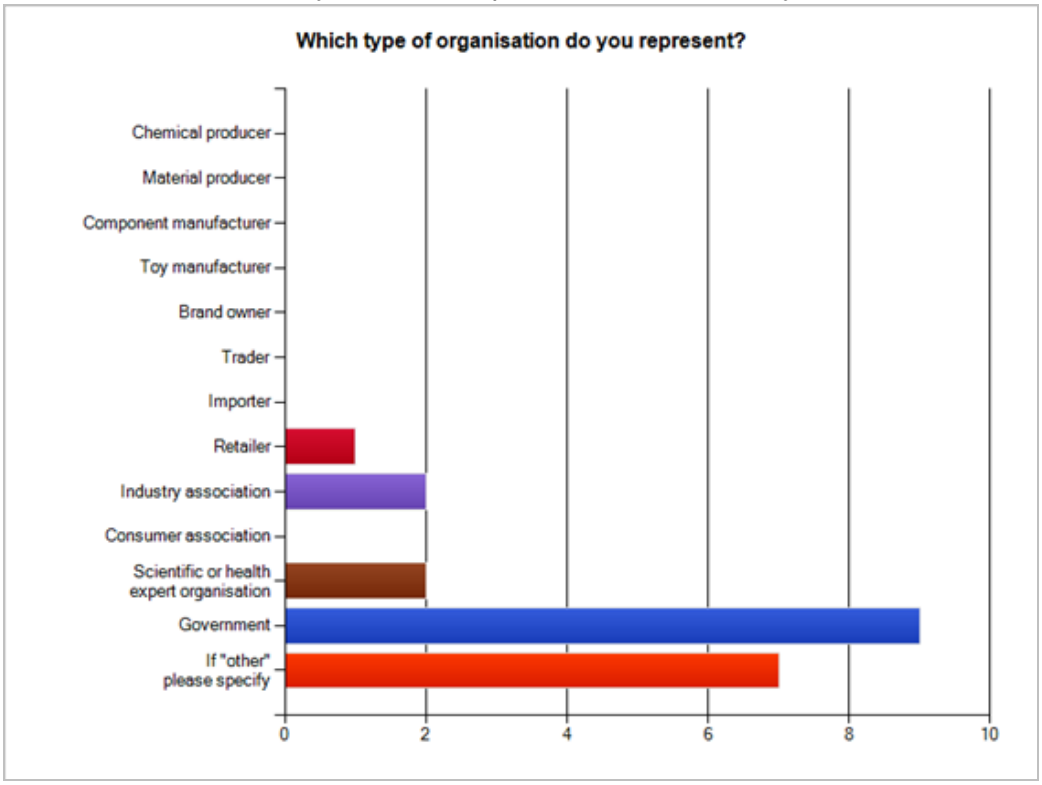
| spread, etc.) | |
| Responsible party/owner of information, information provision platform | The Healthy Stuff database is operated by the Ecology Centre.<br>Beside the database, information can be accessed through various mobile phone applications, SMS text messages, Facebook, Twitter and more. |
| Comments and sources | It is clearly stated that the ratings do not provide measures of health risk or chemical exposure associated with any of the individual products.<br>http://www.healthystuff.org/ |

| **GoodGuide** | |
|---|---|
| Information providers | The GoodGuide is a “for benefit” company that collaborate with several non-profit organisations in assessing and rating consumer products. |
| Information user and purpose | Primarily directed to private consumers in the US. The mission of the GoodGuide is to help consumers make purchasing decisions that reflect their preferences and values. |
| Content of information | The system is rating product performances from a set of health, environmental and social metrics (on a scale 0 to 10) according to a standardized method.<br>The product chemical assessment, which is one of several aspects, regard potential hazards associated with the use of the products – not risk assessments of the products and chemicals. The GoodGuide also assess and rate the performance of the producers. |
| Coverage and diffusion (number/share of users, spread, etc.) | The database contains information on more than 2 000 toys, 16 000 food products, 47 000 personal care products and 3 000 household chemicals. In any new product category, GoodGuide strive to achieve greater than 80% market coverage of all products in the category.<br>GoodGuide has received millions of visitors and continues to receive hundreds of thousands of new visitors every month. Most of them from the US. |
| Responsible party/owner of information, information provision platform | Information provision through a web sites operated by the GoodGuide.<br>Also information access via mobile phone applications, for instance barcode screening gives specific product information. The iPhone app is expect to hit a half million users shortly. |
| Comments and sources | http://www.goodguide.com/<br>Josh Saunders, GoodGuide Inc, Personal communication |

## 10.3. Online survey

The online survey was conducted from December 2010 to February 2011. Thirty-five respondents initiated the survey and 21 completed the entire survey.




Respondents were asked the following questions:

**A. Your organisation**

- Which type of organisation do you represent?
- What size is your organisation?
- Where does your organisation operate?
- At what level do you operate? *(only governments)*

**B. Information exchange**

*B.1. For chemical producers:*

- Do you have the information that you need on end uses for the chemicals you supply?
- Do you send information to your customers on the chemicals you supply?

*B.2. For brand owners, material producers, retail*

- Do you have the information that you need on the chemicals contained in the goods supplied to you?
- How do you use the information you have, or receive, on chemicals in the goods supplied to you?
- What information do you need on the chemicals contained in the goods supplied to you and how would you use it?
- Do you send your customers information on the chemicals contained in the goods that you supply?
- To which customers do you send information on chemicals?

*B.3. For governments, NGOs, health experts*

- Do you have the information that you need on chemicals in toys?
- How do you use the information you have, or receive, on chemicals in toys?
- What information do you need on the chemicals contained in toys and how would you use it?

**C. System for information exchange**

- Do you have ideas to share on the elements of an ideal system for information exchange?