

# Survey of Chemical Substances in Consumer Products

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## Report of natural toys made of plant fibres, woollen fibres and solid wood

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# Foreword

This report is part of a number of projects from The Consumer Section of The Environmental Protection Agency with the heading “Survey of chemical substances in consumer products”.

The project was originally offered in two project presentations about natural toys, one about plant fibres and woollen fibres and one about solid wood. However, it was later proven more appropriate to gather the reporting in one final report.

The project has been carried out by Jacob Ferdinand, Ole Kaysen and Claus Petersen, Econet AS in the period July 1 – November 30, 2002.

The chemical analyses have been carried out by Eva Pedersen (pesticides) and Ivan Christensen (elements), Kemiteknik, Teknologisk Institut.

Shima Dobel and Annette Orloff from The Environmental Protection Agency were in the supporting group together with Ole Kaysen and Jacob Ferdinand from Econet AS.

The retailer of the cotton pig, which was analysed, is not sold in the store anymore.



# Summary and conclusions

## **Purpose**

The purpose of the project is to examine natural toys on the Danish market made of plant fibres, woollen fibres and solid wood. This includes

- to define “natural toys”,
- to identify importers and manufacturers,
- to estimate the size of the market,
- to determine the contents of pesticides left in selected products made of plant fibres and woollen fibres, and
- to determine the composition of surface treatments on natural toys of solid wood with the focus on stains and similar agents

The population of toys is limited to toys used for children at the age of less than 36 months.

## **Definition of natural toys**

Based on a screening of the toy market and interviews with leaders of day nurseries, the following definition of natural toys is being used:

*“Natural toys are toys which contain at least 95% natural materials. The toys must not contain electronic or electrical parts.”*

Based on 448 potential, identified companies (Annex A) it has been found that 32 companies are importing natural toys made of plant fibres, woollen fibres and solid wood (Annex B). Only 2 Danish companies produce natural toys. The production is estimated as being very limited. The 32 importers have been divided into 3 groups according to the grade of environmental profile.

## **The market for natural toys**

The market for toys and partial natural toys has been estimated based on information from Statistics Denmark, Købmandsstandens Oplysningsbureau, importers, manufacturers and personal interviews

- The total turnover of toys in Denmark is DKK 2.2 billion in consumer prices in 2001.
- Natural toys made of plant fibres and woollen fibres are estimated to amount to 0.08% or 1/1250 of the turnover of toys in Denmark, and
- Natural toys made of wood are estimated to 2.3% or 1/44 of the turnover of toys in Denmark.

## **Pesticides and elements in natural toys made of plant fibres and woollen fibres**

Five products made of plant fibres and woollen fibres have been selected for a pesticide analysis and element analysis. The pesticide analysis complies with the Oeko-Tex 100 environmental agreement, cf. Annex D. The element analysis ascertains contents of heavy metals and could indicate utilization of problematic agent groups as for instance flame retardants and chlorinated preservation agents.

The five products are: A teddy bear, a pig, a rabbit, a musical moon (mechanical and without electrical parts) and a dog.



### **Pesticides**

The result of the pesticide analysis is that remains of pesticides have *not* been measured above the detection limit of 54 pesticides as mentioned in Annex D.

### **Elements**

The result of the analyses can be seen in Table 5.1.

Very high contents of chromium (850 mg/kg) have been found in the bear's foot sole. The foot sole has been produced by lama wool.

The contents of antimony and phosphor in many parts of the products indicate that they might contain (health hazardous) flame retardants.

The contents of chlorine in many of the parts indicate that they might contain preservative agents (biocides) and/or flame retardants.

### **Surface treatment materials for natural toys made of wood**

Based on the replies from the manufacturers of wooden toys in Table 5.1, it is difficult to draw conclusions about exposure of health hazardous agents. However, it can be ascertained that

- a great deal of wooden toys have been stained with subsequent lacquer or oil treatment
- for lacquering primarily nitrocellulose lacquers have been used,
- a great deal of health hazardous agents have been used, cf. Table 6.1,
- flame retardants have not been used,
- preservatives have been used to a very limited degree
- "*natural materials*" have been used to a very limited degree

### **Stains and glazes**

5 stain and glaze products have been identified and described as mentioned in part 6.1. All manufacturers recommend that their products should be additionally treated with a surface treatment which "closes" the wood, i.e. lacquer or a drying oil.

None of the pigments in the 5 products have been classified.

### **Final conclusion**

It has been concluded that:

- Natural toys are toys which contain at least 95% natural materials. The toys must not contain electronic or electrical parts.
- 32 Danish importers and 2 Danish manufacturers of natural toys have been identified.
- The Danish toy market is estimated at DDK 2.2 billion. Out of this the market for natural toys made of plant fibres/woollen fibres is estimated being DKK 1.8 million or 0.08% and the market for solid wood at DKK 50 million or 2.3%.
- In five selected products of plant and woollen fibres, remains of pesticides have *not* been found of any of the 54 pesticides included in the Oeko-Tex 100 agreement.

- In one of the five same selected products a very large amount of chromium has been found.
- In 2 of the 5 products antimony has been found which indicates that flame retardants could have been used.
- In all 5 products phosphorus has been found which also indicates that flame retardants could have been used.
- In all 5 products chlorine has been found which indicates that preservative agents and/or flame retardants could have been used.
- A large amount of health hazardous agents have been used in surface treatments of wooden toys, cf. Table 6.1.
- Stains and glazes can be liberated from products which have not been finally treated with lacquer or a drying oil.

In summary, it can be concluded that natural toys represent a very small part of the total availability of toys. Natural toys can contain health hazardous agents.



# 1 Purpose and background

## 1.1 PURPOSE

1. Report about plant fibre materials and woollen fibre materials in natural toys on the Danish market, including identification of importers and manufacturers, turnover and identification of contents of pesticides in selected products.
2. Report of natural toys made of solid wood on the Danish market, including identification of importers and manufacturers, turnover and identification of combinations of surface treatments.
3. Proposal for a definition of “natural toys”.

## 1.2 BACKGROUND

Children’s play with toys can cause a special risk for absorption of and effect from chemical materials, through the bronchial tubes, skin and mucous membranes.

Toys made of plant fibres and woollen fibres can be health hazardous due to the fact that environmentally health hazardous agents might have been used at cultivation, preservation during transport and processing.

Wooden toys might have been surface treated with stains, glazes, paint and/or lacquers which can release health hazardous agents.

Toys which have been produced by raw materials such as plant fibres and wooden mass are often looked upon by the consumer and often sold in retail distribution as less hazardous for children than for instance plastic products.

Regardless of how ”natural” a piece of toy is, it is included in Legetøjsbekendtgørelsen (The Toy Regulation)<sup>11</sup>. The individual who is taking part in the trade of the toy is responsible that it is safe, including that it is not health hazardous when being using. The consumer can assure himself of this by finding a “CE” label on the product. Toys which are health hazardous for children younger than 36 months must show a warning.

Legetøjsbekendtgørelsen (The Toy Regulation) mentions that the individual who trades a toy product has the responsibility that it does not contain agents which can harm children’s health.

## 1.3 THE EXTENT OF THE PROJECT

The following main results have been the objective of the report:

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<sup>1</sup> Regulation No. 329 of 23. May 1995 regarding safety requirements for toys and products, which due to their appearance could be mistaken for food.

1. Proposal of the definition ”natural toys”,
2. Identification of Danish importers and manufacturers of natural toys made of solid wood, plant fibres and woollen fibres,
3. A comprehensive view of the economical turnover of the mentioned types of natural toys.
4. Identification of the contents of surface treatment agents used on natural toys made of solid wood – obtaining information from importers and manufacturers.
5. Identification of the life cycle for natural toys made of plant fibres and woollen fibres.
6. Chemical analyses to determine constituents in natural toys made of plant fibres and woollen fibres.

#### 1.4 DELIMITATION OF THE QUANTITY OF TOYS

In this report focus has been made on toys for children younger than 36 months because experience from research shows that it is during this period of time that the child will lick on and bite in the toy.

The toys in this report have been limited to natural toys made of wood, plant fibres and woollen fibres. Natural toys are defined in chapter 2.

## 2 Procedure

### 2.1 DEFINITION OF NATURAL TOYS

The first activity of the project was to prepare a working definition for "natural toys" and at the same time contribute a proposal for an actual definition. This is due to the fact that from the start "natural toys" have not been clearly defined and that a definition is important for the delimitation of the group of products which the group is to examine.

### 2.2 IDENTIFICATION OF IMPORTERS AND MANUFACTURERS

The gross list of importers and manufacturers has primarily been found through comparing searches on relevant specialist groups in the search bases "De Gule Sider" and "Krak" which are available on the Internet. In addition more have been added through interviews with dealers and general searches on the Internet. The resultant list showing 448 companies of potential importers and Danish manufacturers is included in Annex A. We can with certainty note that in practice these companies are involved in all imports and productions of toys in Denmark.

The companies have preliminarily been contacted by telephone. They have been asked whether they import toys made of wood and/or plant fibres and woollen fibres, primarily for children below the age of 36 months. As an exception are the companies whose advertising indicates that they do not import or manufacture natural toys. The contact person in the company has been either the managing director or a subordinate responsible for buying (typically the chief buyer) of toys or of the type of toy in question.

Naturally toys are also imported by private individuals through Internet trade. These have, however, been left out in this research. Partly, because it would require a great effort to draw a picture of this trade and partly because the trade is assumed to be relatively inferior.

### 2.3 INFORMATION FROM IMPORTERS AND MANUFACTURERS

If the company has confirmed either to import or produce natural toys, they have received a questionnaire and a covering letter from The Environmental Protection Agency.

Through the course of the project, it has proven difficult to procure relevant information regarding the companies' toy trade. In far the most instances the importers have neither been able to, nor have they wanted to supply information.

Those suppliers/manufacturers identified by the importers have subsequently been contacted with reference to that or those Danish importers with a covering letter in English from The Environmental Protection Agency.

In most instances the manufacturers have no other information about the surface treatment of the wooden goods or the treatment of toys made of cloth than that it is “CE” labelled . They often forward a copy of the test report for compliance with EN71-3 and furthermore refer to the manufacturer of the surface treatment substance (paint, lacquer, glaze or stains) or to the supplier/manufacturer of the cloth material.

#### 2.4 CHEMICAL ANALYSES

During the final phase of the project, pesticide analyses and element analyses have been made on 5 natural toy products made of plant fibres and woollen fibres.

The products have been tested for the same 54 pesticides which are included in the Oeko-tex 100 Agreement, shown in Annex D.

The element analysis quantifies the concentration of all elements exceeding atom number 10. Consequently, it can both identify unwanted heavy metals and indicate possible problem agents.

#### 2.5 DEFINITIONS

EN71	European Standard No. 71. European standard for testing toys in compliance with the Legetøjsbekendtgørelsen. This includes 7 parts, out of which part 3 “Migration of certain agents” is important for this report. In this, there are the following requirements (limits) for the contents of 8 elements in mg/kg: Antimony <60, arsenic <25, barium <1000, lead <90, cadmium <75, chromium <60, mercury <60 and selenium <500.
Consumer prices	This is the product’s final price for the consumer including VAT.
N/A	Not Available, which means that it has not been possible to procure the information.

### 3 Work definition of natural toys

No actual definition of natural toys exists. The first task was consequently to prepare a work definition in order to limit the project's population. In this project the following definition of natural toys has been applied:

*“Natural toys are toys which contain a minimum of 95% natural materials. The toys must not contain electronic or electric parts.”*

The work definition is focused on the materially technical aspect, taking into consideration the purpose of the project. Consequently, it has been chosen to leave out concepts such as ethics, educational elements and play value.

The definition has been prepared based on a screening of which types of toys are available, especially at the more critical dealers and a through inquiries to 10 professional consumers (leaders of day nurseries) of toys.

According to a search on the Internet of the word “natural toys”, this term is not used in the Danish toy sector. With a direct English translation of “naturlegetøj” to “natural toys”, it is at the same place found that this term to a large degree is used in the US. Here a great number of Internet shops are shown which all sell toys made of wood and natural fibres.

From introductory conversations with more ecologically orientated toy shops (among others Ecocentrica, Ecoshop and Nuno), we have learned that there are very few toy shops in Denmark which exclusively sell toys made of wood and natural fibres.

The chosen work definition of natural toys has been adopted as broadly as possible for the following reasons:

1. Toys made of wood and natural fibres are generally not extraordinary appreciated by the distributors.
2. The dealers generally have the impression that the consumers feel that as long as the toys are made of natural materials, especially wood, it is of good quality and less health hazardous to their children than other materials. The distributors are of the opinion that especially the consumers' fear of phthalates in plastic, make them feel that wooden toys are better.
3. The dealers do not have the impression that the consumers opt out wooden toys which are for instance painted in bright colours. However, it is widely used to label with “non-poisonous colours” or variations hereof to be on the safe side. When being asked about documentation for “non-poisonous”, specific requirements are being referred to in the CE Standard/Legetøjsbekendtgørelsen regarding the bio availability of 8 elements, together with an extensive confidence by the consumer to the dealer/manufacturer.
4. The inquiry to 10 leaders of day nurseries generally showed that the concept circles around the materials, especially when made of wood. Several of the individuals also mentioned that the surface treatment of



the wood ought to be “treated in the right way” or “treated with nature’s own materials”.



# 4 Natural toys on the Danish market

## 4.1 IMPORTERS AND MANUFACTURERS OF NATURAL TOYS

### 4.1.1 Importers

Through telephone calls to approx. 400 potential toy importers in the toy section, 32 companies, which import natural toys, have been identified. All 32 companies have orally confirmed that they import “toys which have primarily been produced of plant fibres, woollen fibres or solid wood”. The 32 importers’ names are mentioned in Table 4.1.

Amicus	Isaak	Minihorn
Baby Nature	Joy Toy	Nuno
Barsø Toys	KE Mathiasen	Primotoy
Brio	Kika	Pure Baby
Dansk Supermarked	Krea	Rabo
Den Gamle Skole	Kusine Bodil	Solspejlet
Dica	Legekæden	The Last Viking
Ecocentrica	Leika	Top Toy
Ecoshop	Lille Bjørn	VN Legetøj
Edutoy	Magasin	
Ikea	Maileg	

Contact information to the importers are mentioned in Annex B.

The companies represent both wholesalers, dealers to institutions, dealers to private individuals and designers of natural toys.

The companies’ access to “natural toys” is very different. It is, however, the impression through the research that from an environmental profiling point of view it is both reasonable and relevant to divide the companies into 3 groups. It is emphasized that the division should *not* be compared with a ranging of either the quality or the environmental and health pleasantness of the natural toys.

**Group 1** Companies, in which a small part of the toy assortment is natural toys. The natural toys are not being marketed as “greener” than other toys. The group also includes companies which *only* profile themselves “green” by guaranteeing compliance with the environmental legal requirements, for instance promises about “non-poisonous colours” or “no phthalates”. Only wooden toys have been found in this group.

The following 15 companies are included in the group: Dansk Supermarked, Dica, Edutoy, Ikea, Joy Toy, K.E. Mathiasen, Kika, Legekæden, Leika, Maki, Magasin, Minihorn, Primotoy, Top Toy og VN Legetøj.

**Group 2** Companies in which a relatively large part of the toy assortment is natural toys. The companies’ “green” profiling is considerably more distinctive than in the first group. The profiling takes for instance place by

- a "green" company profile/mission,
- ISO 14 001 certification,
- Through environmental (and health) recommendations of individual groups of toys and/or
- a great proportion of natural toys.

Wooden toys have primarily been found in this group.

The following 7 companies are included in this group:  
Amicus, Barsø Toys, Brio, Isaak, Krea, Lille Bjørn og Rabo.

### Group 3

Companies where the entire or almost the entire toy assortment is natural toys. "Green" products are typically a part of the business concept. In this group are found toys made of several different materials, primarily wood, cotton and wool.

10 companies are included in this group:

Baby Nature, Den Gamle Skole, Ecocentrica, Ecoshop, Kusine Bodil, Maileg<sup>2</sup>, Nuno, Pure Baby, Solspejlet og The Last Viking<sup>2</sup>.

#### 4.1.2 Production in Denmark

In Denmark a small production of toys and especially playing tools of wood takes place. As it appears from the National Agency for Enterprise and Housing /1/, there is a number of manufacturers of "playing tools". All of these manufacturers in question – a total of 49 – have been contacted. To a great extent the majority of what is being produced is plastic toys and plastic and wooden tools. The playing tools are parts for play grounds, as for instance play houses, climbing frames and swings.

There are, however, only two companies, namely Danimals IS and TR Leg, which manufacture actual wooden toys for children below the age of 36 months. Economic information about TR Leg's production of wooden toys and information that there are only a few employees (1 – 2 persons) in Danimals indicates that the part of Danish production to the Danish market of wooden natural toys is very small.

No actual production in Denmark of natural toys made of plant fibres or woollen fibres directed at children younger than 36 months has been found. However, a few smaller "spare time projects" have been heard of, but it has been decided to leave these out of the research.

The closest that the report has come to a Danish production is Maileg, which design small cuddle animals of cotton. However, the production takes place in East Asia.

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<sup>2</sup> Maileg and The Last Viking design and import respectively natural toys made of cotton and natural toys made of wood. They have not expressed an environmental profile.

## 4.2 TURNOVER OF TOYS

It is difficult to get a precise impression of the turnover of toys, because neither the total turnover of the section nor partial information about the turnover is available to the public.

The estimation of the turnover is based on economic information from Statistics Denmark, Købmandsstandens Oplysningsbureau and interviews with individuals in the section. Consequently, it is estimated that

The total turnover of toys in Denmark amounts to DKK 2.2 billion in consumer prices

This is based on the following:

### 4.2.1.1 *Statistics Denmark*<sup>2,3/</sup>

According to Statistics Denmark, the total turnover of toys in Denmark amounts to DKK 951 million in wholesale prices<sup>35</sup>. In consumer prices this equals DKK 1.9 – 2.4 billion with a profit of 2.0- 2.5. The profit varies depending upon the type and price. However, 2.0 – 2.5 is being utilized based on talks with several importers.

All export and production information of article No. 95.03.30.30 “Building sets and building toys of plastic” is being kept secret due to competition considerations. In practice this means all of Lego’s turnover in Denmark. Legekæden estimates <sup>4/</sup> that Lego’s sale on the Danish market is maximum DKK 300 million in consumer prices.

Based on the above mentioned, the turnover of toys can be estimated at DKK 2.2 – 2.7 billion.

### 4.2.1.2 *Købmandsstandens Oplysningsbureau*

In <sup>1/</sup> it is stated that the total wholesale of “playing tools and toys” in 1998 was “in the range of “ DKK 2.2 billion. The turnover consequently also includes furniture for institutions and actual play grounds and therefore is somewhat misleading. The figure is a result of a comb-out of the distributors’ balance sheets in Købmandsstandens Oplysningsbureau (informed by the author).

### Personal interviews

Four importers (Brio <sup>5/</sup>, Legekæden <sup>4/</sup>, Minihorn <sup>6/</sup> og Top Toy <sup>7/</sup>) have informed that they estimate the total toy turnover to be approx. DKK 2.2 billion in consumer prices.

Totally the Danish turnover of toys is estimated at DKK 2.2 billion.

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<sup>3</sup> The figure is based on: Total turnover = Production in DKK + Import – Export. The data has been taken from Statistics Denmark (2001), KN article numbers 9501.0010, 950100.90, 9502.10.10, 9502.10.90, 9502.91.00, 9502.99.00, 9503.10.10, 9503.10.90, 9503.20.10, 9503.20.90, 9503.30.10, 9503.30.30, 9503.30.90, 9503.41.00, 9503.49.10, 9503.49.30, 9503.49.90, 9503.50.00, 9503.60.10, 9503.60.90, 9503.70.00, 9503.80.10, 9503.80.90, 9503.90.10, 9503.90.32, 9503.90.34, 9503.90.35, 9503.90.37, 9503.90.51, 9503.90.55, 9503.90.99, 9504.10.00, 9504.40.00 and 9504.90.10.

#### 4.3 THE MARKET OF NATURAL TOYS OF PLANT FIBRES AND WOOLLEN FIBRES

##### **4.3.1 The turnover of natural toys made of plant fibres and woollen fibres**

Eight companies have in the report confirmed being importers of natural toys made of plant fibres and woollen fibres. They are Baby Nature, Ecocentrica, Ecoshop, Kusine Bodil, Maileg, Nuno, Pure Baby and Solspejlet.

Economic information from the companies' latest annual accounts (normally 2001) shows that the turnover is in the range of DKK 1.8 million in consumer prices<sup>4</sup>. This means that:

Natural toys made of plant fibres and woollen fibres are estimated amounting to 0.08% or 1/1250 of the turnover of toys in Denmark.

##### **4.3.2 Natural toy products made of plant fibres and woollen fibres**

The main part of natural fibre based toys sold in Denmark is made of cotton and wool. A typical product is a small cuddle animal with a body of cotton and filled with cotton or wool.

The toys' materials are often environmentally certified as mentioned in Table 4.2. In many cases the products have been naturally dyed, i.e. cotton's own colours in creme white, light brown, dark brown, light green and plum have been used.

Information about suppliers is stated in Table 4.2. Most Internet pages give a good impression of the products and their combination of materials.

The information derives from the Internet, dealers and direct contact with the manufacturers.

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<sup>4</sup> Baby Nature has been left out due to new owners and Ecoshop has been left out because the owner is considering selling the company. The omissions do not change the picture of the total turnover.

Table 4.2. Information about natural toys made of plant fibres and woollen fibres being marketed in Denmark.

Manufacturer/ Trade mark	Internet page	Country of production	Product types	Materials	Comments to the materials, see notes.
Camphill Products, England	N/A	England	Small dolls	Cotton	Biodynamic cotton <sup>5</sup>
Cotton People, Germany	<a href="http://www.alnatura.de">www.alnatura.de</a>	Egypt	Small cuddle dolls and bears	Cotton	Ecological cotton <sup>6</sup> .
Ecodot (De Kleine Tuin), The Netherlands	N/A	The Netherlands	Small cuddle dolls and play animals	Cotton and wool	Untreated and conventional cotton.
Kallisto, Germany	<a href="http://www.kallisto-stofftiere.de">www.kallisto- stofftiere.de</a>	Germany	All kinds of animals	Cotton, wool and kapok <sup>7</sup>	Approx. ½ kbA labelled cotton <sup>8</sup> and approx. ½ conventional cotton. The wool is Bioland <sup>9</sup> labelled.
Keptin Jr., Holland	<a href="http://www.keptin-jr.com">www.keptin- jr.com</a>	The Netherlands	Rattle dolls	Cotton	Approx. ½ SKAL <sup>10</sup> labelled undyed cotton and approx. ½ conventional cotton.
Kinderkram, Germany	N/A	Germany	Woollen bears	Wool	Biodynamic wool.
Käfer & Partner (Glückkäfer),	<a href="http://www.glueckskaefer.de">www.glueckskaefer .de</a>	Germany	Dolls		Conventional cotton.
Käthe Kruse, Germany	<a href="http://www.kathekruse.com">www.kathekruse.c om</a>	Germany	Small dolls and cuddle animals	Cotton, wool, quartz sand granulate and lavender	Oeko-Tex 100 labelled cotton and wool. Reference is made to <a href="http://www.oeko-tex.com">www.oeko-tex.com</a> .
Lana, Germany	<a href="http://www.lana-natur-und-mode.de">www.lana-natur- und-mode.de</a>	Germany	Cloth animals	Cotton, wool and hemp	Ecological cotton and wool.
Maileg, Denmark	<a href="http://www.maileg.dk">www.maileg.dk</a>	Sri Lanka & China	Rabbit animals	Cotton	Conventional cotton.
Nanchen, Germany	<a href="http://www.nanchen-puppen.com">www.nanchen- puppen.com</a>	Germany	Dolls	Cotton and wool	"Nanchen nature" is made of ecological cotton and Bioland wool.
Plünatur, Germany	N/A	Germany	Bears	Cotton and wool	Ecological cotton and wool.
Prolana, Germany	<a href="http://www.prolana.de">www.prolana.de</a>	Germany	Diverse	Cotton and wool	Ecological cotton and wool.
Rusakko, Finland	<a href="http://www.carewood.com">www.carewood.co m</a>	Finland	Cloth animals	Cotton grass, wool and flax.	Recycling materials.
Saling (Rund ums Schaf), Germany	<a href="http://www.rund-ums-schaf.de">www.rund-ums- schaf.de</a>	Germany	Bears	Wool	Ecological wool.
Senger, Tyskland	<a href="http://senger-tierpuppen.de">senger- tierpuppen.de</a>	Mexico	Small cuddle animals	Cotton and wool.	Ecological cotton and wool. Naturally dyed. Winner of "Fair to Nature" in 2000.
Spiel Und Holz Design, Germany	<a href="http://www.spielholzdesign.de">www.spielholzdesi gn.de</a>	Brazil	Small dolls	Cotton	Ecological wool and cotton.

<sup>5</sup>The Biodynamic and the Demeter labelling is tied to the anthroposophy, a spiritual science created by the Austrian philosopher Rudolf Steiner. This means ecological agriculture and certain kinds of cultivation, reference is made to [www.demeter.de](http://www.demeter.de)

<sup>6</sup> The information comes from the importer who is confident that especially the cotton is ecological. The fibres are presumably not environmentally labelled due to the expenses of this. The fibres are expected being grown without the use of artificial fertilizers and pesticides.

<sup>7</sup> The floss surrounding the seeds of various trees of the Bombax family

<sup>8</sup> KbA – Kontrolliert biologische Anbau – ecological cultivation certified by an independent institute in Germany. A similar label is found for animal breeding, for instance wool, namely kbT. Complies with the EU Regulation 2092/91/ about ecological agriculture.

<sup>9</sup> Bioland is a German private ecological label for agriculture, cf. [www.bioland.de](http://www.bioland.de).

<sup>10</sup> Dutch pendant to the German kbA – ecological agriculture.

In the report five tests have been selected for chemical analyses for remains of pesticides and elements, reference is made to chapter 5.

In this connection the five manufacturers have been inquired about the products. It was decided only to inquire the manufacturers of the five tested products. The results can be seen in Table 4.3.

TABLE 4.3. INFORMATION ABOUT 5 NATURAL TOY PRODUCTS OF PLANT FIBRES AND WOOLLEN FIBRES

Product	Teddy bear made of mohair wool, sheep wool, lama wool and cotton	Pig made of cotton	Rabbit animal made of cotton	Musical moon made of cotton and wool	Dog made of cotton
CE-Label	Yes	Yes	No	Yes	Yes
Which environmental certificates does the product or the materials have?	None	Oeko-tex 100	None	N/A	Eco Skal, Native Cotton and Pakucho (the material).
How have the fibres been grown? (conventionally, ecologically or bio dynamically)	Conventionally	Conventionally	Conventionally	N/A	Ecologically
Which pesticides have typically been used?	None	None	N/A	N/A	None
Where do the materials typically "grow" (country or region)	Mohair from South Africa and Texas. The cotton is conventional.	N/A	N/A	N/A	Peru
Where did the wash and weaving take place? (country or region)	Mohair in Europe, The cotton in Germany	Turkey and Germany	N/A	N/A	Peru
Where did the sewing take place? (country or region)	Mohair and cotton in Germany.	Germany and Latvia	China and Sri Lanka	N/A	Development project for women in Mexico.
Which dyes have been used?	German acid-based colours.	N/A	N/A	N/A	Naturally dyed cotton.

#### 4.4 THE DANISH MARKET FOR NATURAL WOODEN TOYS

##### 4.4.1 The turnover of natural wooden toys

All 32 importers except Maileg have confirmed that they import natural toys made of wood.

The estimation of the turnover of natural wooden toys is made based on economic information from Statistics Denmark, the importers' and the manufacturers' own information together with interviews with individuals. When comparing this information, it is estimated that the turnover of natural wooden toys is DKK 50 million. This corresponds to that

Natural wooden toys is estimated to amount to 2.3% or 1/44 of the turnover of toys in Denmark



This is based on the following:

#### 4.4.1.1 *Statistics Denmark/2,3/*

According to Statistics Denmark, the turnover of toys made of wood is at a minimum DKK 39.5 million<sup>11</sup>. In addition a part derives from products under KN article No. 9503.90.99. “Toys, except those made of plastic, rubber, textiles and metal, have not been mentioned elsewhere”. This whole group amounts to DKK 119.5 million in consumer prices, i.e. according to Statistics Denmark, the turnover of wooden toys is DKK 39.5 – 159 million.

#### 4.4.1.2 *Information about importers and manufacturers*

All importers and manufacturers, except Baby Nature and Ecoshop (reference is made to note 4) have been asked to indicate the amount of their import or deliveries to the Danish market in the latest financial year (normally 2001). The 21 (approx. 2/3) who have replied, have a total turnover of DKK 27.5 million. Extrapolated, this corresponds to DKK 40.5 million for the 31 importers and 2 manufacturers. Please note that a great part of Brio’s wooden toys is not included due to the project’s definition of natural toys. Brio is of the opinion that a great part of their wooden toys include other than natural materials. This opt-out corresponds to DKK 36.5 – 49 million<sup>12</sup>.

The following 10 importers have not wanted to reply to questions of economic character: Amicus, Barsø Toys, Danimals, Edutoy, Ikea, Leika, Magasin, Minihorn, The Last Viking and VN Legetøj.

#### 4.4.1.3 *Personal interviews*

Brio /5/ and Minihorn /6/ estimate, that the wooden toy turnover in Denmark is approx. DKK 100 million. When being informed how much of Brio’s toys which have not been included as natural toys, Minihorn estimates the turnover to be DKK 60 million at a maximum.

#### 4.4.1.4 *Summary*

According to the above mentioned, the turnover of natural toys made of wood is between DKK 27.5 million, see section 4.4.1.2, and DKK 159 million, see section 4.4.1.1. Based on the importers’ information and personal interviews, it is, however, most likely that the turnover is DKK 40 million at a minimum, see section 4.4.1.2, and DKK 60 million at a maximum, see section 4.4.1.3. An annual turnover of DKK 50 million is estimated here.

### **4.4.2 Natural toy products made of wood**

Most importers have passed information about manufacturers. 22 manufacturers have accordingly been identified and it is estimated that the main part of wooden natural toys in Denmark comes from these manufacturers. Information about the individual manufacturers is stated in Annex C. In Annex C, information about each manufacturer as to types of

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<sup>11</sup> Including a profit of 2.5 which is generally accepted and used for wooden toys. The DKK 39.5 million is a result of total turnover = production in DKK + import - export, KN articles Nos. 9503.30.10, 9503.49.10 and 9503.60.10

<sup>12</sup> According to Brio /6/, their turnover of wooden toys is DKK 37.5 – 50 million in consumer prices. However, in this report only Wooden Toddler Toys is included, which covers a sale of DKK 1 million.

toy, wooden sorts and origins has been specified. Information about surface treatment is stated in section 6.

The wooden toys are primarily being produced in Thailand and in Germany.

The Thai manufacturers all use soft wood or rubber wood from 30 – 40 year old discarded rubber plantations. It is Econet’s general impression that the companies seek to be environmentally aware and active.

The German manufacturers all use wood from Central Europe and of Central European wooden sorts, often beech and to a limited degree maple, ash, birch and pine.

Below is shown a selection of typical wooden toys for children up to the age of 36 months.



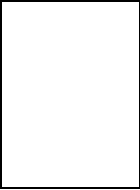
Hammering board



Ball track



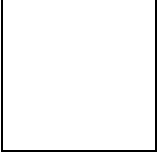
Toy bricks



Tower



Wooden animals



Pulling animals



Sucking chain



Rattle

# 5 Contents in natural toys made of plant fibres and wooden fibres

## 5.1 TESTS FROM ÖKOTEST /8/

The German company and magazine Öko-test ([www.oekotest.de](http://www.oekotest.de)) is a pendant to Consumer Council and “Råd og Resultater” in Denmark. Independently of authorities and industry, Öko-test tests and publishes test results for the majority of consumer product types and focuses on safety, health and environmental aspects.

During the last 10 years Öko-test has 3 times had a number of plush animals tested for among other things chemical agents. The latest test from 1999 shows the following:

Out of the 30 tested plush animal products, 5 have been produced of natural materials. They are of the brands Saling (Rund ums Schaf), Senger, Kallisto and Plü Natur. The products have been tested for:

Formaldehyde, organic halogen compounds (including flame retardants), aromatic amines, optical white and antimony (>1 mg/kg).

None of the 5 tested plush animals of natural materials contain any of these agents.

However, the test shows that plush animals which have not been produced of natural materials can contain very health and environmentally hazardous agents, as

- 20 % of the products contain organic halogen compounds,
- 7 % of the products contain agents which liberate aromatic amines,
- 3.5 % of the products contain optical white and
- 7 % of the products contain antimony exceeding 1 mg/kg.

In proportion to the test of plush animals in 1995, the most essential difference is that in 1995 25 out of 31 (approx. 80%) of the tested products contained aromatic amines. Consequently, a decrease has taken place in plush animals containing aromatic amines.

## 5.2 PRODUCTS FOR ANALYSES

In this report 5 products have been selected for chemical analyses of pesticides and elements. The products are: a teddy bear, a pig, a rabbit animal, a musical moon and a dog.

The products have been selected because they represent different types with regard to fibres, fibre production and colours.

### 5.3 PESTICIDES

The five products have been tested for 54 pesticides according to the Oeko-tex 100 regulation, [www.oeko-tex.com](http://www.oeko-tex.com). Annex D contains a list of pesticides, detection limits and description of procedure.

Only materials from the outer parts of the products have been taken. In products which consist of different agents, agent tests have been taken for analysis in a similar proportion.

No remains of pesticides have been found in any of the products.

This means that all results of the analysis are below the detection limit, reference is made to Annex D.

The analysis has been carried out by the Teknologisk Institut, Gregersensvej 21, Høje Taastrup, Denmark. Reference: Assignment No. 30 071, 20.11 2002, Chemotechnician Eva Pedersen

### 5.4 ELEMENTS

The element analyses have been carried out as an X-ray analysis, reference is made to the description of procedure in Annex D. The analyses determine the concentrations of all elements from atom No. 11 in a material.

Element analyses of the five products have been carried out. The method is good to effectively show which chemical elements and agents which may probably be contained in the product. Table 5.1 shows the result of the analysis. Only the mentioned elements in the table have been detected.

TABLE 5.1. RESULTS OF ANALYSES FOR ELEMENT ANALYSIS OF 5 NATURAL TOY PRODUCTS MADE OF PLANT FIBRES AND WOOLLEN FIBRES. MG/KG.

Test	Part	Anti-mony	Bro-mine	Chlorine	Chro-mium	Phos-phor	Cobber	Sulphur	Tin	Titanium	Zinc
Teddy bear	Foot sole	< 5	< 5	410	850	120	10	44,000	< 5	< 10	< 5
	Fur legs	< 5	< 5	140	< 5	78	46	8,800	19	< 10	18
	Stuffing	< 5	< 5	69	< 5	160	< 5	30,000	< 5	94	110
Pig	Body	< 5	< 5	240	< 5	24	18	240	22	79	< 5
	Stuffing	260	< 5	21	< 5	39	< 5	55	31	1,800	14
	Scarf	< 5	< 5	75	< 5	35	21	220	< 5	< 10	43
Rabbit animal	Trousers	36	< 5	130	< 5	130	64	550	< 5	420	16
	Body	< 5	< 5	70	< 5	950	12	280	18	< 10	8
	Stuffing	120	< 5	25	< 5	73	< 5	56	< 5	2,400	< 5
Musical moon	White cloth	< 5	< 5	20	< 5	70	10	120	< 5	< 10	< 5
	Yellow cloth	< 5	< 5	51	< 5	67	26	420	< 5	< 10	6
Dog	Body	< 5	< 5	200	< 5	75	20	340	24	< 10	6
	Stuffing	< 5	6	600	< 5	690	< 5	510	< 5	14	16

COMMENTS: ONLY THE ELEMENTS INCLUDED IN THE TABLE HAVE BEEN DETECTED. THE DETECTION LIMITS ARE 5 AND 10 MG/KG. FOR INSTANCE "<5" MEANS THAT THE RESULT IS BELOW THE DETECTION LIMIT.

The analysis has been carried out by Teknologisk Institut, Århus, Denmark. Reference: Assignment No. 21647, 18.11.2002, Civil Engineer Ivan Christensen.

In the following Sections 5.4.1 – 5.4.5, an effort is made to explain about the analysis results in Table 5.1. This is based upon the fact that

- no contents of pesticide remains have been measured in any of the tests.
- focus is on the elements which with the greatest probability could indicate that the test contains agents from agent groups where one is aware of environmental and health problematic agents, i.e. heavy metals and the halogens bromine, chlorine and phosphor.

#### **5.4.1 Teddy bear**

- The foot sole contains a very high concentration of chromium. The producer informs that the foot soles and the palms of the hands are made of lama wool and that it is an “old remnant” from a company which was closed “10 years ago”. The large content of chromium can be caused to the tanning of the lama wool.
- The contents of phosphor in the fur legs, the stuffing and the foot sole could indicate the use of preservative agents and/or flame retardants.
- The contents of chlorine in the fur legs, the stuffing and the foot sole could indicate the use of flame retardants.
- The concentration of sulphur in the bear is very high. The bear is made of wool and leather. With high certainty the sulphur content is due to a natural content in the wool and in the leather (the foot sole). Hair and the outer skin consist essentially of keratin which contains large amounts of the sulphur rich amino acid, cysteine.

#### **5.4.2 Pig**

- The contents of chlorine in the body could indicate the use of preservatives and/or flame retardants.
- The contents of phosphor in the body could indicate the use of flame retardants.
- The contents of antimony and phosphor in the stuffing could indicate the use of flame retardants.
- The contents of chlorine in the scarf could indicate the use of preservative agents.
- The contents of phosphor in the scarf could indicate the use of flame retardants.

#### **5.4.3 Rabbit animal**

- The contents of antimony and phosphor in the trousers could indicate the use of flame retardants.
- The contents of chlorine in the body, the trousers, the scarf and the stuffing could indicate the use of preservative agents and/or flame retardants.
- The contents of phosphor in the body and the scarf could indicate the use of flame retardants..
- The contents of antimony and phosphor in the stuffing could indicate the use of flame retardants.

#### **5.4.4 Musical moon**

- The contents of chlorine in white and yellow cloth indicates the use of preservative agents and/or flame retardants.
- The contents of phosphor in white and yellow cloth indicates the use of flame retardants.

#### **5.4.5 Dog**

- The contents of chlorine in body and stuffing indicates the use of preservative agents and/or flame retardants.
- The contents of phosphor in body and stuffing indicates the use of flame retardants.

# 6 Constituents in natural toys made of wood

## 6.1 TYPES OF SURFACE TREATMENT

Most wooden toys have been surface treated, which gives the wood an attractive look and makes it more resistant against outer influences.

The colouring can either be done by covering the wood with a paint or by adding a stain or glaze which penetrates the wood and sets off/maintains the structure of the wood.

In most cases the toys have had additional treatment with a lacquer or an oil. Lacquer and oil add to making the product more glossy and resistant against outer influences such as UV light, bumps, sweat and spittle.

Stain and glaze manufacturers cannot guarantee that the product is resistant against sweat and spittle. They therefore recommend that the toy products are additionally treated with oil or lacquer

## 6.2 INFORMATION ABOUT SURFACE TREATMENT

All 22 manufacturers of wooden toys have in Annex C been asked to inform type and chemical compound of the surface treatment which their toys have had. Table 6.1 shows their replies.

It appears from Table 6.1 that:

- 18 out of 22 manufacturers have replied.
- Most manufacturers have only replied that their toys comply with the requirements in EN71-3.
- Most surface treatments of wooden toys are made with stains or paints with a final lacquering, and
- as lacquering is mostly used nitrocellulose lacquer.

Stains and similar products from 4 manufacturers, who are suppliers to the toy manufacturers, are described in the following Section 6.3.1-6.3.4. Furthermore, declarations of contents on 9 stains from Data Paint can be seen in Table 6.1 under the manufacturer “Wonderworld”.

TABLE 6.1 WOODEN TOY MANUFACTURERS' INFORMATION ABOUT SURFACE TREATMENTS

Manufacturer	Information about surface treatments																																																																																																				
Brio	<p>Product information pages on four lakes from Wedevåg Färg AB, Sweden:</p> <p><u>Brand name: Wedofen Lake, glossy red:</u></p> <table border="1"> <thead> <tr> <th>Agent name</th> <th>Contents %</th> <th>CAS-No.</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Xylene</td> <td>10-30</td> <td>1330-20-7</td> <td>Xn;R20/21 Xi;R38</td> </tr> <tr> <td>Butylacetate</td> <td>10-30</td> <td>123-86-4</td> <td>R10 R66 R67</td> </tr> <tr> <td>2-methoxy-1-methylacetate</td> <td>10-30</td> <td>108-65-6</td> <td>Xi; R36</td> </tr> <tr> <td>Ethylbenzene</td> <td>1-5</td> <td>100-41-5</td> <td>Xn; R20</td> </tr> <tr> <td>Cyclohexanone</td> <td>1-5</td> <td>108-94-1</td> <td>Xn; R20</td> </tr> </tbody> </table> <p><u>Brand name: Wedofen Lake, glossy green:</u></p> <table border="1"> <thead> <tr> <th>Agent name</th> <th>Contents %</th> <th>CAS-No.</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Xylene</td> <td>10-30</td> <td>1330-20-7</td> <td>Xn;R20/21 Xi;R38</td> </tr> <tr> <td>Butylacetate</td> <td>10-30</td> <td>123-86-4</td> <td>R10 R66 R67</td> </tr> <tr> <td>Ethylglycolacetate</td> <td>10-30</td> <td>-</td> <td>-</td> </tr> <tr> <td>Cyclohexanone</td> <td>1-5</td> <td>108-94-1</td> <td>Xn; R20</td> </tr> <tr> <td>n- og iso-butanol</td> <td>&lt; 1</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p>Alkyd harts Melamine harts Polyester with free OH-groups</p> <p><u>Brand name: Wedofen Lake, glossy yellow :</u></p> <table border="1"> <thead> <tr> <th>Agent name</th> <th>Contents %</th> <th>CAS-No.</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Xylene</td> <td>10-30</td> <td>1330-20-7</td> <td>Xn;R20/21 Xi;R38</td> </tr> <tr> <td>Butylacetat e</td> <td>10-30</td> <td>123-86-4</td> <td>R10 R66 R67</td> </tr> <tr> <td>2-methoxy-1-methylacetate</td> <td>10-30</td> <td>108-65-6</td> <td>Xi; R36</td> </tr> <tr> <td>Ethylbenzene</td> <td>1-5</td> <td>100-41-5</td> <td>Xn; R20</td> </tr> </tbody> </table> <p><u>Brand name: Wedofen Lakfarve, glossy blue:</u></p> <table border="1"> <thead> <tr> <th>Agent name</th> <th>Contents %</th> <th>CAS-No.</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Xylene</td> <td>10-30</td> <td>1330-20-7</td> <td>Xn;R20/21 Xi;R38</td> </tr> <tr> <td>Butylacetat e</td> <td>10-30</td> <td>123-86-4</td> <td>R10 R66 R67</td> </tr> <tr> <td>Ethylglycolacetate</td> <td>10-30</td> <td>-</td> <td>-</td> </tr> <tr> <td>n- og iso-butanol</td> <td>&lt; 1</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p>Cyclohexanone harts Alkyd harts Melamine harts Polyester with free OH-groups</p> <p><u>Safety data page from Akzo Nobel on a clear lacquer:</u></p> <p><u>Brand name: Duaden 90 clear</u></p> <table border="1"> <thead> <tr> <th>Agent name</th> <th>Contents %</th> <th>CAS-No.</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Butylacetat e</td> <td>30-40</td> <td>123-86-4</td> <td>R10 R66 R67</td> </tr> <tr> <td>Methylisobutylketone</td> <td>20-30</td> <td>108-10-1</td> <td>F;R11 Xn;R20 Xi;R36/37 R66</td> </tr> </tbody> </table>	Agent name	Contents %	CAS-No.	Classification	Xylene	10-30	1330-20-7	Xn;R20/21 Xi;R38	Butylacetate	10-30	123-86-4	R10 R66 R67	2-methoxy-1-methylacetate	10-30	108-65-6	Xi; R36	Ethylbenzene	1-5	100-41-5	Xn; R20	Cyclohexanone	1-5	108-94-1	Xn; R20	Agent name	Contents %	CAS-No.	Classification	Xylene	10-30	1330-20-7	Xn;R20/21 Xi;R38	Butylacetate	10-30	123-86-4	R10 R66 R67	Ethylglycolacetate	10-30	-	-	Cyclohexanone	1-5	108-94-1	Xn; R20	n- og iso-butanol	< 1	-	-	Agent name	Contents %	CAS-No.	Classification	Xylene	10-30	1330-20-7	Xn;R20/21 Xi;R38	Butylacetat e	10-30	123-86-4	R10 R66 R67	2-methoxy-1-methylacetate	10-30	108-65-6	Xi; R36	Ethylbenzene	1-5	100-41-5	Xn; R20	Agent name	Contents %	CAS-No.	Classification	Xylene	10-30	1330-20-7	Xn;R20/21 Xi;R38	Butylacetat e	10-30	123-86-4	R10 R66 R67	Ethylglycolacetate	10-30	-	-	n- og iso-butanol	< 1	-	-	Agent name	Contents %	CAS-No.	Classification	Butylacetat e	30-40	123-86-4	R10 R66 R67	Methylisobutylketone	20-30	108-10-1	F;R11 Xn;R20 Xi;R36/37 R66
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Methylisobutylketone	20-30	108-10-1	F;R11 Xn;R20 Xi;R36/37 R66																																																																																																		
Chelona	EN71-3 approved for Norijet Process Inks from Pröll, Germany.																																																																																																				
Child Friend Wood Toys	Uses Enolit-colour-concentrate (stain) from Zuelch, see section 6.3.3. Additionally treated with a lacquer from a supplier in Taiwan.																																																																																																				
Eddutoy	EN71-3 approved for "Screen paint" (red, ruby red, rodamin red, warm red, process yellow, blue, reflection blue, green lilac and violet), "aqueous colorant" (red, dark brown, sky blue, grey, brown, blue and green) from Sinclair paint, Thailand, and a toy lacquer from VSV. Paint and Chemical Co., Ltd, Thailand. It has been confirmed that the surface treatment agents do not contain flame retardants, natural agents or other relevant agents.																																																																																																				
Haba	Stain and lacquer from Votteler. Certificate of harmlessness for the lacquer. Votteler guarantees that the lacquer does not contain toxic agents, chlorinated hydrocarbons, inflammables, preservatives or additives based on PCB, lindane or similar agents.																																																																																																				
Hermann Rossberg	EN71-3 approved for tumbling paint (8 colours) and spraying paint.																																																																																																				
Hess Holz	EN71-3 approved for tumbling system with colours from Kaiser Lacke og Enolit-clear tumbling lacquer on a water basis.																																																																																																				
I'm International	EN71-3 approved for aqueous colourant from Sinclair Paint, Thailand and Lacquer clear from Sinclair Paint, Thailand.																																																																																																				
Kulla Träteknik	Has informed that all products are CE-labelled.																																																																																																				
Käfer & Partner	Is using Enolit from Zuelch, see section 6.3.3.																																																																																																				
Nictoy	Is using stain from Zuelch by the name of Enolit, see section 6.3.3. Is being additionally treated with a colourless lacquer.																																																																																																				



<b>Manufacturer</b>	<b>Information about surface treatments</b>
Ostheimer	Is using "trommelbeize" (tumbled stain) from Kaiser Lacke, see section 6.3.4. Is being additionally treated with walnut oil from Livos, see section 6.3.2. for contact information.
Pin International	Has not replied.
Plantoyo	Has not replied.
Reha (R'elan)	Is using a "wachsbeize" (wax stain) by the name of Bodios from Livos, see section 6.3.2.
Santa Factory	Has supplied information about three surface treatment products:  <u>Toy lacquer colour</u> Contains alkyd resin and nitrocellulose as a binder. Contains no preservatives, flame retardants, heavy metals or natural agents.  <u>Aqueous colour</u> Contains Latex emulsion (poly vinyl acetate copolymer) which binds, biocidene 6-chloro-2-methyl-4-isotiazoline-3-one and 2-methyl-4-isothiazolin-3-one, and the fungicide glyoxalin. Contains no preservatives, inflammables, heavy metals or "natural agents".  <u>"Clear lacquer" (nitrocellulose lacquer)</u> Contains no flame retardants, organic halogen combinations, heavy metals, natural agents or antimony. Contains defoaming agent BYK052 and slip agent BYK330.
Schaaf-Spielzeug	EN71-3 approved.
Selecta Spielzeug	EN71-3 approved. Bee wax is being used as a final treatment. The colours have been approved for foodstuffs.
Siam Wooden Products	Has not replied.
Spiel & Holz Design	Is using Kirtoy glaze from Farben-Kiroff-Technik, see section 6.3.1. Is treating additionally with Tauchöl, art. No. 8125" from Biofa Naturprodukte. "Tauchöl" contains linseed oil, olive oil, soja bean oil, thistle oil, walnut oil, and kobalt-, zircnium-manganese soaps as siccativ. Tauchöl complies with DIN 53 160 regarding resistance against sweat and spittle, and EN71-3.
Uncle Goose	Has not replied.

Manufacturer	Information about surface treatments	
Wonderworld	Product data pages (MSDS) for lacquers, hardeners, thinners, glue and stains:	
	<b>Nitrocellulose lacquers and accessories</b>	
	<u>Brand name: Lacquer Clear Flat TYP-F1-75-075</u>	
	Manufacturer: Tai-Yo Paints Co., Ltd, Thailand	
	Agent name	Contents %
	Beckosol-st-420-60 (alkyd resin)	15.7
	Beckosol sc-350-65 (alkyd resin)	28.2
	Toluene	9.9
	Ethyl acetate	17.5
	Butyl acetate	5.0
	O.K. 412 (flat powder)	2.3
	Nitrocellulose RS ¼	17.0
	Tego foamer 810 (defoamer)	2.1
	Tego glide 410	2.3
	<u>Brand name: Lacquer Clear Flat TYP-F1-50-075</u>	
	Manufacturer: Tai-Yo Paints Co., Ltd, Thailand	
	Agent name	Contents %
	Beckosol-st-420-60 (alkyd resin)	15.7
	Beckosol sc-350-65 (alkyd resin)	28.2
	Toluene	10.3
Ethyl acetate	17.5	
Butyl acetate	5.0	
O.K. 412 (flat powder)	1.9	
Nitrocellulose RS ¼	17.0	
Tego foamer 810 (defoamer)	2.1	
Tego glide 410	2.3	
<u>Brand name: Lacquer white gloss TYP-GW1-075</u>		
Manufacturer: Tai-Yo Paints Co., Ltd, Thailand		
Stofnavn	Contents %	
Alkyd resin	30	
Toluene	7	
Ester solvent	17	
Titanium dioxide	25	
Nitrocellulose	18	
Slip agent	2	
Defoamer agent	1	
<u>Brand name: Lacquer yellow gloss TYP-2798-075</u>		
Manufacturer: Tai-Yo Paints Co., Ltd, Thailand		
Agent name	Contents %	
Alkyd resin	41	
Toluene	8	
Ethyl acetate	6.5	
Butyl acetate	12	
Nitrocellulose	18	
Yellow pigment	12	
Slip agent	1.3	
Defoamer agent	1.2	
<u>Brand name: Thinner Lacquer TYP-03-075</u>		
Manufacturer: Tai-Yo Paints Co., Ltd, Thailand		
Agent name	Contents %	
Toluene	52	
Ethyl acetate	15	
Butyl acetate	22	
Isopropyl alcohol	5	
Isobutyl ketone	6	
<u>Brand name: Lacquer sanding sealer TYP-S14-075</u>		
Manufacturer: Tai-Yo Paints Co., Ltd, Thailand		
Agent name	Contents %	
Alkyd resin	41	
Toluene	9	
Acetate solvent	20	
Scrub powder	8	

Manufacturer	Information about surface treatments
	<p>Nitrocellulose 20 Additive 2</p> <p><b>Brand name: Ostrolon tumbling lacquer</b>  Manufacturer: Zuelch, Germany  Agent name Contents % CAS-No. Classification  Ethylacetate 50-100 141-78-6 F;R11 Xi;R36 R66 R67  2-methoxy-1-methyl  ethylacetate 10-25 108-65-6 R10 Xi;R36  Xylen 2.5-10 1330-20-7 Xn;R20/21 Xi;R38  Ethylbenzen 1-2.5 100-41-4 F;R11 Xn;R20</p> <p><b>Brand name: Hardener 69</b>  Manufacturer: Zuelch, Germany  Agent name Contents % CAS-No. Classification  n-butyl acetat 10-25 123-86-4 R10 R66 R67  Hexamethylen-  di-isocyanat &lt;1 822-06-0 T;R23 Xi;R36/37/38 R42/43</p> <p><b>Brand name: Dispersion coating 1182</b>  Manufacturer: Vegra, Germany  A coating based on styrene-acrylate copolymer  No information about hazardous agents.</p> <p><b>Brand name: Lacquer grinding #3004</b>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand  Agent name Contents % CAS-No. Classification  Alkyd resin 60  Xylene 40 1330-20-7 Xn;R20/21 Xi;R38</p> <p><b>Brand name: Thinner A5008</b>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand  Agent name Contents % CAS-No. Classification  Ethyl acetate 60  Xylene 40 1330-20-7 Xn;R20/21 Xi;R38</p> <p><b>Glue (for plywood used for among other things puzzles)</b>  Brand name: Dynorit L-149  Manufacturer: Dyno Industries, Singapore  Urea-formaldehyde resin in water. "The resin contains less than 1.2 weight percentage free formaldehyde".</p> <p><b>Stains</b>  Brand name: Wood stain brown  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand  Agent name CAS-No. Contents %  Pigment yellow 12512-29-0 40  Pigment red 112 6535-46-2 30  Vinyl copolymer 15  Water 15</p> <p><b>Brand name: Wood stain red</b>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand  Agent name CAS-No. Contents %  Pigment red 112 6535-46-2 70  Vinyl copolymer 15  Water 15</p> <p><b>Brand name: Wood stain yellow</b>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand  Agent name CAS-No. Contents %  Pigment yellow 1 2512-29-0 70  Vinyl copolymer 15  Water 15</p>

Manufacturer	Information about surface treatments																																																																								
	<p><u>Brand name: Wood stain orange</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment yellow 83</td> <td>5567-15-7</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table> <p><u>Brand name: Wood stain paint (white and other colours)</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment</td> <td>107-21-1</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table> <p><u>Brand name: Wood stain blue</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment blue 15</td> <td>147-148</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table> <p><u>Brand name: Wood stain violet</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment violet 23</td> <td>6358-30-1</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table> <p><u>Brand name: Wood stain black</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment black 7</td> <td>1333-66-4</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table> <p><u>Brand name: Wood stain green</u>  Manufacturer: Data Paint &amp; Chemical Co., Ltd, Thailand</p> <table border="0"> <tr> <td>Agent name</td> <td>CAS-No.</td> <td>Contents %</td> </tr> <tr> <td>Pigment green 7</td> <td>1328-53-6</td> <td>70</td> </tr> <tr> <td>Vinyl copolymer</td> <td></td> <td>15</td> </tr> <tr> <td>Water</td> <td></td> <td>15</td> </tr> </table>	Agent name	CAS-No.	Contents %	Pigment yellow 83	5567-15-7	70	Vinyl copolymer		15	Water		15	Agent name	CAS-No.	Contents %	Pigment	107-21-1	70	Vinyl copolymer		15	Water		15	Agent name	CAS-No.	Contents %	Pigment blue 15	147-148	70	Vinyl copolymer		15	Water		15	Agent name	CAS-No.	Contents %	Pigment violet 23	6358-30-1	70	Vinyl copolymer		15	Water		15	Agent name	CAS-No.	Contents %	Pigment black 7	1333-66-4	70	Vinyl copolymer		15	Water		15	Agent name	CAS-No.	Contents %	Pigment green 7	1328-53-6	70	Vinyl copolymer		15	Water		15
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Pigment yellow 83	5567-15-7	70																																																																							
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### 6.3 STAINS AND GLAZES

There are two types of surface treatments which colour the wood and at the same time maintain the structure of the veins in the wood visible, namely stain and glaze.

The stain pigment penetrates the wood and forms a chemical reaction with the lignin of the wood. According to Farben-Kiroff-Technik /9/, these reactive colouring agents are classified as poisonous and very poisonous. After the colouring there is a risk of free reactive colouring agent remains.

Glaze colouring agents are, however, often agents which have been approved for foodstuffs /9/. Instead of reacting directly with the lignin, they are glued on. The agents are not very reactive.

Both stain and glaze manufacturers recommend that wooden toys which have been treated with their products are additionally treated with a product which

closes the surface, i.e. a lacquer, wax or a drying oil, in order to be resistant against sweat and spittle.

Stains and glazes from 4 manufacturers have been described below in more detail. As mentioned, there are also stains from Data Paint & Chemical Co. described under "Wonderworld" in Table 6.1.

### **6.3.1 Kiroff-Lasur from Farben-Kiroff-Technik**

Kirtoy glaze is an aqueous mesh building polymer dispersion based on a methacrylic acid ester. The binding agent has been chosen for use in toys. The lacquer does not contain any plasticizers and is free of classification liable solvents.

The product contains <0.1 % "Biostat". Biostat is according to /9/ approved by the US FDA (Food & Drug Administration) for drinking water preservation and surfaces in tins containing foodstuffs.

The product Biostat is identical with the products with the trade names Boag21 and Techazil. According to the material safety data sheet it contains:

Agent name	CAS-No.	Contents %	Classification
Aluminium oxide	1344-28-1	97-99	-
Colloid silver	7440-22-4	>0.5 %	-
Silverchloride	7783-90-6	<0.1 %	-

The pigments are heavy metal free and organic, approved for foodstuffs.

Contact information:  
Farben-Kiroff-Technik  
Mr. Kiroff  
Tel.: 0049 911 748 066  
E-mail: [info@kiroff.de](mailto:info@kiroff.de)  
Internet: <http://www.fkt-natur.de>

### **6.3.2 Bodios-Hydro-Wachsbeize No. 340 from Livos**

Livos' Internet page contains declaration of contents on all their products..

Accordingly the wax stain which is being used by R'elan contains of water, iron oxide and mineral pigments, bee wax soap, linseed oil, dammar (a resin from the dammar tree (Shorea), bee wax, orange peel oil, iso aliphatic, methyl cellulose, linseed stand oil, natural resin glycerine ester, shellac, borax and boric acid.

Contact information:  
Livos Pflanzenchemie  
Tel.: 0049 582 588 0  
E-mail: [info@livos.de](mailto:info@livos.de)  
Internet: [http://www.livos.de/i\\_1024.htm](http://www.livos.de/i_1024.htm)

### **6.3.3 Enolit from Zuelch**

Enolit-Colour-Contentrates (stains) are according to Zuelch being used by many toy manufacturers.

The product's data page (MSDS) mentions no hazardous agents.

Enolit stain contains: 59 % water, 25 % dispersion (copolymer), 15 % pigments and 1 % additives.

Contact information:  
Zuelch Industrial Coatings GmbH  
Mrs. Stolze-Ernst  
Tlf.: 0049 552 290 150  
E-mail: [service@zuelch.com](mailto:service@zuelch.com)  
Internet: [www.zuelch.com](http://www.zuelch.com)

#### **6.3.4 Tumbled stain from Kaiser Lacke**

According to the product data page for tumbled yellow ("trommelbeize gelb") the product contains one hazardous agent:  
2-butoxy ethanol, CAS-No. 111-76-2, contents 2.5-10 % and classification Xn;R20/21/22 Xi;R36/38.

Contact information:  
Kaiser Lacke  
Mr. Eberhard Aubele  
Tel.: 0049 911 936 390  
E-mail: [office@kaiser-lacke.de](mailto:office@kaiser-lacke.de)  
Internet: <http://www.kaiser-lacke.de>

## 7 References

- /1/ Erhvervsfremmestyrelsen (2000). Children's play and learning – An authority group in the Danish business community.
- /2/ Statistics Denmark (2002). The foreign trade divided into products and countries 2001.
- /3/ Denmark's Statistics (2002). Product statistics for industry, series C, 2001:4.
- /4/ Legekæden (2002). Personal communication with Managing Director Jens Christensen.
- /5/ Brio (2002). Personal communication with Managing Director Jørgen Hastrup.
- /6/ Minihorn (2002). Personal communication with Thomas Hornsøe.
- /7/ Top Toy (2002). Personal Communication med Jon Vastrup.
- /8/ Ökotest (1999). Sonderheft 28: Kleinkinder Teil 1, 1999 Plüschtiere.
- /9/ Farben-Kiroff Technik (2002). Personal communication with Mr. Kiroff.





## List of potential importers of toys

The list showing the 32 companies which import natural toys has been identified based on the below mentioned gross list of 448 companies. The main part (approx. 400) has been contacted over the telephone. Only those companies where going through their home pages has made it obvious that they are not importing natural toys, have not been contacted over the telephone.

The gross list of these 448 companies has primarily been based on Internet searches on [www.krak.dk](http://www.krak.dk) and [www.degulesider.dk](http://www.degulesider.dk), and /1/. Some have been added through personal interviews and a few searches on the Internet.

7-9-13 Run & Fun ApS	Best Buy Toys A/S	Danimals I/S
A Faurholt Export ApS	Billing Boats af 1982 A/S	Danpec Int. Maarten
A M Leg	BizConxion I/S	Lerink/Annette T
A. Faurholt Export	Bj Trading	Leissner
ApSA. Winther A/S	Bkh Sport & Leg	Dansk Combileg
A.K. Iversens Bakelit-, Plastic og	Blåbjerg Trampolin & Legeservice	Dansk Supermarked
Værktøjsindustri A/S	'Bob-Cart'	Dansk Vareformidling
A.W. Agentur	Bogi A/S	Danske Legepladser A/S
ABC KIDS	Boutrup Textilcenter	Dan-Sol/Uwe Apel/Dan Apel
Abcito ApS	Boysen Import	Dantoy – HP Plast A/S
Abekatten/ DAKC	Brdr. Larsen	Den Danske Dukkeskole
Klatrevægge ApS	Brinch. Aarvig Trade	Den Gamle Skole
ABSON	Brio A/S	Den Grønne Legeplads
AG Gruppen	BS Legetøj Engros A/S	Diamond Data A/S
AG-leg	Buddy/GK Legetøj	DICA A/S
Aktiv Leg	Buhl-Musik, leg & hobby ApS	Dimitrijs Jurevics
AKTIV UDE	Byberg & Nielsen I/S	Djurs Plast A/S
Albert Knudsen ApS	Bøgeløv Trading	Domino
Alea Familiespil	Børge Hermann Hansen	Ecocentrica
Allan Bente Kienast	Børnenes Magasin	Ecoshop – Kraka
Amicus Legetøj ApS	Børneshoppen	Naturvarer
Asia Import	C. Melchers Gmbh.	Edu toy
Axcept Ide & Salg	Tyskland Transfirst A/S	Egmont Litas A/S
A-Z Stapley Trading Ltd.	C.C. Natur	EH-Games I/S
AZ-SAKS eeig	Captoy	El-Legetøj I/S
B&E Trading Hviding	Celiform	Elmegaards Børnebutik
Automat Service	Cg Games	Anita Lise Elmegaard
B. K. H. Sport & Leg	Charpre International	Enebørselskabet ApS
B.V. Byggeservice	Chris Automatservice	Energy Kids
Landerslev	Cisoc Aalborg	EOS Promotion ApS
Babynature	CK Team Trading ApS	Erik Simonsen Agentur ApS
Bambi Legetøj	Classic Games	Erik Strøbæk ApS
Bambola International A/S	Classy Cart	Erimex Agencies ApS
Bamse Import	Compu Game A/S	Euro Trade & Investment Ass.
Barlin Distribution	COOP Danmark	Eurotoys
Barneshop	Copla Naturlegepladser	F.F. Import/Export ApS
Barsø Toys	COSMIC RAY'S	F.T – Trading
Bazoo	Cova Collection ApS	FA Import & Export, International Handel
BB Institutionssalg A/S	DAE Holding A/S	Fabeldyr
Beautyboxen	Dam Design	Faber og Bønne/Søren
Behrenthz Plast	Dan Hobby Kolding ApS	Maribo
Bendy Toy	Dan Jakobsen	Pedersen/Mathias Jensen
Beskæftigelsescenter	Dan Toys Bamser Joan	Facon Sport og Møbler
Højvangen	Barrit Olsen	
	Dan-Hill-Plast A/S	

## Annex A

Fantasy Workshop Poul Bak	Ht Legetøj	Lamazé
Fausto Helena Nielsen	Hvide Sande Vodbinderi ApS	Udviklingslegetøj
Filia A/S	Højgaard Tømmerhuse ApS	LandScape ApS
Finn Leg	I/S Danprof 1	Lappset
Fiona Plast A/S	IKEA	Lars Erling Jensen
Firma A. Rose	Ila Perlemønstre	Lars G. Invest ApS
Firma Gørns Int.	Imex	Lars Laj ApS
Firma Ib Norstrand	Impo-Gros Carsten	LC-Leg
Firma Kai Reisler ApS	Tangaa	Leba Legeredskaber Leif Behrend
Firma Peter Goddik	Import Export	Ledana
Fix-Idé	Indu Leg og Spil	Ledon A/S
Flensborg Legetøj	Institution A/	Leg & Hobby
Fri-Lets Production ApS	IO Interactive ApS	Legehuset
Funnyland	Iqube Company I/S	Legekompagniet A/S
Fyrværkerifirmaet	Isaak	Legekæden
Fyrtøjet	Its4kids	Legeland Herning ApS
GA Import	Iver Larsen	Legepladskontrol
Gade & Co. A/S	J Risbjerg Plast A/S	Legeshoppen
Gamemaster	J.J. Skovservice	Legetøjsbutikken
GC Legetøj	Jan Albert Klausen	Legetøjsbutikken
Geppels Legetøj	JBA Leg & Udvikling ApS	Legetøjskompagniet
Gittes Dukketojsfabrik	Jeko Trading A/S	Legetøjsmekanikeren B & E-handel
GK Legetøj	Jg Polen	Legetøjsværkstedet
Gleie International	Job og Miljø	LEGO A/S
Globe Import Kurt Anker Jensen	JOVO International ApS	Lego Dacta A/S
Godtbergsen & Espersen A/S	Joy Toy	Leico A/S
Go-Leg	Julles Snedkeri	Leif Martin
Gonge ApS	Junik Leg I/S	Leika
Gram Gruppen ApS	Jytte Kristensen	Lika – Hand Craft
Gravenhorst Plast A/S	Jøhnik's Trælegetøj	Lille Bjørn
Grønlands-Agenten A/S	Jørgen K. Hansen A/S	Linå A/S
Gyngehesten	Jørgen Slagelse	Lisa's Teddy Bears
H B Handel	Jørgensen Engros A/S	Lissy Boesen Design
H Hansen & Søn	K & M Europe (Denmark) ApS	Loke Legetøj og Møbler A/S
H Wittrock A/S	K E Mathiasen Legetøj A/S	Lotte Leg
HAGS Legeplads- & Parkudstyr	K. Høffer Larsen A/S	Ludus Legepladser
Hammer Legetøj	Kids-shop	M.B. Hansen, Kolding ApS
Hammerum & Jensen I/S	Kidz House	M.J. Automatservice
Handels & Konsulentfirma	Kika Leg & Møbler	Madsen & Co.
Toftelund Ove Henning Jørgensen	Kiwi Legetøj A/S	Magasin du Nord
Hans Andersen Og Co.	Klausen Agencies	Maileg
Hans E. Sørensen	Kleo Games A/S	Majorette
Harlekin Legetøj & Møbler ApS	Kloster Import A/S	Maki ApS
Hasbro Danmark	Klør	Malte Haaning Plastic A/S
HB Legetøj og Hobby	Know How ApS	Marbro
Heljan A/S	Kock Design	Marketing Group A/S
Hemonord ApS	Kompan A/S	Marstrat
Henka	Korsø	Mattel Northern Europe A/S
Herning Værktøjs- og Metalvarefabrik A/S	Kortkompagniet	Max Andersen
HH-Toys	Krea A/S	Max Horsens A/S
Hilda's Dukkemagasin	Krible-Krable	Mayland Import-Export
Hjalmar Jacobsen P/f	Kryptisk Legetøj	Medieselskabet
Hjulfabrikken Hami af 1982 ApS	Krølle-Bølle Puslespil	Alpha.com
HMG ApS	Kunkel Handmade Of Denmark	Merlin Kvalitetslegetøj ApS
Holger Djursaa	Kurt Poulsen	Mestertræ Eventyrleg
Holger Houe & Co.	Kusine Bodil	Midgaard Distribution A/S
Houe & Co	Kvistgården	Migma Import ApS
HP Plast A/S	Køge Dukkecenter	Mikk-Toys Leif Mikkelsen
	Kaaber Brandt Agentur ApS	Mini Tegl Modelbyggeri
	L L Handels ApS	
	L.M. Handel	

# Annex A

Minihorn	RC-Hobby/Jens Henning	Terapi-Hobby, Intercraft
Mj-Tek/Birte Lise	Munk	ApS
Mone-Tøj Og Sengetøj	Reimar Distribution ApS	The Last Viking
Til Dukker	Rejstrup Savværk ApS	The Trade House A/S
Montage	Rix Import/ Xin Dong	Thor Legetøj
Moon-Car ApS	Rosbjerg Design	Thor Legetøjsfabrik
MPP A/S	Rosendahl Design	Tip Top Legetøj Handel
M-Sprint Import/Eksport	Collection A/S	Og Service Per Wochner
Stig Nygaard	Ruddys Legetøj	Tippy A/S
Muffyshoppen	Rudeco & Truelsen A/S	Tiptap A/S
Møllers Trælegetøj	S.Litschka Tyskland	Tolb Trading
Nationaldukker	Sadolin Trade A/S	Tolico A/S
Natur-Leg ApS	Saksager Internetshop	Tommelise Dukke
Naturlegeredskaber	Salgskontoret John	Studio
Sebastian Frost	Mikkelsen,Greve ApS	Top-Toy A/S
Christiansen	Samm-Sall	TOTAL LEG ApS
Naturtræ og Legepladser	Scan Fair Danmark	Toys & Company
Naverform	Reklame	TR.LEG Træværkstedet
Nesdam Import	Scandia Design ApS	Trax
Networld Media	Scandinavian Toys &	Tress A/S
Nic Martinson	Tools	Treto inventarsystemer
Trælegetøj	Scanimex Aalborg ApS	Trixie Heimtierbedarf
Nice Toys/Stig Engell	Scantoy International	Troldegården
Jønsson	ApS	Troll Company ApS
Nikko Scandinavia Filial	Shivas Games	Træ Leg
A/S	Sigma Salg og Service	Tune Metalindustri ApS
Nikoleg	ApS	Turn-It ApS
Ninas Playbox	Skamlingsbamsen	Ulfborg Isenkram
Nobis ApS	Skandinavisk Spil	Una Form
Noles Legepladser A/S	Kompagni	Uniflex
Nordform I/S	Slangerup Leg og	Uniset A/S
Nordleg	Beskæftigelse ApS	Vagn Godthaab ApS
Nuno	Smarteunger.dk	Varan Trading I/S
Nødskov Træ & Leg	Smede-&	Vejgård
Ole Voigt Andersen	Maskinværksted/Allan	Specialpædagogisk
Omega Spil	Hansen	Legetøj
Overgaard's Autoudstyr	SMK af 10/4 1985 ApS	Veli Line ApS
PAP's Production &	Solspejlet	Vibo Leg
Performance	Spil-ApS	Viborg Ballon
P.G. Invest ApS	Spillercompagniet 6a	Vidcom Danmark A/S
Padborg Legetøj Og En	Stenboden Skjern A/S	Villy Mørup
Gros Lager ApS	Stenlille Hegn- og	Visiodan
Per Løkkegaard Finans	Legepladsudstyr ApS	Visionary ApS
ApS	Stina System Inventar	VN Legetøj A/S
Per'S Legetøj/ Per Sloth	Studio Ruzskai	W Legetøj
Photo Finish Hobby	Sundshøj Trævarefabrik	Well-Toy ApS
Pilamo Trading	og Bådebyggeri	William Thuris ApS
Pilemann	Susan Legetøj	Willum Plast A/S
Pinocchio	Susan Lydia Hasslund	World Kids ApS
Pixeline Shop	Susanne Hansen	<a href="http://www.legetoys.dk">www.legetoys.dk</a>
Playbox	Sydfyns Trælegetøj	Xinox Trading A/S
Playmix A/S	T & J Klods I/S	X-pro ApS
Pointex Fernost Handels	T. H. Automatservice	Yapon Danmark A/S
Gmbh	T.S.P. Data ApS	Zahle & Co. ApS
Polypuzzle International	T.T.Agentur	Zig Zag
Poul Andreasen A/S	T.V. Holding ApS	Aage Mottlau A/S
Poul Otto Kristensen	Tactic Games Denmark,	Århus
Preisler Productions	Filial af Nelostuote OY	Morskabsautomater
Pressebureauet Dan Line	Finland	
Primotoy	Tau Trading	
PSA World Net, Inc.	Tbl Agentur /Tuka Berg	
Pure Baby	Lynge	
Rabo	Tegnestuen Søs Og Jes	
Institutionsindretning	Hansen	
A/S	Teila Legetøj Poul	
Rainbow Consult I/S	Larsen	
Ran Play A/S	Tenderbears	
Rasmussen A/S		



## Annex B

## Contact information to Danish importers and manufacturers of natural toys

Name of importer	Street	Postal code	Town	Telephone	E-mail	Internet address
Amicus	Lindevej 12	1877	Frederiksberg C.	33 31 48 88	<a href="mailto:amicus@amicus.dk">amicus@amicus.dk</a>	<a href="http://www.amicus.dk">http://www.amicus.dk</a>
Baby Nature	Bjørnøvej 19	6100	Haderslev	74 52 74 28	<a href="mailto:info@babynature.dk">info@babynature.dk</a>	<a href="http://www.babynature.dk">http://www.babynature.dk</a>
Barsø Toys	Barsø Bygade 50	6200	Aabenraa	73 61 76 17	<a href="mailto:barsoe@barsoe-toys.dk">barsoe@barsoe-toys.dk</a>	<a href="http://www.barsoe-toys.dk">http://www.barsoe-toys.dk</a>
Brio	Frederiksværkvej 20	3600	Frederikssund	47 31 48 00	<a href="mailto:lone.hansson@brio.se">lone.hansson@brio.se</a>	<a href="http://www.brio.se">http://www.brio.se</a>
Danimals Educational Toys	Vestbirkvej 23	8752	Østbirk	75 78 18 00	<a href="mailto:info@danimals.dk">info@danimals.dk</a>	<a href="http://www.danimals.dk">http://www.danimals.dk</a>
Dansk Supermarked	Bjødstrupvej 18	8270	Højbjerg	89 30 30 30	<a href="mailto:mj.dsn@dsg.dk">mj.dsn@dsg.dk</a>	<a href="http://www.dansksupermarked.dk">http://www.dansksupermarked.dk</a>
Den Gamle Skole	Assensvej 296	5642	Millinge	62 61 75 31	<a href="mailto:post@gamleskole.dk">post@gamleskole.dk</a>	<a href="http://www.gamleskole.dk">http://www.gamleskole.dk</a>
Dica	Industrikrogen 9	4683	Rønnede	56 71 17 54	<a href="mailto:post@dica.dk">post@dica.dk</a>	<a href="http://www.dica.dk">http://www.dica.dk</a>
Ecocentrica	Søager 9	2820	Gentofte	70 26 79 79	<a href="mailto:contact@ecocentrica.com">contact@ecocentrica.com</a>	<a href="http://www.ecocentrica.com">http://www.ecocentrica.com</a>
Ecoshop	Krakasvej 2	4200	Slagelse	58 50 66 56	<a href="mailto:mailto:kraka@ecoshop.dk">mailto:kraka@ecoshop.dk</a>	<a href="http://www.ecoshop.dk">http://www.ecoshop.dk</a>
Edutoy	Skodsborgvej 305	2850	Nærum	70 26 00 07	<a href="mailto:info@edutoy.dk">info@edutoy.dk</a>	<a href="http://www.edutoy.dk">http://www.edutoy.dk</a>
IKEA				004647681000	<a href="mailto:tnil@memo.ikea.com">tnil@memo.ikea.com</a>	<a href="http://www.ikea.dk">http://www.ikea.dk</a>
Isaak	Borremosen 3A	2800	Kgs. Lyngby	44 44 74 20	<a href="mailto:isaak@image.dk">isaak@image.dk</a>	N/A
Joy Toy	Østre Grænsevej 44	2680	Solrød Strand	56 14 82 60	<a href="mailto:email@joytoy.dk">email@joytoy.dk</a>	<a href="http://www.joytoy.dk">http://www.joytoy.dk</a>
KE Mathiasen	Sintrupvej 12	8220	Brabrand	89 44 22 00	<a href="mailto:mj@keleg.dk">mj@keleg.dk</a>	<a href="http://www.keleg.dk">http://www.keleg.dk</a>
Kika	Bondemosevej 4	5540	Ullerslev	65 35 19 20	<a href="mailto:kika@pc.dk">kika@pc.dk</a>	<a href="http://www.kika-leg.dk">http://www.kika-leg.dk</a>
Krea	Skejby Nordlandsvej 303	8200	Århus N	86 78 57 00	<a href="mailto:bjorn.mikkelsen@krea.dk">bjorn.mikkelsen@krea.dk</a>	<a href="http://www.krea.dk">http://www.krea.dk</a>
Kusine Bodil	Enghave Plads 10	1670	København V	33 24 28 84	<a href="mailto:kusinebodil@mail.dk">kusinebodil@mail.dk</a>	N/A
Legekaeden	Abildvej 5G	5700	Svendborg	62 20 27 57	<a href="mailto:legekaeden.hq@getznet.dk">legekaeden.hq@getznet.dk</a>	<a href="http://www.legekaeden.dk">http://www.legekaeden.dk</a>
Leika Danmark A/S	Fabriksvej 7	5592	Ejby	64 46 10 04	<a href="mailto:rgr@leika.com">rgr@leika.com</a>	<a href="http://www.leika.dk">http://www.leika.dk</a>
Lille Bjørn	Sjællandsvej 27D	9500	Hobro	96 57 20 00	<a href="mailto:lille.bjoern@adr.dk">lille.bjoern@adr.dk</a>	<a href="http://www.lille-bjoern.dk">http://www.lille-bjoern.dk</a>
Magasin	Kongens Nytorv 13	1050	København K	33 11 44 33	<a href="mailto:erik.fuglsang@magasin.dk">erik.fuglsang@magasin.dk</a>	<a href="http://www.magasin.dk">http://www.magasin.dk</a>
Maileg	Skovvej 4	9631	Gedsted	98 64 50 46	<a href="mailto:info@maileg.dk">info@maileg.dk</a>	<a href="http://www.maileg.dk">http://www.maileg.dk</a>
Maki	Lejrvej 25	3500	Værløse	44 47 66 03	<a href="mailto:post@maki.dk">post@maki.dk</a>	<a href="http://www.maki.dk">http://www.maki.dk</a>
Minihorn	Lindevej 25	3500	Værløse	44 98 89 95	<a href="mailto:minihorn@teliamail.dk">minihorn@teliamail.dk</a>	<a href="http://www.minihorn.dk">http://www.minihorn.dk</a>
Nuno	Lejregårdsvej 6	4060	Kr. Såby	46 40 09 90	<a href="mailto:mail@nuno.dk">mail@nuno.dk</a>	<a href="http://www.nuno.dk">http://www.nuno.dk</a>
Primotoy	Sepstrupvej 65	8653	Them	86 86 92 34	<a href="mailto:primotoy@worldonline.dk">primotoy@worldonline.dk</a>	N/A
Pure Baby	Willemoesgade 4	2100	København Ø	35 55 11 62	<a href="mailto:mail@purebaby.dk">mail@purebaby.dk</a>	<a href="http://www.shop.purebaby.dk">http://www.shop.purebaby.dk</a>
Rabo	Industriparken 9	4640	Fakse	56 71 33 66	<a href="mailto:rabo@rabo.dk">rabo@rabo.dk</a>	<a href="http://www.rabo.dk">http://www.rabo.dk</a>
Solspejlet	Frederiksborggade 41	1360	København K	33 33 72 12	<a href="mailto:solspejlet@solspejlet.dk">solspejlet@solspejlet.dk</a>	N/A
The Last Viking	Lejrestofte Mark 3	4660	Store Heddinge	56 52 90 07	<a href="mailto:larsen@larsendanmark.dk">larsen@larsendanmark.dk</a>	<a href="http://www.larsendanmark.dk">http://www.larsendanmark.dk</a>
Top Toy	Roskildevej 16 Tune	4000	Roskilde	46 16 36 56	<a href="mailto:iva@top-toy.dk">iva@top-toy.dk</a>	<a href="http://www.top-toy.com">http://www.top-toy.com</a>
Tr-Leg	Sønder Hammer 188	3730	Nexø	56 49 45 35	<a href="mailto:trleg@post4.tele.dk">trleg@post4.tele.dk</a>	<a href="http://www.trleg.dk">http://www.trleg.dk</a>
VN Legetøj	Stormosevej 11	8361	Hasselager	86 28 32 11	<a href="mailto:pwe@vn-toys.dk">pwe@vn-toys.dk</a>	N/A



## Information about suppliers of wooden natural toys to Denmark

Manufacturer	Contact Information	Type of toys	Type(s) of wood and origin
Brio, Denmark	Frederiksværkvej 20, 3600 Frederikssund Denmark <a href="http://www.brio.se">http://www.brio.se</a>	Toy bricks and wooden animals	Beech, Central Europe
Chelona, Greece	chelona@the.forthnet.gr <a href="http://www.chelona.gr/products.htm">http://www.chelona.gr/products.htm</a>	Puzzles	"Krydsfinér" from Russia
Child Friend Wood Toys, Taiwan	No.6 lane 848 Shoeichetour duan Guanpu Rd Hsinchu Hsien 305, Taiwan <a href="http://www.childfriendtoys.com">http://www.childfriendtoys.com</a>	Mixed	Beech from Poland, France and Austria
Eddutoy, Thailand	146 Moo 10 Suanluang Krathoomban, Samut Prakarn 74110, Thailand pichit@edduoy.com	Mixed	Gummitræ, Thailand
Haba, Germany	August-Grosch-Straße 28-38 Postfach 1107 96473 Bad Rodach, Germany <a href="http://www.haba.de">http://www.haba.de</a>	Rattles, bricks and sucking chains	Beech from Germany and maple from North America
Hermann Rossberg, Germany	Lohberger Straße 2 D-93462 Lam, Germany <a href="http://www.heros-toys.de/index4.html">http://www.heros-toys.de/index4.html</a>	Bricks, railways and hammering boards	Beech and maple from Germany
Hess Holz, Germany	Grünthaler Straße 112 D-09526 Olbernhau, Germany <a href="http://www.hess-holzspielzeug.de">http://www.hess-holzspielzeug.de</a>	Rattles, sucking chains and activity toys for babies	Beech from Germany
I'm International, Thailand	351/86 Rama 9 rd., Bangkapi, Hhuay Kwang, Bangkok 10320 Thailand. <a href="http://dep.thaixport.com/~iminter/index.htm">http://dep.thaixport.com/~iminter/index.htm</a>	Rattles, sucking chains and activity toys	Rubber tree, Thailand
Käfer & Partner	<a href="mailto:tralek@swipnet.se">tralek@swipnet.se</a> 0046431454485	N/A	N/A
Kulla Träteknik, Sweden	Germanenstr. 9 72768 Reutlingen, Germany <a href="http://www.glueckskaefer.de">http://www.glueckskaefer.de</a>	N/A	Beech, pine
Nictoys, Germany	Postfach 1316 D-88463 Laupheim, Germany <a href="http://www.nictoys.de">http://www.nictoys.de</a>	Vehicles, rattles and other activity toys for babies	Beech
Ostheimer, Germany	Boschstrasse 23, 73119 Zell, Germany <a href="http://www.ostheimer.de/start.htm">http://www.ostheimer.de/start.htm</a>	Wooden animals	Maple and ash
Pin International, Thailand	22/7 Moo 7 Bangna-Trad. Rd., Km. 17.5., Bangchalong, Bangplee, Samut Prakarn 10540, Thailand. <a href="http://www.pintoys.com">http://www.pintoys.com</a>	N/A	Rubber tree, Thailand
Plantoy, Thailand	114/1 Planhouse III, Sathorn 10, Bangrak, Bangkok 10500, Thailand <a href="http://www.plantoy.com/enter.htm">http://www.plantoy.com/enter.htm</a>	Vehicles and alike	Rubber tree, Thailand

## Annex C

Reha (R'elan)	Markplatz 10 79312 Emmendingen, Germany <a href="http://www.relan.de">http://www.relan.de</a>	N/A	N/A
Santa Factory, Thailand	3/25 Moo 2, Chimpfli Rd., Talin- Chan, Bangkok 10170, Thailand <a href="http://www.santafty.com">http://www.santafty.com</a>	Various	Rubber tree, Thailand
Schaaf-Spielzeug, Germany	0049657196066 <a href="http://www.schaaf-spielzeug.de">http://www.schaaf-spielzeug.de</a> <a href="mailto:gert.schaaf@t-online.de">gert.schaaf@t-online.de</a>	Rattles	Maple and beech
Selecta Spielzeug, Germany	Römerstraße 1 D-83533 Edling, Germany <a href="http://www.selecta-spielzeug.de/english/index.html">http://www.selecta-spielzeug.de/english/index.html</a>	Baby toys and puzzles	Beech, pine, maple and birch
Siam Wooden Products, Thailand	140 Moo 7, Soi Watsriwarenoi, Bangna - Trad Rd., Km. 18, Bangplee, Samut Prakarn 10540, Thailand <a href="http://www.voilatoy.com/menu/eIndex.htm">http://www.voilatoy.com/menu/eIndex.htm</a>	N/A	Rubber tree, Thailand
Spiel & Holz Design, Germany	Zwischen den Dörfern 7 D-72829 Engstingen, Germany <a href="http://www.spielholzdesign.de">http://www.spielholzdesign.de</a>	Animals, towers, rattles, etc.	European wood
Uncle Goose, USA	407 Richmond NW Grand Rapids, MI 49504, USA <a href="http://www.unclegoose.com">http://www.unclegoose.com</a>	N/A	Lime tree, North America
Wonderworld, Thailand	172 Moo 4. Soi Wat Praifah Bangkok-Pathumthani Road 12000, Thailand <a href="http://www.softwoodtoy.com/index-2.html">http://www.softwoodtoy.com/index-2.html</a>	Various baby activity toys	Rubber tree, Thailand



## Description of analysis of pesticides and elements

### PESTICIDE ANALYSES

#### **Non-polar pesticides**

A weighed testing amount (approx. 5 g) was extracted with an organic solvent added deuterium marked internal standards.

The extract was reconcentrated and then analyzed through capillary gas chromatography combined with mass spectrometry (GC-MS).

Repeat determination was being performed.

#### **Polar pesticides**

A weighed testing amount (approx. 5 g) was extracted with an organic solvent added deuterium marked internal standards.

The extract was reconcentrated and derivated and then analyzed through capillary gas chromatography combined med mass spectrometry (GC-MS).

Repeat determination was being performed.

#### **Comments**

Only test were made of the outer cloth materials.

Teddy bear: A test was made only of the brown fur.

Rabbit animal: Tests have been made of grey part, green part and a white part in the proportion approx. 2:2:1.

Musical moon: Equal parts have been taken of the 3 materials, yellow, white and blue.

According to the Oeko-Tex 100 Regulation, <http://www.oeko-tex.com>, analysis has been made for the following pesticides:

Pesticide	CAS-No.	Detection limit µg/kg
2,4,5-T	93-76-5	20
2,4-D	97-75-7	20
Azinphos-hyl	2642-71-9	100
Aldrin	309-00-2	60
Bromophos-ethyl	4824-78-6	20
Captafol	2425-06-1	40
Carbaryl	63-25-3	20
Chlordane	57-74-9	80
Chlordimeform	1970-95-9	20
Chlorfenvinphos	470-90-6	100
Coumaphos	56-72-4	100
Cyfluthrin	68359-37-5	150
Cyhalothrin	91465-08-6	150
Cypermethrin	52315-07-8	150
DEF	78-48-8	100
Deltamethrin	52918-63-5	150
DDD	53-19-0, 72-54-8	20
DDE	3424-82-6, 72-55-9	20
DDT	50-29-3, 789-02-6	20
Diazinon	333-41-5	50
Dichlorprop	120-36-2	80
Dicrotophos	141-66-2	100
Dieldrin	60-57-1	20
Dimethoate	60-51-5	100
Dinoseb	88-85-7	100
Dinosebacetate	2813-95-8	600
α-Endosulfan, β-Endosulfan	115-29-7, 33213-65-9	150
Endrin	72-20-8	100
Fenvalerate, Esfenvalerate	51630-58-1, 66230-04-4	100
Heptachlor	76-44-8	40
Heptachlorepoxyd	1024-57-3	100
Hexachlorbenzen	118-74-1	20
α-Hexachlorcyclohexan (α-HCH)	319-84-6	20
β- Hexachlorcyclohexan (β-HCH)	319-85-7	20
δ- Hexachlorcyclohexan (δ-HCH)	319-86-8	20
Lindan	58-89-9	20
Malathion	212-75-5	100
MCPA	94-74-6	50
MCPB	94-81-5	100
Mecoprop	93-65-3	20
Methamidophos	10265-92-6	150
Methoxychlor	72-43-5	100
Mirex	2385-85-5	20
Monocrotophos	6923-22-4	100
Quinalphos	13593-03-8	100
Parathion	56-38-2	100
Parathion-methyl	298-00-0	100
Phosdrin/Mevinphos	7786-34-7	100
Propethamphos	31218-83-4	20
Profenophos	41198-08-7	100
Toxaphen/ Camphechlor	8001-35-2	2000
Trifluralin	1582-09-8	20

## ELEMENT ANALYSES

Five tests of cloth material have been analysed through X-ray technique (Philips PW 2400/UNIQUANT, ver. 4.51).

## Annex D

Concentrations in a surface<sup>13</sup> for all elements from atom No. 11 are determined. That means that the following elements are excluded: Hydrogen, helium, lithium, beryllium, boron, carbon, nitrogen, oxygen, fluorine and neon.

Detection limit is 5-10 mg/kg.

Repeat determination has been performed.

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<sup>13</sup> How far down in the surface the analysis reaches, depends upon the individual atom's qualities. The higher the atom number is, the further down into the material the atom can be detected. For instance sodium (atom No. 11) can be detected down to 0.05 mm and lead several centimetres. The minimum depth is sufficient to measure everything in such a homogeneous material as natural fibres.