

**The Swedish Chemicals Agency's
Analyses in Conjunction with
Enforcement 2016**

ENFORCEMENT 7/17



The Swedish Chemicals Agency is supervisory authority under the Government. We work in Sweden, the EU and internationally to develop legislation and other incentives to promote good health and improved environment. We monitor compliance of applicable rules on chemical products, pesticides and substances in articles and carry out inspections. We also provide guidance regarding enforcement and inspections to municipalities and county administrative boards. We review and authorise pesticides before they can be used. Our environmental quality objective is A Non-toxic Environment.

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Preface

The Swedish Chemicals Agency is the central enforcement authority for regulations within the field of chemicals. One aspect of the Agency's supervisory activities consists of conducting chemical analyses of products in order to check that they do not contain hazardous chemical substances and substances to which legal restrictions apply. This report is a synthesis of the analyses conducted by the Swedish Chemicals Agency's Enforcement and Registries Department over the course of 2016. The report does not encompass those analyses that other parts of the Agency have requested. The synthesis has been performed by Frida Ramström at the Unit for Enforcement of Rules – Pesticides and Articles.

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Summary

The Enforcement and Registries Department at the Swedish Chemical Agency's makes inspections of companies manufacturing, importing and providing chemical products and articles that have been treated with or contain chemical substances. One part of the inspection activity includes chemical analyses of products to check that they fulfil the requirements of the legislation. This report is an account of analyses made by the Enforcement Department during 2016.

The products that have been analysed are within the following categories:

- toys and childcare articles
- clothing, shoes and accessories
- electrical products
- building materials and furnishings
- sports and leisure equipment
- chemical products.

In total, 692 products have been tested during 2016 and 18 percent of these contained forbidden substances in levels above the limit values in the legislation. This proportion is at the same level as previous years.

The category with the highest proportion of forbidden substances was electrical products. Building material and furnishings was the category in which we found the lowest proportion of forbidden substances and the articles that we controlled in that category were textiles for interior design.

We informed the companies that had sold the products containing forbidden substances and in most cases, they made a voluntary withdrawal from the market. In the cases when they did not do this, we made a decision on ban on sale. We share the results from the analyses with other enforcement authorities and the public also receive some information. In this way, others may use the results and focus their effort on the products with the highest risk of containing hazardous and forbidden substances.

In the future, we will continue to prioritize enforcement of the product categories mentioned in this report and focus on the products that we estimate have the highest risk of containing dangerous substances. Chemical analysis of articles and chemical products is an important part of this work. We will publish the results in separate reports for individual projects and in annual compilations like this one.

Sammanfattning

Kemikalieinspektionens tillsynsavdelning inspekterar företag som tillverkar, importerar och säljer kemiska produkter och varor som innehåller eller har behandlats med kemiska ämnen. Som en del av kontrollen utförs kemiska analyser av produkter för att kontrollera att produkterna klarar de krav som finns i lagstiftningen. Denna rapport är en sammanställning av de analyser som tillsynsavdelningen har gjort under 2016.

De produkter som Kemikalieinspektionen har analyserat sorterar under kategorierna *leksaker och barnvårdsartiklar, kläder, skor och accessoarer, elektriska produkter, byggvaror och inredning, sport- och fritidsvaror* samt *kemiska produkter*. Totalt har 692 produkter analyserats under 2016 och 18 procent av dessa innehöll förbjudna ämnen i halter över gränsvärden i lagstiftningen. Det är ungefär samma nivå som tidigare år.

Den varugrupp som hade störst andel varor med otillåtna ämnen i var *elektriska produkter*. *Byggvaror och inredning* var den kategori varor som vi hittade minst otillåtna ämnen i, och då var det inredningstextilier som vi kontrollerade.

Vi informerade företagen som hade sålt de varor som vi hittade förbjudna ämnen i och i de flesta fall valde de att frivilligt dra tillbaka varorna från marknaden. I de fall de inte gjorde det tog vi beslut om försäljningsförbud. Analysresultaten delas med andra länders tillsynsmyndigheter och allmänheten får också ta del av viss information. På så sätt kan andra aktörer dra nytta av resultaten och själva rikta insatser mot de varor där det finns stor risk att hitta skadliga och förbjudna ämnen.

Vi kommer även fortsättningsvis att prioritera tillsyn av de varugrupper som beskrivs i denna rapport och fokusera på de varor som vi bedömer har störst risk för innehåll av farliga ämnen. Att göra analyser av varor och kemiska produkter är en viktig del av vårt arbete. Vi kommer att publicera resultaten i enskilda rapporter för individuella projekt samt i årssammanställningar som denna.

1 Introduction

1.1 About the Swedish Chemicals Agency

The Swedish Chemicals Agency is a supervisory authority under the Government of Sweden. We work in Sweden, in the EU and internationally to develop legislation and other instruments to reduce the risks of chemicals to humans and the environment. The Enforcement Department inspects that companies comply with the legislation for chemical products, pesticides and articles. We also provide guidance regarding enforcement and inspections to municipalities and county administrative boards. The Swedish chemicals agency is responsible for the national goal *A non-toxic environment* set by the Swedish Government.

1.2 Background

As one aspect of the enforcement activities, the Swedish Chemicals Agency has checked the content of chemical substances in articles and chemical products using analyses. These chemical analyses have been conducted partly by using the Agency's own XRF instrument¹ and partly by the help of accredited external laboratories. The analyses have been conducted within the scope of product-specific projects. The aim of this report is to synthesise and provide an overview of information and results from the analyses ordered by the Swedish Chemicals Agency over the course of 2016. The report does not encompass those analyses that other parts of the Swedish Chemicals Agency have ordered, for example surveys of chemical substances in articles.

The regulations the Swedish Chemicals Agency enforces are largely common to the entire EU. The legislation differentiates between *chemical products* and *articles*. Chemical products are individual chemical substances or mixtures of substances, commonly in liquid or powder form. Examples of these are paint, glue and various types of pesticides. Articles are objects where the physical form, surface or design has greater significance to their function than the chemical content, with examples being clothing, electronics and dolls.

Appendix 1 contains a glossary explaining abbreviations that appear in the report. A list and short description of the regulations mentioned in this report can be found in Appendix 2.

Conjunctions of the chemical analyses made by the Swedish Chemicals Agency can be found in reports for 2008-2013² and for 2014-2015³.

2 Analyses

The majority of analyses ordered by the Swedish Chemicals Agency over the course of 2016 have concerned substances in articles, but chemical products have also been analysed. In some cases, there are separate reports (see section 3.5 *Further information*). Please note that analyses reported here do not provide a representative picture of the market as a whole. The selection of products for testing is conducted from an enforcement perspective. It is not a

¹ XRF (X-ray fluorescence) is a technique based on X-rays that is able to measure the content of elements in certain materials.

² Report no. 6/14 Analyses by the Swedish Chemicals Agency in connection with enforcement 2008-2013 (<http://www.kemi.se/global/tillsyns-pm/2014/tillsyn-6-14-analyses-2008-2013.pdf>)

³ Report no. 7/16 The Swedish Chemicals Agency's analyses in conjunction with enforcement 2014-2015 (<http://www.kemi.se/global/tillsyns-pm/2016/tillsyn-7-16-analyses-2014-2015.pdf>)

statistical selection, rather articles and products that are judged to have a greater probability of non-compliance are prioritised.

In the section below, the articles have been divided into groups of articles that we have prioritised for inspection⁴ and involved in our action plan for a non-toxic everyday environment⁵. A figure depicting the analytical results appears at the end of this section. The number of products that do not comply with the legislative requirements is stated in red. Orange indicates the number of articles in which substances included on the Candidate List in the REACH Regulation (read more about this in Appendix 2) are present in concentrations in excess of 0.1 percent by weight. In the case of these articles, the recipient must be provided with information about the content of such substances. Yellow bars show how many articles contain restricted substances in concentrations below the limit values or substances that are not regulated for the specific group of articles but which still have hazardous properties. Products which did not contain any of the substances looked for in the analyses are shown in green. The reason why the products are divided into these four groups is to visualise the substances found in the analysis even though they are not prohibited. For some groups of articles, there are very few substances that are restricted, but substances with hazardous properties can still be found in these. One such example is training apparatus, where substances that are restricted in groups such as toys and electronics are permitted.

The review below does not contain a detailed account of the quantity of different substances found or in which specific products these are found. For more detailed information, please see section 3.5 *Further information* or contact the Swedish Chemicals Agency.

2.1 Toys and childcare articles

We have tested 73 different types of toys and have found prohibited concentrations of:

- phthalates and SCCPs in plastic toys
- lead and cadmium in electrical toys.

2.1.1 Plastic toys

In 2016, 44 plastic toys were checked as part of an enforcement project. Two of these contained prohibited substances in concentrations over the limit values. These substances were short-chained chlorinated paraffins (SCCPs) and Bis(2-ethylhexyl) phthalate (DEHP) found in stickers. Restricted substances in concentrations lower than the limit values were found in seven of the toys. None of the substances sought were found in 35 of the toys.

Phthalates – are used as softeners in plastic material, mainly in PVC. Some phthalates (e.g. DEHP) are classified as toxic to reproduction.

SCCP – are used as softeners and flame retardants in e.g. PVC. SCCP is toxic to the environment and suspected of causing cancer.

⁴ Report no. 4/11 Strategy for the enforcement of legislation concerning environmental and health risks from chemicals in articles

(<http://www.kemikalieinspektionen.se/global/rapporter/2011/rapport-4-11-varutillsyn.pdf>)

⁵ <http://www.kemi.se/en/about-us/our-work/action-plan-for-a-toxic-free-everyday-environment>

2.1.2 Electrical toys

Checks of 12 electrical toys were also conducted as part of the same project mentioned above concerning plastic toys. Of these, nine contained lead in concentrations in excess of the limit value. Two of these also contained cadmium in excess of the limit value. However, three of the electric toys did not contain any of these substances.

2.1.3 Paint, adhesives, modelling clay and crayons

In a project, 12 paints, adhesives and modelling clays for kids were checked. Nine of these contained preservatives (MIT, CMIT, BIT) that we were looking for in the analyses. These substances are not forbidden to use in these products, the analyses were made to check that the products had been classified and labelled correctly. In the rest of the products, none of the substances we sought were found.

In a project concerning toys from fast food restaurants we checked crayons. None of these contained any of the substances we were looking for.

2.1.4 Metal Toys

Three metal toys were analysed during 2016. One of these contained lead and chromium and another one released nickel. However these were all in concentrations below the limit value in the Toy Safety Directive. In the third metal toy none of the substances we were looking for were found.

Chromium – used in different metal articles and in leather tanning. It is mainly hexavalent chromium that can be harmful since it can cause contact allergy.

2.1.5 Packaging

A package for a toy made of see through soft plastic was analysed. The result showed that it contained cadmium in a concentration in excess of the limit value in the Packaging Directive. However a retest of a package from the same batch showed no cadmium content.

2.1.6 Overview of toys and childcare articles

Figure 1 and Figure 2 contain overviews of how many of the various types of toys and childcare articles that have been tested and the results of the analyses.

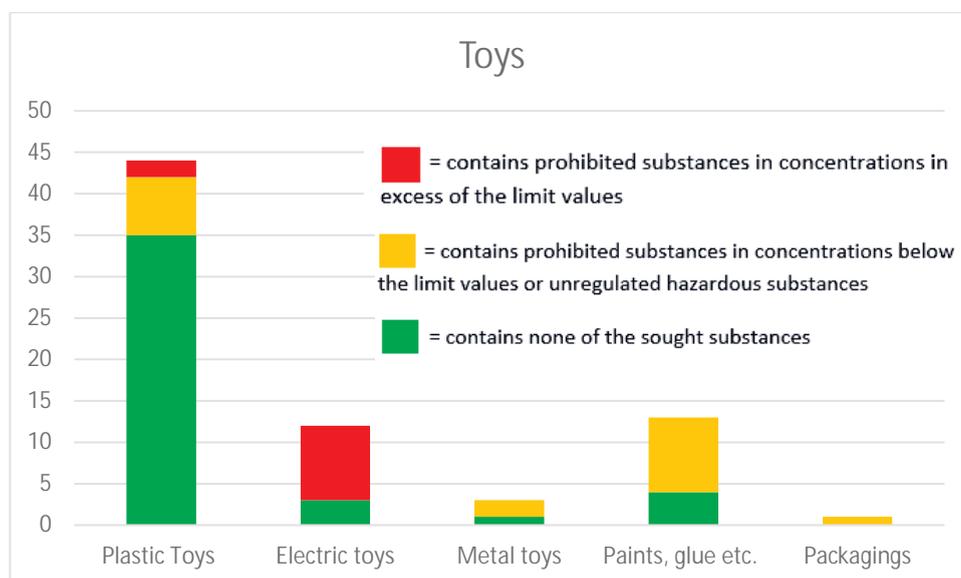


Figure 1. Toys that have been analysed by the Swedish Chemicals Agency during 2016.

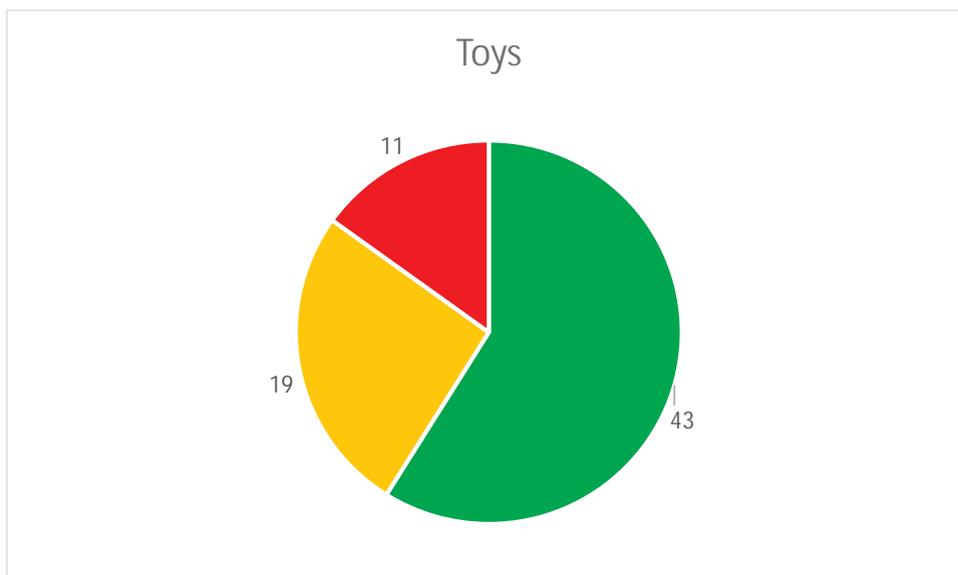


Figure 2. The number of toys and childcare articles that contained restricted substances in excessive concentrations (red), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

2.2 Clothing, shoes and accessories

In the category clothing, shoes and accessories we have tested 151 articles and found prohibited concentrations of:

- cadmium, lead, mercury, azo colorants and nickel in jewellery.

2.2.1 Jewellery

In an enforcement project in 2016 we analysed 143 pieces of jewellery. 43 of these contained cadmium, lead, azo colorants and/or mercury, and/or emitted nickel in concentrations in excess of the limit values in the legislation. In a further five articles, lead or nickel were found in concentrations under the limit values. 95 of the tested jewellery articles did not contain any of the substances we were looking for.

2.2.2 Shoes

In a project concerning plastic and rubber articles we tested two pairs of wellington boots and one pair of plastic sandals. They all contained polyaromatic hydrocarbons (PAHs) that are not restricted.

2.2.3 Protective equipment

In a project concerning plastic and rubber articles we tested one pair of earmuffs, one pair of sunglasses and one pair of garden gloves, all in the category protective equipment. They all contained polyaromatic hydrocarbons (PAHs) that are not restricted.

Cadmium – is for example used in metal alloys and in PVC plastic. Cadmium is harmful to the skeletal system and kidneys.

Lead – is for example used in metal alloys to soften the metal and in plastic as a stabilizer. Lead can damage the learning abilities and the central nervous system.

Mercury – can be present as an impurity in metal articles. Mercury can damage the nervous system and the brain and is toxic to the environment.

Nickel – is used in different metal alloys in articles, e.g. in jewellery. If nickel is emitted from the article it can cause contact allergy.

2.2.4 Other accessories

We also tested a plastic bag in the project concerning plastic and rubber articles mentioned above. It contained polyaromatic hydrocarbons (PAHs) that are not restricted.

2.2.5 Overview of the analyses of clothing, shoes and accessories

Figure 3 and Figure 4 contain overviews of how many articles in the group clothing, shoes and accessories that have been tested and the results of the analyses.



Figure 3. Clothing, shoes and accessories that have been analysed by the Swedish Chemicals Agency during 2016

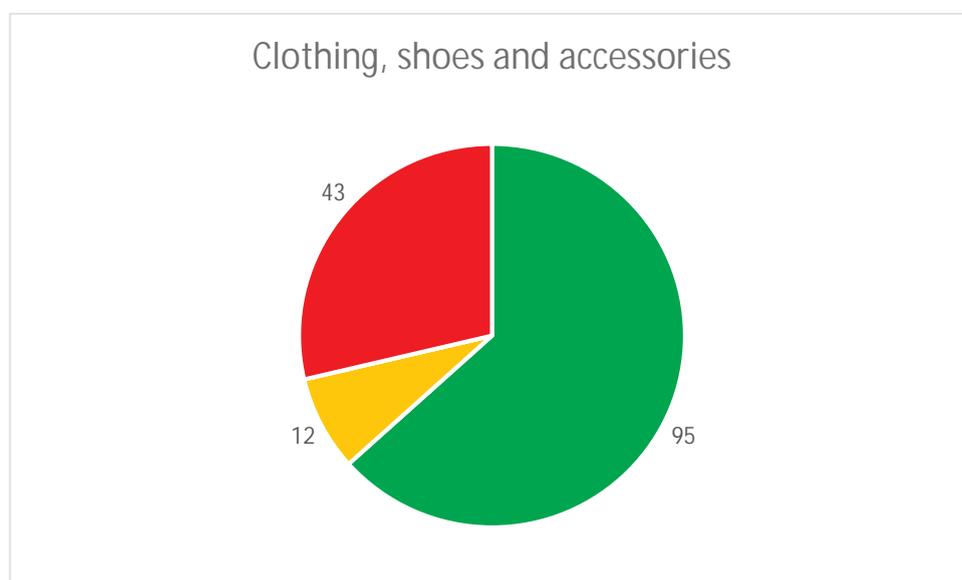


Figure 4. The number of articles in the group clothing, shoes and accessories that contained restricted substances in excessive concentrations (red), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

2.3 Electrical Products

We have analysed 157 low-price electrical products and in these we have found prohibited concentrations of:

- lead, mainly in solders inside the products
- SCCP in soft plastic, e.g. in cords
- cadmium in solders inside products
- polybrominated diphenyl ethers (PBDE) in a plastic part.

2.3.1 Low-price electrical products

During 2016 we analysed 157 low-price electrical products, e.g. bike lights, USB-cables, torches and calculators. 58 of these contained restricted substances in concentrations in excess of the limit values in the legislation. The substances found were lead and cadmium in solders, SCCP in soft plastic parts and the flame retardant Decabromodiphenyl ether (decaBDE) in a plastic part. Six products contained substances on the candidate list in concentrations resulting in an obligation to inform the recipient of the product about it. The substances we found were the phthalates DEHP, Diisobutyl Phthalate (DIBP) and SCCP (in concentrations below the restricted level). 22 products contained restricted substances in concentrations below the maximum concentration allowed. In these cases it was Polybrominated diphenyl ethers, DEHP and DBP, SCCP, lead and cadmium. In addition three products contained polyaromatic hydrocarbons (PAHs) that are not restricted. 71 of the products did not contain any of the substances we were looking for.

Polybrominated diphenyl ethers- are used as flame retardants, e.g. in electronics and textile material. DecaBDE is persistent and hazardous to the environment.

2.3.2 Overview electrical products

Figure 5 and Figure 6 contain overviews of how many articles in this group of electrical products that have been tested and the results of the analyses.

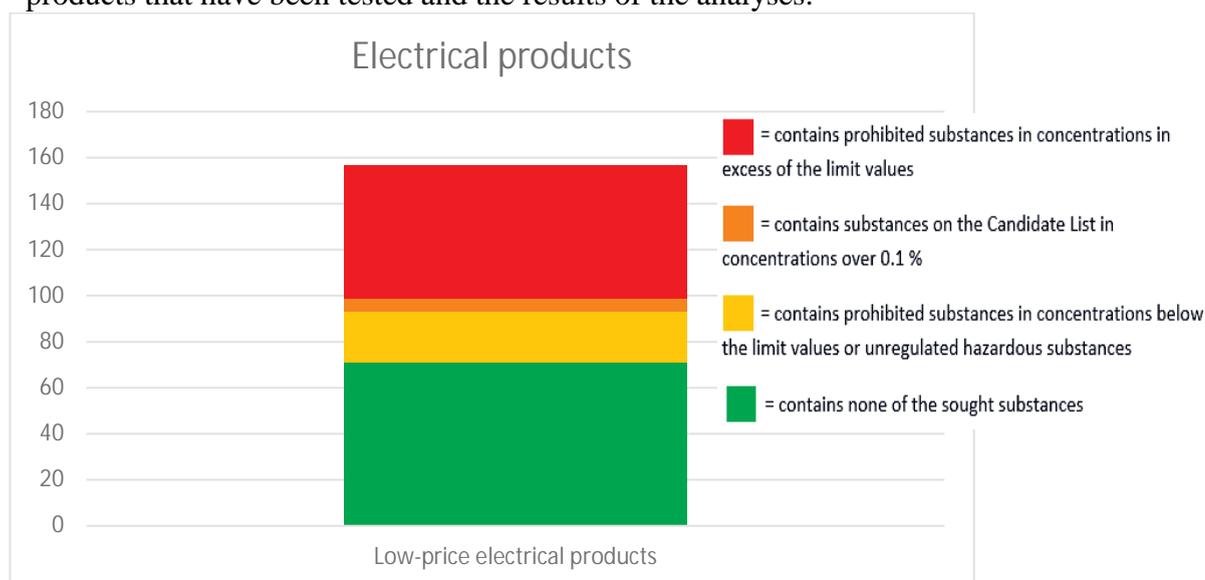


Figure 5. Electrical products that have been analysed by the Swedish Chemicals Agency during 2016.

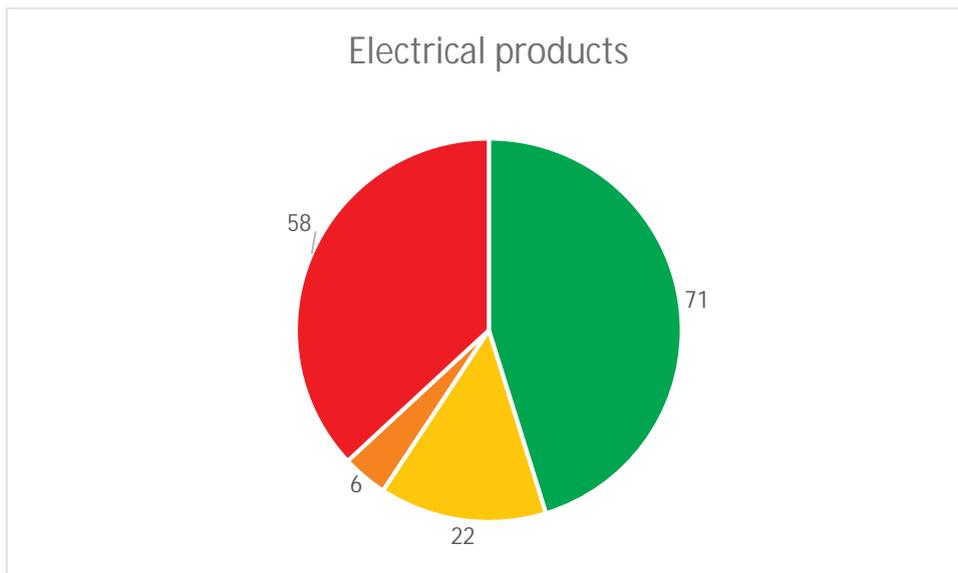


Figure 6. The number of electrical products that contained restricted substances in excessive concentrations (red), contained substances on the Candidate List over 0.1 percent (orange), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

2.4 Building materials and furnishings

We have analysed 167 articles in the group building materials and furnishings, all in the category textiles for home furnishing. In these we have found prohibited concentrations of:

- azo colorants in a pillow case.

2.4.1 Textiles for home furnishing

In a project concerning textiles for home furnishing we analysed 167 textile articles, mainly bed linen and towels. In one of these articles, a pillow case, we found a restricted azo colorant in a concentration in excess of the limit value in the legislation. We found the substances nonylphenol and nonylphenol ethoxylates in 23 products, however in low concentrations. 143 of the tested products did not contain any of the substances we were looking for.

Azo colorants – a large group of substances used for colouring textiles and leather. Some of them can be degraded to substances that can cause allergy and cancer.

Nonylphenol ethoxylates – used as a process chemical in various steps during the manufacture of fabrics. Are degraded to nonylphenol in the environment which can be toxic to aquatic life.

2.4.2 Overview building materials and furnishings

Figure 7 and Figure 8 contain overviews of how many articles in the group building materials and furnishings that have been tested and the results of the analyses.

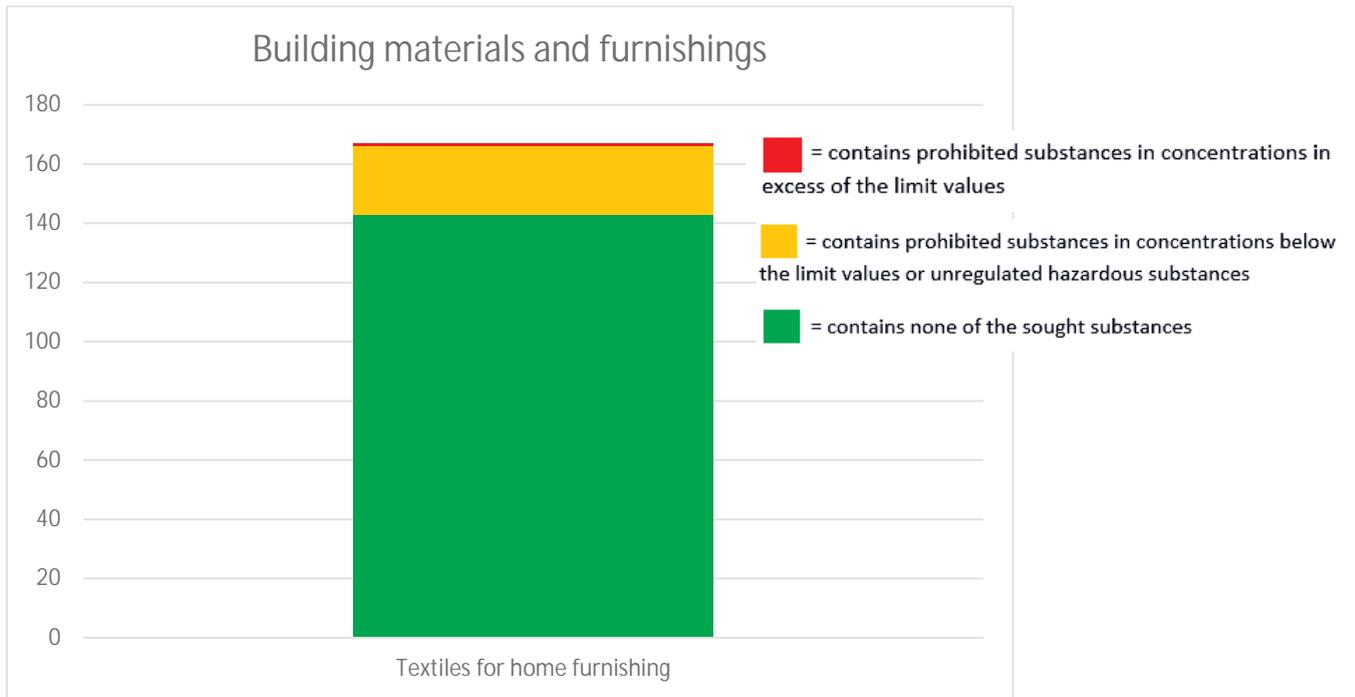


Figure 7. Building materials and furniture that have been analysed by the Swedish Chemicals Agency during 2016.

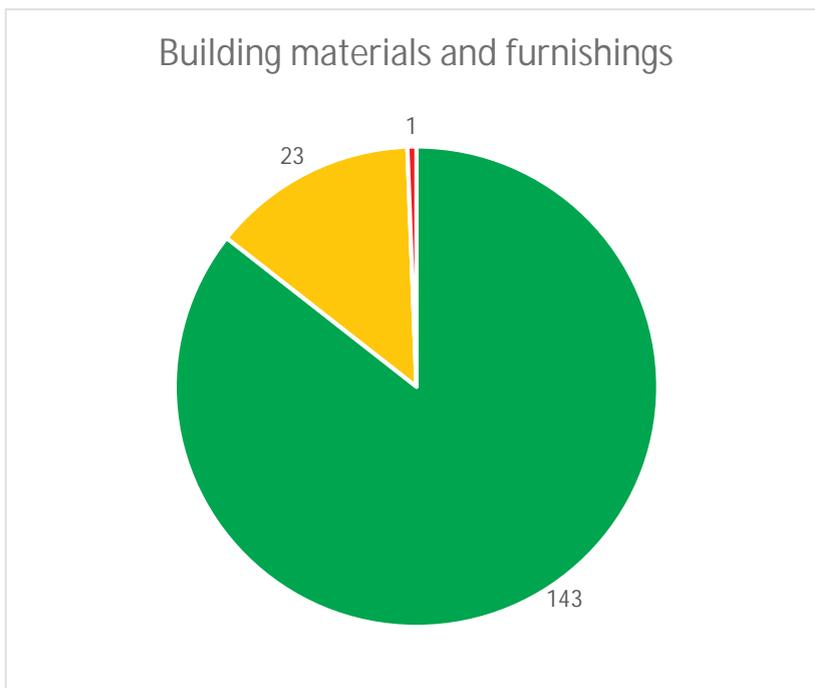


Figure 8. Distribution of building materials and furniture that contained restricted substances in excessive concentrations (red), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

2.5 Sports and leisure equipment

We have analysed 94 articles in the group sport and leisure equipment. In these we have found:

- restricted concentrations of SCCP in a sex toy
- restricted concentrations of PAHs, SCCP and lead in seven vehicle accessories, tools and articles for animals
- substances on the candidate list in concentrations over 0.1 percent by weight in five articles.

2.5.1 Sex toys

During 2016 we analysed 44 sex toys, mainly made of soft plastic and/or with electric devices. In one case we found that a dildo contained SCCP in a concentration in excess of the limit value in the legislation. Three sex toys contained DEHP, a substance on the candidate list, in concentrations above 0.1 percent by weight. Then, the supplier of the article has the obligation to inform the recipient of the article about the content in accordance with the REACH Regulation. Another five articles contained low concentrations of restricted substances (DEHP and lead) or substances that are not restricted for this type of article (Diisononyl phthalate (DINP)). In 35 of the tested sex toys we did not find any of the substances we were looking for.

2.5.2 Sports equipment

In a project concerning plastic and rubber articles we tested 19 articles of sports equipment made of rubber and plastic. A yoga mat contained SCCP in a concentration in excess of the limit value in the legislation. A rubber handle for gym equipment contained to high concentrations of restricted PAHs. A work out wheel contained DEHP in a concentration higher than 0.1 percent by weight meaning that the supplier has the obligation to inform the recipient of the article about the content. In the remaining 16 articles of sports equipment we found PAHs that are not restricted.

Polycyclic aromatic hydrocarbons (PAHs) – can be found in plastic and rubber parts of articles as impurities. Several substances in this group can cause cancer or genetic damage.

2.5.3 Tools

In the same project mentioned above we also analysed 16 tools. Two of these contained restricted substances, a hammer where the handle contained restricted PAHs and lead and a rubber blade that contained restricted PAHs. The 14 other tools contained PAHs that are not restricted or low concentrations of DEHP.

2.5.4 Vehicle accessories

In a project concerning plastic and rubber articles we tested 12 vehicle accessories, e.g. bike and motorbike handles and steering wheel protection for cars. Two rubber handles contained to high concentrations of restricted PAHs and one of them also contained lead. A steering wheel protection contained DEHP in a concentration higher than 0.1 percent by weight, which means that the supplier has an obligation to inform the receiver of the article about the content in accordance with the REACH Regulation. The other nine vehicle accessories contained PAHs that are not restricted and some contained low concentrations of the phthalates DEHP and DIBP.

2.5.5 Articles for animals

Three articles for animals were also tested in the project concerning rubber and plastic articles. A rubber comb for horses contained to high concentration of restricted PAHs. The two other articles contained PAHs that are not restricted.

2.5.6 Overview Sports and leisure equipment

Figure 9 and Figure 10 contain overviews of how many articles in the group of sports and leisure equipment that have been tested and the results of the analyses.

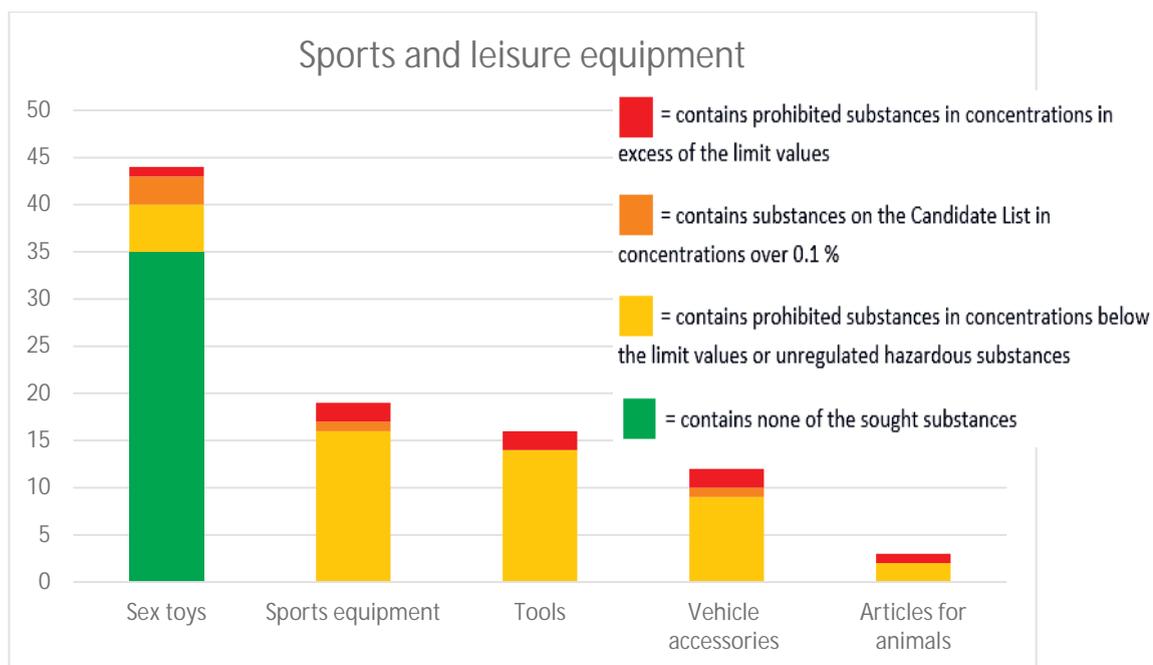


Figure 9. Sports and leisure equipment that has been analysed by the Swedish Chemicals Agency during 2016

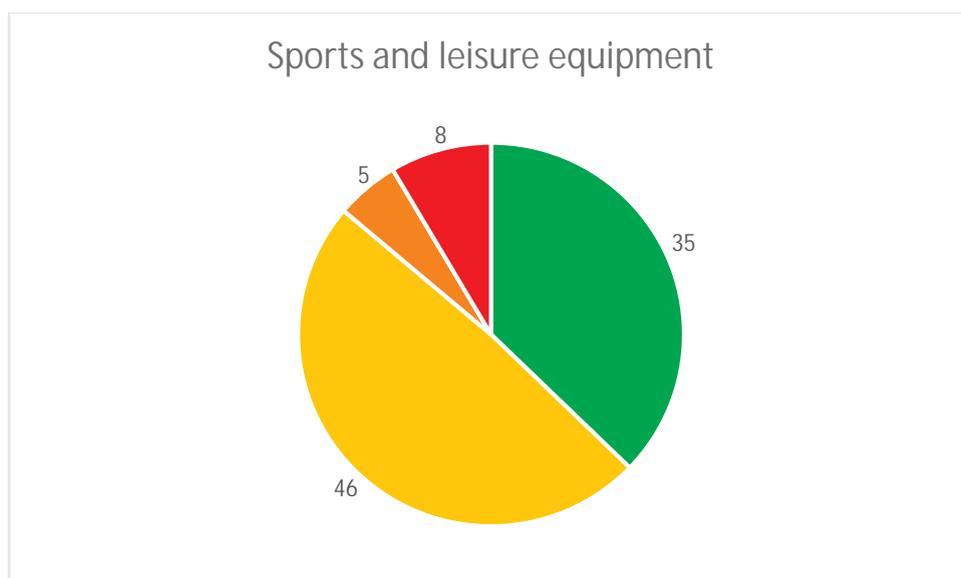


Figure 10. Distribution of sports and leisure equipment that contained restricted substances in excessive concentrations (red), contained substances on the Candidate List over 0.1 percent (orange), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

2.6 Chemical products

We have analysed 51 chemical products and in these we have found prohibited concentrations of:

- ammonium nitrate in cold packs.

2.6.1 Paint and adhesives

In a project concerning paint and adhesives we analysed 29 paints and adhesives (apart from the toys described in section 2.1.3) regarding their content of the preservatives methylisothiazolinone (MIT), methylchloroisothiazolinone (CMIT) and benzisothiazolinone (BIT). These substances are not restricted in paints and adhesives, the analyses were made to check that the classification and labelling of the products were correct. 28 of the products contained one or more of these preservatives. In one of the products none of the preservatives searched for were found. In four cases the results of the analyses lead to questioning whether the classification were correct.

Isothiazolinones – Are used as preservatives, e.g. in paints and adhesives and can cause allergy.

2.6.2 Cold Packs

Cold packs used in physical therapy to treat e.g. sport injuries were controlled in a project during 2016. Three out of twelve cold packs contained to high concentrations of the substance ammonium nitrate. The other nine cold packs were compliant and did not contain concentrations in excess of the maximum concentration allowed.

Ammonium nitrate – Are used e.g. in cold packs. The substance can be used in manufacturing explosives.

2.6.3 Plant protection products

In a project during 2016 we analysed nine plant protection products to check if the concentration of the active substance was in line with the concentration stated by the manufacturer. According to the results of the analyses, the information stated by the manufacturer was true for all tested products.

2.6.4 Other chemical products

In a project concerning authorisation according to the REACH Regulation we analysed a chemical product for the concentration of a substance subject to authorisation. The concentration was below the limit requiring authorisation.

2.6.5 Overview Chemical Products

Figure 11 and Figure 12 contain overviews of how many chemical products of various types that have been tested and the results of the analyses.

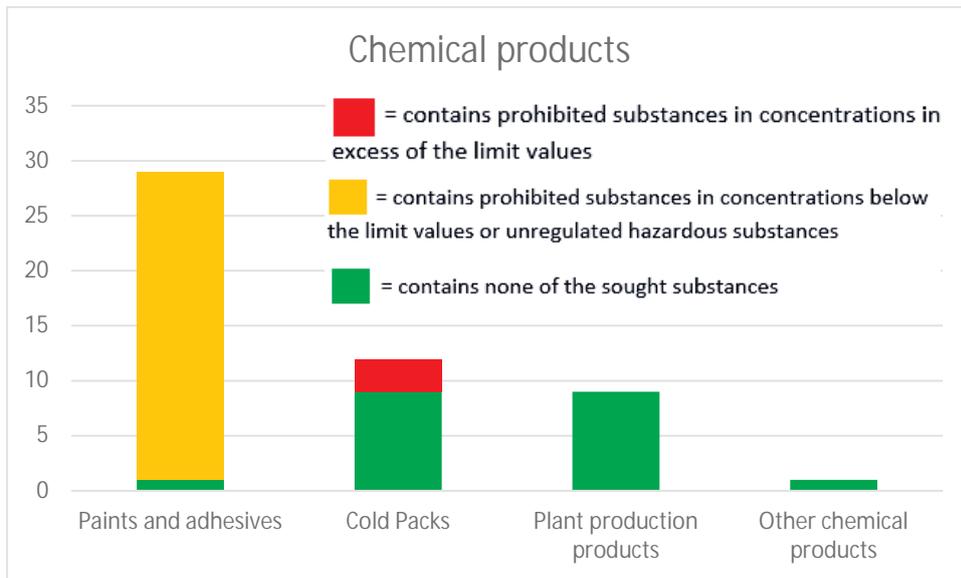


Figure 11. Chemical products that have been analysed by the Swedish Chemicals Agency during 2016.

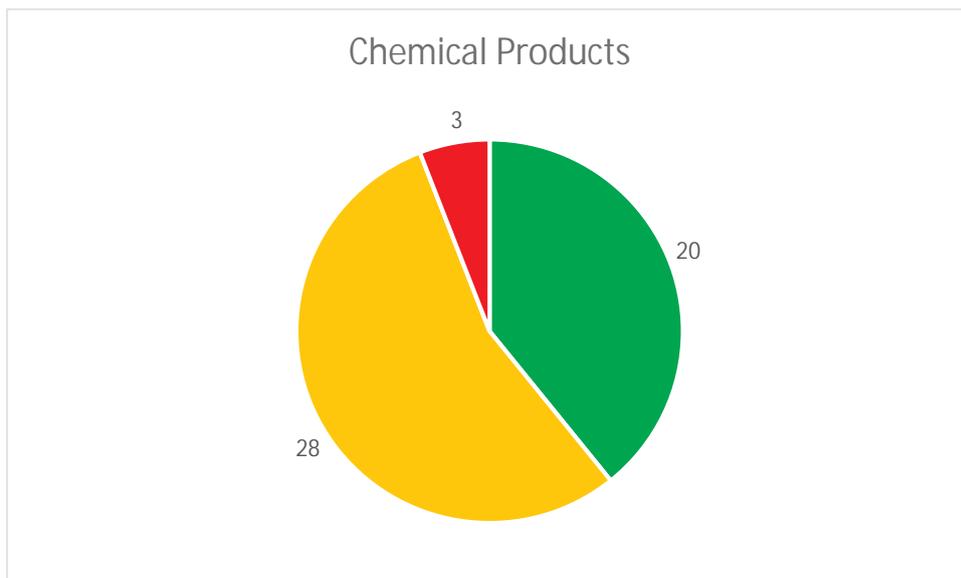


Figure 12. Distribution of chemical products that contained restricted substances in excessive concentrations (red), contained low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

3 Discussion

3.1 Overview of the Swedish Chemicals Agency's analyses

During 2016 the Swedish Chemicals Agency has analysed 692 articles and chemical products as part of our enforcement activities. The number of articles is about the same as previous years, with the exception of 2014 when we analysed a large number of jewellery in cooperation with the municipalities in Sweden.

The figure below shows how many products in the various categories that have been analysed and the results of these analyses.

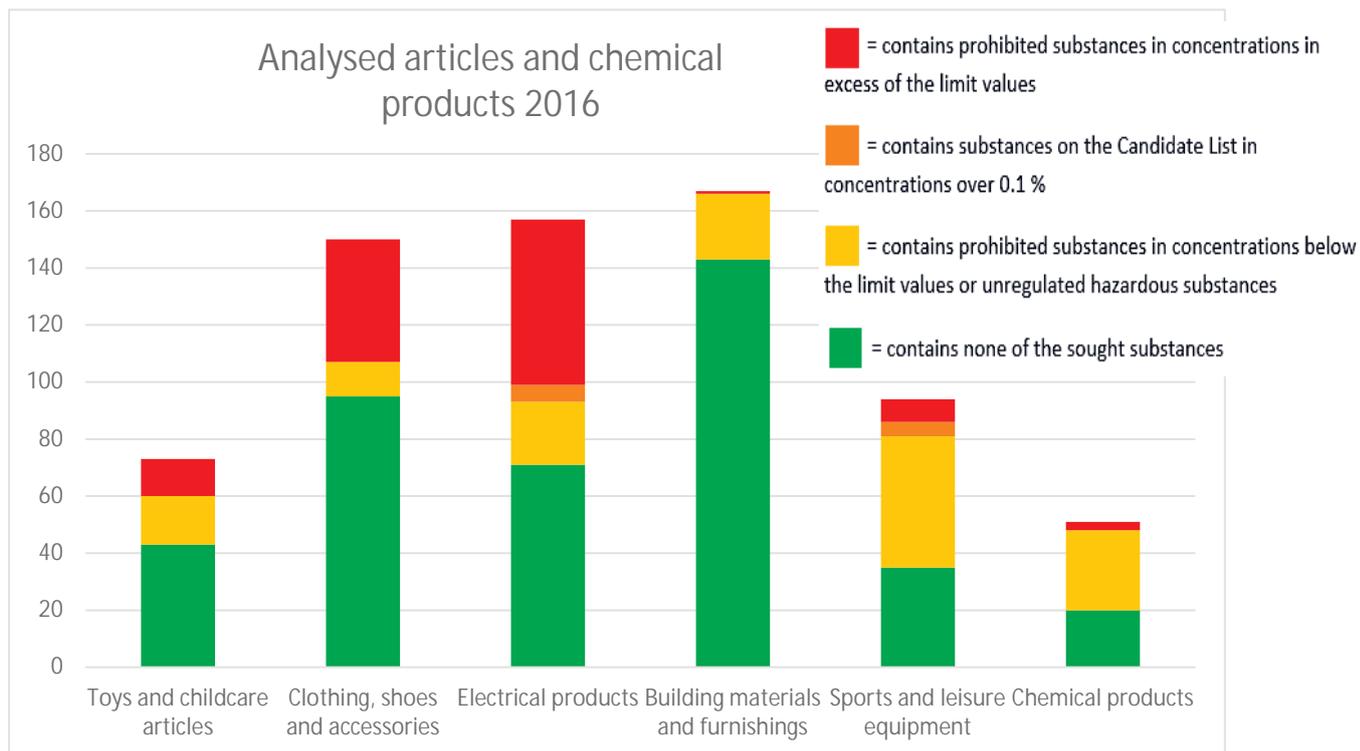


Figure 13. Number of articles of various types and chemical properties that the Swedish Chemicals Agency has analysed during 2016.

We have analysed the largest number of articles in the categories *clothing, shoes and accessories, electrical products* and *building materials and furnishings*. In the first of these categories we have mainly analysed jewellery. In the category *electrical products* we analysed a large number of low-price electrical products during 2016. In another project we analysed a large number of textiles for home furnishing, which are part of the category *building materials and furnishings*. The smallest number of analyses were made on *chemical products*. One reason for this is that there are more regulations to enforce for chemical products without performing chemical analyses compared to articles. Examples of such regulations are classification and labelling, safety data sheets and authorisation.

The group of articles in which the largest number of regulatory violations has been found is *electrical products*. The number of articles that contained prohibited substances in concentrations in excess of the limit values in this category is equivalent to 37 percent. This category of products had the largest number of regulatory violations in our analyses performed in 2014-2015 as well, in that case the non-compliance rate was 39 percent. The

result shows that electrical products, mainly low-price electrical products, is the category of products with the highest rate of non-compliance and enforcement of products in this category should be prioritised also in the future. Enforcement can also be complemented with other activities supporting companies to increase the compliance rate.

The group of articles where we found the smallest number of articles containing prohibited substances were *building materials and furnishings*. In this case it was textiles for home furnishing such as bed linen and towels that was checked. A reason for the high compliance level could be that there are relatively few restrictions for substances in this category of articles. There are work in progress within the EU to restrict more hazardous substances that can be found in textile materials.

Several of the articles containing prohibited substances (coloured red in the figure) also contained more than 0.1 percent of a substance on the candidate list in the REACH Regulation. This means that more articles than what can be seen in the figures (in orange) contain substances of very high concern. It is mainly in plastic articles (soft PVC-plastic) that we find substances on the candidate list. The supplier of an article containing more than 0.1 percent of a substance on the candidate list has to inform the receiver of the article about the content. When we inspect companies we check that they have fulfilled this obligation. The substances on the candidate list are being evaluated for possible future restrictions. We also find a number of substances which are not restricted for the specific type of product where we found it but that are restricted in other kinds of articles. An example of this is the phthalate DINP which is restricted in toys and child care articles but can be found in many other articles made of soft plastic. We also found unregulated PAHs in many articles made of rubber and plastic. In these cases the companies was informed about the substances but since they are not prohibited we did not demand the companies to take action.

In total 126 out of the 692 articles and chemical products that were analysed during 2016 contained prohibited substances in excess of the limit value in the legislation. This is equivalent to 18 percent. The synthesis conducted for the analyses made during 2008-2013 and 2014-2015 showed that 14 percent (256 of 1775) respectively 16 percent (315 of 1930) of the analysed articles and chemical products did not comply with the legislation. This indicates a relatively stable share of articles and products that contain prohibited substances, even though there can be large variations within the different categories.

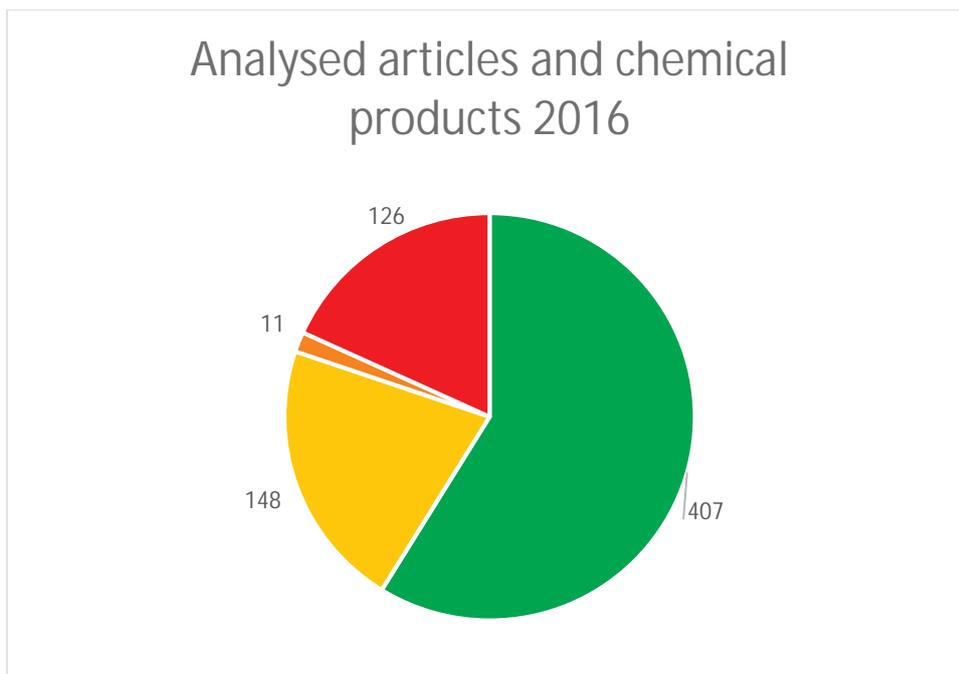


Figure 14. Distribution of all products analysed during 2016 that contained restricted substances in excessive concentrations (red), substances on the Candidate List (orange), low concentrations or unrestricted substances (yellow) or did not contain any of the substances sought (green).

3.2 What do the analyses lead to?

The analyses ordered by the Swedish Chemicals Agency within the scope of its enforcement activities become enforcement cases. In some cases, the analyses of random samples are part of a larger inspection effort in which the company's internal controls are also reviewed. In other cases, the analyses are the primary focus of the inspection.

When the analytical results are ready, the company from which the products come is informed. In those cases where substances have been found in concentrations that exceed the limit value set out in the legislation, the company has to provide an account of the action it will be taking. In those cases a company does not recall its product from the market voluntarily, the Swedish Chemicals Agency can order a sales ban. For those regulatory violations that are within the scope of the Environmental Code, the Agency is obliged to submit a report to the environmental prosecutor. The prosecutor then assesses whether a preliminary investigation is to be initiated. In some cases, this leads to the company being fined or to a prosecution⁶.

If companies in other countries are affected by the analytical results (e.g. if the supplier of the product is in another EU country) the Swedish Chemicals Agency makes contact with the enforcement authority in the country in question so that it can also take action. Hazardous products are also reported to RAPEX⁷ or ICSMS⁸ so that other authorities, companies and consumers can obtain information and take action themselves.

⁶ More information in report no. 1/13 Kemikalieinspektionens åtsanmälningar 1999-2011 (in Swedish) (<http://www3.kemi.se/Documents/Publikationer/Trycksaker/Tillsyn/Tillsyn1-13.pdf>)

⁷ Rapid Alert System for dangerous non-food products (http://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/index_en.htm)

⁸ Information and Communication System for market Surveillance (<https://webgate.ec.europa.eu/icsms/public/consumer.jsp?locale=en>)

3.3 How can the results be used?

The analytical results are primarily used within the Swedish Chemicals Agency's operational enforcement activities, which involve checking whether articles and products comply with the requirements of the current provisions. The analytical results can also be used to develop legislation. This may be done when regulations are being drawn up or reviewed by the Swedish Chemicals Agency and in an EU context. In the REACH Forum's⁹ working group for restrictions, the EU's member states are to provide their points of view on proposals for future restrictions. The Swedish Chemicals Agency's experience is that analyses and enforcement results make a major contribution to providing good feedback on new proposed restrictions.

Analytical results can also be distributed to other actors that may have an interest in them. One example is companies that need to ensure that their own articles do not contain prohibited substances. The Swedish Chemicals Agency's analytical results can provide information about which substances can be found in different types of articles and material. The economic actors can use this information to focus their internal control resources on those articles, products and provisions that are most relevant. Comprehensive analyses are relatively expensive for an individual business and help to target the correct areas is thus of value.

Other enforcement authorities may also find this information of use. This is done through channels such as RAPEX⁷, where EU member states report products that carry a risk. The Swedish Chemicals Agency can also distribute information about analytical results in its enforcement guidance to municipal enforcement authorities, which may have use of this information.

3.4 Future analytical requirements

The Swedish Chemicals Agency will continue working with the action plan for a non-toxic everyday environment and will continue to check the groups of articles prioritised in this. In terms of analyses, these will also continue to be primarily performed on consumer articles, mainly those that have a lower price. Experiences from previous enforcement activities show that it is mainly the cheaper articles and/or low quality articles that contain hazardous substances.

We have published a strategy for enforcement of chemicals in articles¹⁰ and in this we prioritize different categories of articles, the same categories found in this report. Analyses will continue to be made primarily on articles in these prioritized categories.

The Swedish Chemicals Agency intend to continuously publish the results from the analyses in our enforcement projects. Partly in a conjunction such as this report and partly as individual reports for each project.

⁹ REACH Forum coordinates information exchange for market surveillance authorities regarding the REACH regulation and the CLP regulation

¹⁰ Report no. 4/16 Strategi för tillsyn över kemikalier i varor (in Swedish) (<http://www.kemi.se/global/tillsyns-pm/2016/tillsyn-4-16-strategi-for-tillsyn-over-kemikalier-i-varor.pdf>)

3.5 Further information

Further information about substances and regulation is available at www.kemikalieinspektionen.se. Reports from the Swedish Chemicals Agency's enforcement projects (available in Swedish with an English summary):¹¹

- Tillsyn 1/17 – Tillsyn av sexleksaker (Enforcement of sex toys)
- Tillsyn 2/17 – Tillsyn av leksaker (Enforcement of toys)
- Tillsyn 5/17 – Tillsyn av smycken (Enforcement of jewellery)
- Tillsyn 11/16 – Tillsyn av elektriska lågprisprodukter (Enforcement of electrical low price products)
- PM - Ammoniumnitrat i kylpåsar och gödsel¹² (Ammonium nitrate in cold packs and fertilizers)

There is also more information on our enforcement activities in our annual reports.¹³

Conjunctions of the chemical analyses made by the Swedish Chemicals Agency can be found in:

- Report no. 6/14 Analyses by the Swedish Chemicals Agency in connection with enforcement 2008-2013
- Report no. 7/16 The Swedish Chemicals Agency's analyses in conjunction with enforcement 2014-2015

¹¹ <http://www.Kemikalieinspektionen.se/hitta-direkt/publikationer/tillsynsrapporter>

¹² <http://www.kemi.se/global/tillsyns-pm/projektrapporter/ammoniumnitrat-i-kylpasar-och-godsel.pdf>

¹³ <http://www.kemi.se/en/about-us/organisation/ruling-documents>

4 Appendixes

Appendix 1 - Glossary

Abbreviation	Explanation
CMR	Carcinogenic, mutagenic, reprotoxic – substances that may cause cancer, harm the gene pool or disrupt reproduction.
ICSMS	Information and Communication System on Market Surveillance – a system where enforcement authorities in EU report tested products.
POPs	Persistent organic pollutants – collective term for organic substances that persist in the environment and may cause harm. Also the name of a common EU regulation concerning such substances.
PVC	Polyvinyl chloride – a type of plastic that can be made soft by adding plasticisers.
Rapex	Rapid Alert System for dangerous non-food products – a system to which enforcement authorities within the EU report hazardous products.
REACH	Registration, Evaluation, Authorisation and restriction of Chemicals – a common EU chemical regulation.
RoHS	Restriction of the use of certain hazardous substances in electrical and electronic equipment – a common EU directive concerning hazardous substances in electronics.
XRF	X-ray fluorescence – an analytical method for screening analyses of elements on the surface of materials.

Appendix 2 - Legislation

Listed below are the legislations mentioned in this report.

EU-regulations
Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants (POPs)
EU-directives/Implementation in Swedish legislation
Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). The directive is incorporated into Swedish legislation with the Hazardous Substances in Electric and Electronic Equipment Ordinance (2012:861) and in the Swedish Chemicals Agency's Regulation for Chemical Products and Biotechnical Organisms (KIFS 2008: 2).
Directive 2009/48/EC of the European Parliament and of the Council of on the safety of toys . The directive is incorporated into Swedish legislation within the scope of the Safety of Toys Act (2011:579), the Safety of Toys Ordinance (2011:703) and in the Swedish Chemicals Agency's Regulation for Chemical Products and Biotechnical Organisms (KIFS 2008: 2).
European parliament and council directive 94/62/EC on packaging and packaging waste The directive is incorporated into Swedish legislation within the scope of the Prohibition in Certain Cases in Connection with the Handling, Import and Export of Chemical Products Ordinance (1998:944)

The REACH Regulation (EC) No 1907/2006

The REACH regulation is the EU's main regulation for chemicals and it contains regulations governing individual substances, substances in mixtures and substances in articles.

The regulation contains provisions including over sixty restrictions where specific substances are restricted in various types of products and articles. These restrictions can be found in Annex XVII and in the majority of cases there is a limit value that indicates the concentrations of substances that are prohibited. Examples of restrictions the Swedish Chemicals Agency has checked with the help of analyses are phthalates in plastic toys, toluene in adhesive, azo dyes in textiles and nickel in jewellery.

The REACH regulation also contains requirements regarding information about certain substances in chemical products and articles.

- For **chemical products**, there are regulations concerning **safety data sheets** that are to provide the user with, for example, safety information.
- For **articles**, there are requirements that the recipient of an article containing more than 0.1 percent by weight of a particularly hazardous substance (that is included on the **Candidate List**) is to be informed of this.

The POPs Regulation (EC) No 850/2004

This regulation prohibits a number of persistent organic pollutants (POPs). The prohibition applies to pure substances, substances in mixtures and substances in articles. In the majority of cases, there are no limit values, but very low concentrations of unintentional trace

pollutants are not prohibited. Examples of substances that are restricted are hexachlorobenzene (HCB), which can be found in fireworks, and short-chained chlorinated paraffins, which are present in, for example, softened plastics.

The RoHS Directive 2011/65/EU

The RoHS Directive contains regulations restricting the presence of certain substances in electrical and electronic products. The substances that are restricted are cadmium, lead, mercury, hexavalent chromium and the two groups of brominated flame retardants polybrominated biphenyls (PBB) and polybrominated diphenylether (PBDE). The limit values are 0.1 percent by weight for all the substances except cadmium for which the value is 0.01 percent by weight.

The Toy Safety Directive (2009/48/EC)

The EU's Toy Safety Directive contains several requirements concerning the chemical content of toys. For example, there are limit values for how much of certain metals may leach out, restrictions on the content of CMR substances (substances that may cause cancer, harm genes or the ability to reproduce) and perfumes. One example of a CMR substance that may be found in toys is the diisobutyl phthalate (DIBP). The directive also contains a requirement that toys not catch fire too easily, which is also within the Swedish Chemicals Agency enforcement area.

The Packaging and Packaging Waste Directive 94/62/EC

There are regulations governing collection of and restrictions on chemical substances in packaging and packaging waste. Lead, cadmium, mercury and hexavalent chromium are substances that are restricted in packaging.

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