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Cosmetics worldwide – same contents?

A comparative study by The Danish Consumer Council THINK Chemicals

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Cosmetics worldwide – same contents?
Final report

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Introduction

The Danish Consumer Council THINK Chemicals (DCC) has worked with unwanted chemicals in cosmetics for 6 years continuing a focus that has been a priority for the Danish Consumer Council for more than twenty years. Unwanted chemicals are chemicals that are problematic in the environment, endocrine disrupting (or suspected of being so), allergenic, repro-toxic, cancerous or in other ways harmful to health or environment.

The DCC has noticed that identical products bought in different countries not necessarily contain the same chemicals. A test¹ of cosmetics bought through wish.com confirmed this and even revealed a product that would be illegal if marketed on the European market and not sold through the online platform.

This gave inspiration to find out if identical products contain different ingredients depending on in which part of the world the consumers buy them.

During the spring of 2020, the DCC reached out to Green NGOs and consumer organizations across the globe and asked if they wanted to participate in a comparative study on global brand cosmetics. The DCC contacted the organizations through various NGO mailing lists from BEUC, EEB, IPEN, and Consumers International.

The DCC asked the organizations to check their markets for specific products from global brands such as L'Oreal, Garnier, Schwarzkopf and Nivea. In total, the organizations were asked to check thirty-nine products.

This resulted in more than 50 organizations replying that they would like to participate in the study. In the end, organizations from 33 different countries and the DCC delivered findings from their markets and these results constitutes the contents of this report.

The report is written by Claus Jørgensen - Head of The Danish Consumer Council THINK Chemicals, in collaboration with the 33 partners from NGOs worldwide (Annex 1).

¹ <https://kemi.taenk.dk/bliv-groennere/cosmetics-wishcom-fail-comply-eu-legislation>

Methodology

This study has three objectives:

1. Finding out whether cosmetic products contain the same ingredients worldwide?

By involving NGOs from across the globe, asking them to check out stores and online shops we are able to compare different national versions of the same product. Is it readily available on the market and are the contents the same?

2. Finding out which chemicals are used and investigating if there are products containing illegal substances?

All partners were asked to take pictures of the products, front and back (ingredients) and send the photos to the DCC. Using the DCC methods and lists of unwanted substances,² we are able to check if the products contain unwanted or even illegal substances.

3. Raising NGO awareness of unwanted substances on a global scale

The issue of unwanted chemicals has been on the Danish environmental agenda for years and this study will raise the level of awareness among the participating NGOs and among the populations in the participating countries when the results are publicized. As recently pointed out in a letter³ to the Commission by ministers from ten EU countries, there is a need to “continuously develop the EU chemicals policy to address existing and emerging issues of concern such as endocrine disruptors, combination effects, and persistent fluorinated substances (PFAS)”. The several unwanted substances in focus in this study represent these categories.

During the spring of 2020, NGOs across the globe were asked to participate in this study through email contacts obtained through the NGO network. NGOs from all continents replied, and in the end thirty-three partners committed to deliver results to the DCC.

All partners were asked to track 39 products (annex 1). The partners went to stores in their countries, but also searched national websites to find the popular products.

The products were chosen by looking in the DCC’s database for the app ‘Kemiluppen’ – an app that informs consumers about the chemical contents of the product they are scanning. The products selected are among the international products with the most scans.

The products in Kemiluppen are ‘label checked’ and rated A, B, or C depending on their chemical contents. It is a labeling check, which is not a chemical analysis, and this means that the concentration of the

² <https://kemi.taenk.dk/bliv-groennere/danish-consumer-council-think-chemicals-test-methods>

³ <http://files.chemicalwatch.com/Safe%20chemicals%20letter.pdf>

substances found in the product is not known. The assessment is based solely on whether or not the product contains unwanted substances.

These are the rating categories of the app,

- 'A' – The product is a good choice. It does not contain a number of problematic substances.
- 'B' – The product is free from a number of problematic substances, but it contains perfume or substances that may affect the environment. You may choose to avoid the B products if you want to minimize the risk of fragrance allergy and take maximum account of the environment.
- 'C' - The product contains problematic substances, e.g. substances suspected of being endocrine disrupting. The substances are usually permitted for use and each product is not harmful in itself, but they contribute to your overall exposure to problematic substances.

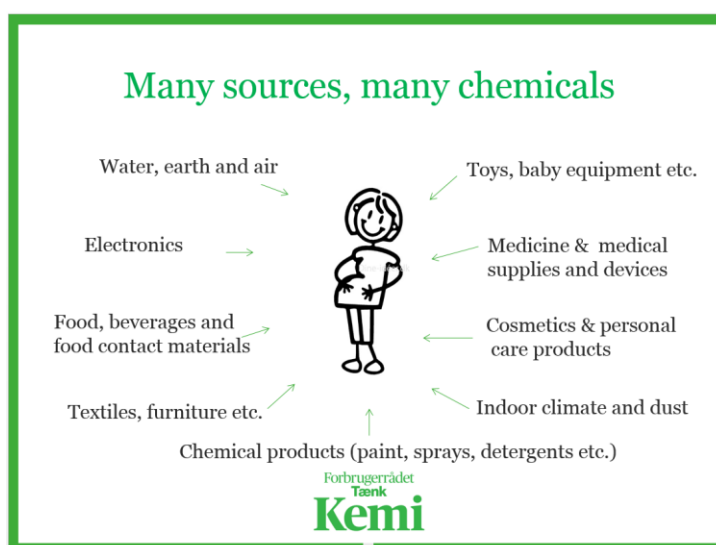
Unwanted substances

The chemicals that we look for in the products either are, or are suspected of being:

- endocrine disrupting
- allergenic
- carcinogenic
- toxic to reproduction
- environmentally harmful (for example substances that are persistent in nature, or substances that accumulate in the environment or in animals).

Cocktail effects

The work of the DCC aims to help consumers avoid negative exposure from many different chemicals; something that is not sufficiently addressed in the current regulation of chemicals in consumer goods. However, even though one product in itself rarely is a problem, exposure from many different products could be, and this is known as the cocktail effect.



Risk assessment of chemicals is usually done one chemical at a time:

“Risk assessment of chemicals is generally based on a comparison of human exposure to a chemical to the NOAEL (No Observed Adverse Effect Level) for the chemical, i.e. the highest dose of chemical causing no adverse effects in laboratory animals. This is done for one chemical at a time. However, humans are daily exposed to many different chemicals. This raises an important question: Can exposure to several chemicals induce effects, although the doses for the single chemicals are below or around NOAEL?

In vitro studies and studies in experimental animals show that this is the case for e.g. endocrine disrupting chemicals. This implies that risk assessment of a chemical in isolation underestimates the risk for humans”.

- Danish National Food Institute, Technical University of Denmark

The DCC helps consumers make informed choices by translating the ingredient list of cosmetics into A, B, or C ratings. This way they can decide for themselves if they want to be exposed to unwanted chemicals.

This method is used for this study as well.

Disclaimer

All ingredients in the products included in this report have been found by looking at the ingredient lists of the physical products (in store) OR through internet research. All ingredients found on the physical products are photo-documented and online ingredients are documented through links to web shops. Ingredients found via the web shops can be outdated; however, we have chosen to bring the results in this report, because this was the only options for some partners due to the corona situation. In addition, this is the very information, the consumer can see when shopping online. It is the responsibility of the web shops to make sure they provide the correct information.

Results

Partner Participation: Partners from thirty-four countries participated

Europe		South America	North America	Africa	Oceania	Asia
Austria VKI	Belgium Kom op tegen Kanker	Brazil Toxisphera	Canada Environmental Defence	Cameroun JVE - Cameroon	New Zealand Consumer NZ	Oman Consumers International
Denmark DCC THINK Chemicals	Czech Republic Arnika	Uruguay RAP-AL	Mexico Casa Chem	Gambia YVE - Gambia		Pakistan SDPI
England Chemtrust	France 3 herissons association		USA Breast Cancer Prevention Partners	Mali AVPIP		South Korea WIOEH
Georgia Center for Strategic Research and Development	Germany Bund			Nigeria Sustainable Environmental Development Initiative		
Holland WECF	Hungary Friends of the Earth Hungary			South Africa University of Pretoria		
Lithuania Baltic Environmental Forum	Montenegro NGO Green Home			Tanzania AGENDA		
Norway Forbrukerrådet	Portugal Zero			Uganda Bio Vision Africa		
Serbia AlHem	Spain Ecologistas en Acción					
Sweden Sveriges konsumenter	Ukraine Chemical Safety Agency (CSA)					

TABEL 1:
34 countries from 6 continents.

Europe
Africa
South America
Asia
North America
Oceanien

TABLE 2:
In total 39 products from the Danish market were looked for in the respective countries.

Products found			
32	Norway	18	Canada
31	Sweden	16	Georgia
28	England	13	Montenegro
27	France	12	South Korea
27	Lithuania	11	Portugal
27	Spain	11	Uganda
26	Czech Rep	10	Pakistan
24	Belgium	8	Gambia
23	Hungary	7	Tanzania
22	New Zealand	7	South Africa
22	Serbia	6	Brazil
22	Ukraine	6	Nigeria
22	USA	5	Uruguay
21	Germany	4	Mali
20	Mexico	3	Cameroun
19	Austria	2	Oman
19	Holland		

Due to the Covid-19 situation and the lockdown in many countries around the world, partners had difficulties in accessing the stores in their countries, but fortunately, they were able to go online to check if the products were available on websites aimed at their national markets. Many partners did manage to visit the stores and find the products.

The 39 products selected from the Danish market were found in most of the participating European countries. This was expected, since the EU is one single market and therefore most products are readily available in all countries within the EU. However, also the partners in New Zealand, Mexico, and the USA were able to locate many of the products.

Norway and Sweden were top performers having markets very similar to the Danish market.

Discrepancies in information, contents, and rating

In table 3 below it is possible to see all the products and in how many countries they were tracked. The table also shows how many products were the same as/different from the version found in Denmark.

TABLE 3: Overview of products and findings

Product	Found in how many countries	Same as Danish version	Same ingredients, listed differently	Different from Danish version	Versions (incl DK)	Comments
Nivea cream	32	2	21	8	9	All B-rated except 1 (Uganda) which is C-rated
Bio-Oil Skincare Oil	30	15		14	7	All C-rated
Head & Shoulders Shampoo Classic	26	11		14	13	All C-rated
Garnier Pure Active 3 in 1	25	3		21	4	All C-rated
BioDerma Sensibio Make-up removing micelle solution	24	11	10	2	3	All B-rated except 1 (UK), which is A-rated
Maybelline The collasal volum express mascara	23	6		16	8	12 C-rated and 9 B-rated
Avene Tolerance extreme cream	23	20		2	3	All A-rated - except 1 (Hungary) which is C-rated
Weleda Skin Food	22	3	11	7	6	All B rated
Vaseline Intensive care healthy hands stronger nails	19	5		13	9	All C-rated
La Roche Posay Anthelios dermo-kids spf 50	19	9		9	6	All C-rated, except 1 (Brazil), which is B-rated
Palmolive Aquarium	19	11	4	3	5	All C-rated

Biotherm Lait Corporel anti-drying body milk	19	17		1	2	All B-rated - except 1 (Belgium) which is C-rated
Kiehl's Ultra Facial Cream	19	17		1	2	All C-rated
L'oreal Million dollar lashesblack	18	5		12	9	Most C-rated (10) but also 7 B-rated
Elizabeth Arden Green Tea Honey Drops Body cream	17	5		11	5	All C-rated
Nivea Sun Kids protect & sensitive spf 50+ (Unscented)	17	0		16	5	All C-rated
Lancome definicils high definition 01 black	17	8		8	3	All C-rated
Aussie Miracle moist shampoo	16	10		5	5	All C-rated
Vichy capital soleil fresh hydrating milk spf 30	16	6		9	4	All C-rated
Origins drink up intensive overnight mask	16	2		13	3	All B-rated
Vichy Antiperspirant deodorant	15	10		4	5	All C-rated, except 1 (France) which is A-rated
Dove Silky nourishing body cream	15	8		6	4	All C-rated
Max Factor 2000 caloriemascara black	14	2		11	8	All C-rated except 1 (Ukraine) which is A-rated
Colgate Caries Control	14	2		11	8	A and B ratings
Garnier repons caring shampoo avocado oil & sheabutter	12	5		6	3	All C-rated
Clinique dramatically different moisturizing cream	12	9		2	2	All A- rated except 2 (Canada & England), which both are B-rated
Rexona Aloe Veraroll-on	12	6		5	2	All C-rated
ID Hair extreme titanium	11	3		7	2	All C-rated
The Body shop Aloe anti-perspirant	10	7		2	3	All C-rated - except 2 (Hungary and Pakistan) which were both A-rated
Elixabeth Arden 8 hour	9	6		2	3	All C-rated
Cien Sun Lotion classic spf 30	9	5		3	3	All C-rated

L'Oreal Casting Creme Gloss amber 645	8	0		7	6	All C-rated
Gillette Venus satin care barber gel	7	3		3	4	All C-rated
Schwarzkopf Natural & Easy 560	7	1		5	3	All C-rated
Sanex Zero 24h deo	5	2		2	3	All C-rated, except 1 (Lithuania is A-rated)
Avivir aloe vera sun lotion spf 30	4	1		2	2	All A-rated
Schwarzkopf poly swing hairspray volume extra strong	3	0		2	2	All C-rated
Metholatum lipbalm original	3	2			1	All B-rated
Garnier Ambre Solaire light & silky spf 15	3	2			1	All C-rated

Findings:

All products found in the different countries and their ingredients were compared to the product found on the Danish market.

1. Same product:

Only two products were the same in all the countries in which they were found: Mentholatum lipbalm original and Garnier Ambre Solaire light & silky spf 15. They were only found in three countries!

All other products came in two or more versions.

2. Same ingredients, but different listing:

In four cases, the products similar to the Danish version were found on the shelves of the particular countries. They contained the same ingredients; however, the ingredients were listed in a different order, which means that the quantities of the different ingredients in the products are different compared to the Danish product.

This goes for the product Nivea Cream, which was found in most countries (32), but also for BioDerma Sensibio Make-up removing micelle solution, Weleda Skin Food, and Palmolive Aquarium.

3. Different versions:

37 of the 39 products that partners had to look for in their country had 2 or more versions.

The product with most versions is Head & Shoulders shampoo, which was found in 13 different versions.

Three products had nine different versions (Nivea cream, Vaseline Intensive care healthy hands stronger nails, and L'Oreal Million dollar lashes black).

4. The ratings:

In Annex 3 the methodology behind the rating is explained, and in Annex 4 the unwanted chemicals found in the 39 products and their many different versions are listed.

Most of the products receive a C-rating, which means that they contain one or more chemicals that are unwanted because of their potentially negative effects on health and environment.

Here is the list of the chemicals that trigger the C-rating:

Table 4:
List of chemicals triggering C-rating

Substance	Problematic properties	
1. 2-Methylresorcinol	Allergenic (hair dye)	
2. Iodopropynyl butylcarbamate	Allergenic	Problematic for the environment (water)
3. DMDM Hydantoin	Allergenic (formaldehyde)	
4. Imidazolidinyl Urea	Allergenic (formaldehyde)	
5. 4-Amino-2-Hydroxytoluene	Allergenic (hair dye)	
6. 6-Hydroxyindole	Allergenic (hair dye)	Problematic for the environment (water)
7. M-aminophenol	Allergenic (hair dye)	Problematic for the environment (water)

8. N,N-Bis(2-Hydroxyethyl)-p-Phenylenediamine Sulfate	Allergenic (hair dye)	
9. Toluene-2,5-diamine	Allergenic (hair dye)	Problematic for the environment (water)
10. Methylchloroisothiazolinone	Allergenic (only allowed in rinse-off)	
11. Methylisothiazolinone	Allergenic (only allowed in rinse-off)	Problematic for the environment (water)
12. Hydroxyisohexyl 3-cyclohexene carboxaldehyde	Allergenic (perfume) - Banned from 2021 in the EU	
13. Resorcinol	Endocrine disrupter (EU Commission EDC database)	Allergenic (hair dye)
14. Ethylhexyl methoxycinnamate	Endocrine disrupter (Sin-list)	Problematic for the environment (coral reefs)
15. Butylparaben	Endocrine disrupter (SVHC - candidate list)	
16. PTFE	Fluorinated substance - suspected endocrine disrupter	Persistent in the environment
17. Glyoxal	Mutagenic	Allergenic
18. Chloroacetamide	Reprotoxic (a ban is on the way in the EU)	
19. Cyclopentasiloxane	Suspected endocrine disrupter (not safe in sunscreens)	Problematic for the environment (PBT (Article 57d) vPvB (Article 57e))
20. Benzophenone-3	Suspected Endocrine disrupter	Problematic for the environment (coral reefs)
21. Benzophenone-4	Suspected Endocrine disrupter	
22. Benzyl salicylate	Suspected Endocrine disrupter	Allergenic (perfume)

23. BHT	Suspected Endocrine disrupter	
24. Butylphenyl Methylpropional	Suspected Endocrine disrupter	Allergenic (perfume)
25. Ethylhexyl salicylate	Suspected Endocrine disrupter	
26. Ethylparaben	Suspected Endocrine disrupter	
27. Homosalate	Suspected Endocrine disrupter	
28. Methylparaben	Suspected Endocrine disrupter	
29. Octisalate (Ethylhexyl salicylate)	Suspected Endocrine disrupter	
30. Octocrylene	Suspected Endocrine disrupter	
31. P-aminophenol	Suspected Endocrine disrupter	Problematic for the environment (water)
32. Propylparaben	Suspected Endocrine disrupter	
33. Sodium salicylate	Suspected Endocrine disrupter and reprotoxic	
34. Isobutylparaben	Suspected endocrine disrupter (banned in cosmetics in the EU)	
35. Cyclomethicone	Suspected endocrine disrupter (can contain cyclopentasiloxane)	
36. Salicylic acid	Suspected Endocrine disrupter / Reprotoxic	
37. Zinc Pyrithione	CMR 1B and reprotoxic	

The many C-ratings for the international products are not surprising when you examine the 19,000+ products in the database behind the DCC app Kemiluppen.

Twice⁴ the DCC has looked into the origin of the products and both times the conclusion has been that Danish brands top the list when it comes to leaving out the unwanted substances.

In June 2020 the DCC looked at 13,000 products in the database of which around 30% bear a Danish barcode.

- i. 68% of the 3,161 A-rated products are Danish. Same as in 2016.
- ii. 35% of the 4,428 B-rated products are Danish.
- iii. Only 7% of the 5,326 C-rated products are Danish.

The conclusion at the time was that Danish products are less likely to contain unwanted chemicals.

'A' – The product is a good choice. It does not contain a number of problematic substances.

'B' – The product is free from a number of problematic substances, but it contains perfume or substances that may affect the environment. You may choose to avoid the B products if you want to minimize the risk of fragrance allergy and take maximum account of the environment.

'C' – The product contains problematic substances, eg substances suspected of being endocrine disrupting. The substances are usually permitted for use and each product is not harmful in itself, but they contribute to your overall exposure to problematic substances.

In Denmark, the debate on unwanted substances in consumer goods has been going on for more than 25 years. The Danish companies have adapted to the concerns of the Danish consumers.

⁴ <https://kemi.taenk.dk/bliv-groennere/kemiluppen-danske-produkter-er-stadig-groennere> (In Danish)

Same rating, regardless of ingredients

As seen in table 3 above, most products receive the same rating regardless of the many different versions.

- Twenty-six products have the same rating for all versions.
- Ten products received the same rating, except for one or two products.
- Two mascaras have two different ratings for their ingredients, almost 50/50 on ratings B or C respectively. In addition, a toothpaste from Colgate ~~also~~ had different ratings for the same product (A or B).

It is interesting to see that consumers from one country can buy a product in their country with one set of ingredients, and then go online and buy the same product with other ingredients if they shop in a neighboring country.

5. Illegal products

Three products were found containing ingredients that are banned in the EU.

In Sweden and Spain, a Maybelline mascara contained isobutylparaben, which is no longer allowed in cosmetics in the EU. And in Uganda, a Nivea cream contained Methylisothiazolinone and Methylchloroisothiazolinone, which are banned in leave-on cosmetics (meant to stay on the skin).

6. Comments from cosmetic companies

The preliminary results of the research were sent out to the representatives of the brands in Denmark.

A few replies were received (L'Oreal, Henkel, Lidl, Estee Lauder, Pierre Fabre, Orkla, Colgate, Proctor & Gamble, and Schwartzkopf). The general comment is that the products are adapted to the regions where they are to be sold and that changes in products do occur, which means that there are different versions on the market.

A comment made by one of the biggest producers of cosmetics was that they do not agree with the rating system of the Danish Consumer Council. They insist that the products are safe.

Conclusion

The project set out to fulfill these three objectives:

1. Finding out whether cosmetic products contain the same ingredients worldwide?
2. Finding out which chemicals are used, and investigating if there are products containing illegal substances?
3. Raising awareness of unwanted substances in NGOs on a global scale.

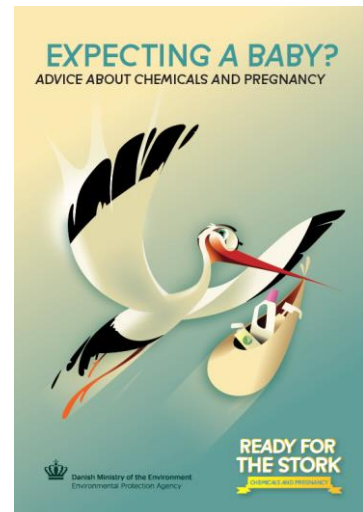
The findings show:

1. 39 products turned out to be 176 different products, because of the many versions of the same product containing different chemicals.
2. Because of the Covid-19 crisis, not all partners were able to do a thorough search of their markets. Therefore, not all 39 products were found in the different countries, but this does not mean that the products are not on the market in all 34 participating countries.
3. It was easier for the European partners to find the products – probably because the markets are similar in these countries.
4. There are many versions of the same products across the globe, but also within the same regions, (Danish experience is that this also is the case for national markets as well).
5. Different versions were to be expected since the brands change the composition of the products, but for some products, there were up to 13 different kinds. See table 3.
6. Most products are C-rated and contain unwanted chemicals, which means they contain one or more chemicals that e.g. could have endocrine effects, be allergenic, or have a negative effect on health or the environment.
7. In total 63 chemicals of concern were found in the 39 products. This means consumers are exposed to these chemicals, perhaps even on a daily basis.
8. Three products are based on their ingredient lists illegal on the European market (A mascara in Sweden and Spain, and a cream in Uganda).

It is crucial:

- that consumers have access to and review the ingredients BEFORE buying the products.
- to be aware of the fact that products with the same names and bar codes in the neighboring countries may differ in contents. Even within one country, products can be different.
- that the consumers are aware that the everyday products they buy can contain unwanted substances.
- that NGOs and authorities continuously raise awareness among consumers about the chemicals within everyday products.

In Denmark, the authorities have also raised awareness about the issue of the cocktail effect and the unwanted chemicals and have produced above leaflet 'Expecting a Baby? – Advice about chemicals and pregnancy'.



<https://eng.mst.dk/media/mst/expecting%20a%20baby.pdf>

The Danish Consumer Council THINK Chemicals will continue to collaborate with partners from around the globe rating products for the benefit of consumers giving them the possibility to choose products without unwanted chemicals.

Annexes:

- 1: All Partners
- 2: The 39 products
- 3: Test methods of the Danish Consumer Council THINK Chemical
- 4: List of chemicals found in the 39 products and their many versions.
- 5: All ratings of all versions (separate document)

Annex 1: All partners

Europe		South America	North America	Africa	Oceania	Asia
Austria VKI	Belgium Kom op tegen Kanker	Brazil Toxisphera	Canada Environmental Defence	Cameroun JVE - Cameroon	New Zealand Consumer NZ	Oman Consumers International
Denmark DCC THINK Chemicals	Czech Republic Arnika	Uruguay RAP-AL	Mexico Casa Chem	Gambia YVE - Gambia		Pakistan SDPI
England Chemtrust	France 3 herissons association		USA Breast Cancer Prevention Partners	Mali AVPIP		South Korea WIOEH
Georgia Center for Strategic Research and Development	Germany Bund			Nigeria Sustainable Environmental Development Initiative		
Holland WECF	Hungary Friends of the Earth Hungary			South Africa University of Pretoria		
Lithuania Baltic Environmental Forum	Montenegro NGO Green Home			Tanzania AGENDA		
Norway Forbrukerrådet	Portugal Zero			Uganda Bio Vision Africa		
Serbia AlHem	Spain Ecologistas en Acción					
Sweden Sveriges konsumenter	Ukraine Chemical Safety Agency (CSA)					

TABEL 1:
34 countries from 6 continents.

Annex 2: The 39 products

Aussie Miracle Moist Shampoo	Lancome Definicils High Definition 01 Black
Avene Tolerance Extreme Cream	L'Oreal Casting Creme Gloss Amber 645
Avivir Aloe Vera Sun Lotion SPF 30	L'oreal Million Dollar Lashes Black
BioDerma Sensibio Make-up Removing Micelle Solution	Max Factor 2000 Calorie Mascara Black
Bio-Oil Skincare Oil	Maybelline The collasal volum express mascara
Biotherm Lait Corporel Anti-drying Body Milk	Mentholatum Lip Balm Original
Cien Sun Lotion Classic SPF 30	Nivea Creme
Clinique Dramatically Different Moisturizing Cream	Nivea Sun Kids Protect & Sensitive SPF 50+ (Unscented)
Colgate Caries Control	Origins Drink Up Intensive Overnight Mask
Dove Silky Nourishing Body Cream	Palmolive Aquarium
Elizabeth Arden Eight Hour Crème	Rexona Aloe Vera Roll-on
Elizabeth Arden Green Tea Honey Drops Body Cream	Sanex Zero 24h Deo
Garnier Ambre Solaire Light & Silky SPF 15	Schwarzkopf Natural & Easy 560
Garnier Pure Active 3 in 1	Schwarzkopf Poly Swing Hair Spray Volume Extra Strong
Garnier Repons Caring Shampoo Avocado oil & Sheabu	The Body shop Aloe Anti-Perspirant
Gillette Venus Satin Care Barber Gel	Vaseline Intensive Care Healthy Hands Stronger Nails
Head & Shoulders Shampoo Classic Clean	Vichy Antiperspirant Deodorant
ID Hair Extreme Titanium	Vichy Capital Soleil Fresh Hydrating Milk SPF 30
Kiehl's Ultra Facial Cream	Weleda Skin Food
La Roche Posay Anthelios Dermo-Kids SPF 50	

Annex 3: Test methods of the Danish Consumer Council THINK Chemical

(Source: <https://kemi.taenk.dk/bliv-groennere/danish-consumer-council-think-chemicals-test-methods>)

The Danish Consumer Council THINK Chemicals' tests are independent of commercial interests. We examine the contents of a wide range of products such as deodorants and body lotions and we do laboratory tests of products such as pizza boxes and food containers.

We perform two types of tests

The Danish Consumer Council THINK Chemicals does two different types of test:

- **Labelling checks**, typically of cosmetics, personal care products and food, for example:
 - deodorants
 - wet wipes
 - chewing gum

- **Tests with chemical analysis**, primarily of consumer products that you or your children may be in close contact with, and if we believe that chemicals may be released from the products to you or your surroundings, for example:
 - pizza boxes
 - nappies
 - school bags

Substances we look for

The chemicals that we look for in the products either are or are suspected of being:

- endocrine disrupting
 - allergenic
 - carcinogenic
 - toxic to reproduction
 - environmentally harmful (for example substances that are persistent in nature or substances that accumulate in the environment or in animals)
-

Products are selected based on three criteria:

In chemical tests, we select the products based on:

- academic assumptions about which products may contain hazardous chemicals
- the wish to create knowledge in new areas
- the wish to respond to consumers' interest in knowledge in a specific product area

Generally, we buy and select the test products ourselves, in the same way that ordinary consumers buy products.

The Danish Consumer Council THINK Chemicals' tests are independent

Our tests are independent from industry interests. We receive no forms of advertising revenue or sponsorship.

The Danish Consumer Council THINK Chemicals is not a public authority, but an initiative under the independent member organisation the Danish Consumer Council.

The Danish Consumer Council THINK Chemicals is funded by a Finance Act grant.

Ask us about test methods

If you have any questions about how we test, you may contact

- Head of Project Mr. Claus Jørgensen, cj@fbr.dk
 - Project manager and test responsible Ms. Stine Müller, sm@fbr.dk
 - Project manager and test responsible Ms. Christel Søgaard Kirkeby, csk@fbr.dk
-

Our ratings of products are based on substances that are included on one or more of these lists:

- [Endocrine disruptors Lists \(2020\) - Denmark, Sweden, Belgium, The Netherlands and France](#)
- [The EU Commission priority list of potential endocrine disruptors in cosmetics \(2019\)](#)
- [Endocrine Disrupter priority list \(EU 2007\)](#)
- [SIN \("Substitute It Now!"\) List \(CHEMSEC\)](#)
- [Substances mentioned by the National Allergy Research Centre](#)
- [List of undesirable substances – LOUS \(Danish EPA\)](#)

- [List of harmonised classifications \(EU\)](#)
- [Candidate List of Substances of Very High Concern for Authorisation \(EU\)](#)
- [SCCS opinion on fragrance allergens in cosmetic products and other opinions by the EU scientific committees](#)
[See 'Opinions open for comments'](#)
- [List of 26 fragrance substances that should be labelled \(page in Danish\).](#)
- [Listing of POPs \(Persistent Organic Pollutants\) in the Stockholm Convention](#)
- [The Priority List of the Norwegian Environment Agency](#)
- Perfluorinated substances -[The Helsingør statement](#) and [The Madrid Statement](#)

Other substances may be included, for instance if they are assessed as being hazardous in a SCCS opinion or by another scientific body in Denmark or abroad (eg the National Food Institute or BfR in Germany). This regards for example the endocrine disrupting effects of cyclopentasiloxane.

The same applies to substances that have been brought in focus by Danish or foreign authorities or are included in the criteria of a private labeling scheme (eg Ecolabeling Denmark or Sustainable Textile Production).

Labeling check of cosmetics and personal care products

When we do labeling checks, we buy a number of typical cosmetics or personal care products, for example:

- deodorant
- body lotion
- sunscreen
- hand soap

Then we examine the product's ingredients list one by one.

Labelled products such as food and detergents may also be subjected to a labeling test. We have for instance done a labeling test of chewing gum where we examined the contents of the preservatives BHA and BHT.

Labeling check does not assess the concentration

In labeling checks we assess the ingredients that are listed on the products' ingredients list. We do not do chemical analyses and therefore we do not know the concentration of the substances, ie the quantity of substances found in the product.

Our assessment is based solely on whether or not the product contains hazardous substances.

For our labeling checks we mainly select widespread and inexpensive products that you may for instance find in the supermarket chains.

To a lesser extent we also buy more expensive products as well as niche market products, e.g. natural products or products from internet shops or parallel import shops.

Our test score

In tests we give the scores A, B and C. The scores have the following meaning in labelling tests:

'A' – The product is a good choice. It does not contain a number of problematic substances.

'B' – The product is free from a number of problematic substances, but it contains perfume or substances that may affect the environment. You may choose to avoid the B products if you want to minimize the risk of fragrance allergy and take maximum account of the environment.

'C' - The product contains problematic substances, e.g. substances suspected of being endocrine disrupting. The substances are usually permitted for use and each product is not harmful in itself, but they contribute to your overall exposure to problematic substances.

How we test with chemical analysis

When we test with chemical analysis, we send a number of products, e.g. pushchairs, school bags or mobile phones, to a laboratory where they are examined.

We do tests with chemical analysis of many kinds of products. But our focus is on products that ordinary consumers, including children and young people, are in close contact with.

The purpose of laboratory tests is to identify the content of hazardous chemicals in products from large, well-established manufacturers as well as in niche products from small manufacturers or importers.

Chemical tests can be very expensive so we do not examine the entire chemical composition of a product.

Instead, we analyze the products for selected, relevant chemicals. We prioritize based on the product's materials and input from other studies on the subject and for instance authorities, researchers and test laboratories.

We typically examine the level of undesirable substances in various relevant parts of a product in a collective sample. This means that it is not always possible for us to say exactly from what part of the product the undesirable substances originate. On a mitten we may for instance examine the content of a chemical in the outside material, the inside lining and the Velcro-closing in one single test. If we find the undesirable substance, we do therefore not know exactly which of the three parts that contains the hazardous substance.

The parts of a product that we consider relevant are typically the parts that you may get in contact with when using it.

For a pram this is for example:

- upholstery
- straps
- mattress
- folding top and handles

This does not apply to the wheels and frame of the pram however.

How we assess chemicals in the chemical analysis

When we assess the content of chemicals in products, we take it as our starting point that products without hazardous substances are safest for consumers and that the risk of individual products may contribute to the overall risk of adverse effects. This is known as the combination effect or cocktail effect.

The specific risk associated with the product in question we rarely know.

As far as possible, we assess the chemical content by using external references to concentrations.

Our references may be limit values used in legislation or for instance official guidelines – even if the legislation does not cover the product in question or all the substances found within a substance group.

The limits may also come from private certification schemes. For some substances, we do not have references with concentration limits, and we must instead set the limit in other ways, for instance by comparing the concentration of all the products tested and with the help from experts, including the laboratory.

Labelling check: information for companies

Regarding labelling checks, we send the results of product ratings to manufacturers prior to the release. We send information about the product, about which chemicals we have found and about what substances caused the assessment.

Tests with chemical analysis: information for companies

The Danish Consumer Council THINK Chemicals sends the results of chemical analyses to manufacturers prior to publication of the test. We send information about the product, which chemicals we have tested for and the test results. Manufacturers are given at least one week (5 working days) to make comments.

The primary purpose is to inform the manufacturer about the coming test and about the specific substances we look for and to ensure that there are no factual errors in the results. In addition, it provides manufacturers with an opportunity to respond to the findings before publication, which we can mention in connection with the publication.

We will not disclose which laboratories that carries out the tests for us. We believe that we can best ensure that the laboratories can act independently of other interests when we do not disclose this information.

The results of the analyses are also sent for information to the Danish EPA / the Danish Veterinary and Food Administration.

Publication of tests

The results of all tests are always published on kemi.taenk.dk where all products are given an A, B or C evaluation of the chemical content and information is provided about the underlying reasons for this evaluation.

If the products have also been tested for their functioning, the test is also published on taenk.dk. In that case the content may be included in the Danish Consumer Council's overall evaluation of the product.

In connection with the publication information about the overall test results may be sent to relevant authorities and interest groups.

If the test shows any chemical content that is presumed to be unlawful, the product is reported to the authorities. This may also apply to claims, which are misleading considering the content. In that case, the manufacturer is informed about the report.

Annex 4: List of chemicals found in the 39 products and their many versions.

Substances	Problematic properties	
1. 2-Methylresorcinol	Allergenic (hair dye)	
2. Iodopropynyl butylcarbamate	Allergenic	Problematic for the environment
3. DMDM Hydantoin	Allergenic (formaldehyde)	
4. Imidazolidinyl Urea	Allergenic (formaldehyde)	
5. 4-Amino-2-Hydroxytoluene	Allergenic (hair dye)	
6. 6-Hydroxyindole	Allergenic (hair dye)	Problematic for the environment
7. M-aminophenol	Allergenic (hair dye)	Problematic for the environment
8. N,N-Bis(2-Hydroxyethyl)-p-Phenylenediamine Sulfate	Allergenic (hair dye)	
9. Toluene-2,5-diamine	Allergenic (hair dye)	Problematic for the environment
10. Methylchloroisothiazolinone	Allergenic (only allowed in rinse-	
11. Methylisothiazolinone	Allergenic (only allowed in rinse-	Problematic for the environment
12. Hydroxyisohexyl 3-cyclohexene carboxaldehyde	Allergenic (perfume) - Banned from in the EU	
13. Resorcinol	Endocrine disrupter (EU Commission database)	Allergenic (hair dye)
14. Ethylhexyl methoxycinnamate	Endocrine disrupter (Sin-list)	Problematic for the environment (reefs)
15. Butylparaben	Endocrine disrupter (SVHC - candidate list)	
16. PTFE	Flourinated substance - suspected endocrine disrupter	Persistent in the environment
17. Glyoxal	Mutagenic	Allergenic
18. Chloroacetamide	Reprotoxic (a ban is on the way in EU)	
19. Cyclopentasiloxane	Suspected endocrine disrupter (not in sunscreens)	Problematic for the environment (Article 57d) vPvB (Article 57e))
20. Benzophenone-3	Suspected Endocrine disrupter	Problematic for the environment (reefs)
21. Benzophenone-4	Suspected Endocrine disrupter	
22. Benzyl salicylate	Suspected Endocrine disrupter	Allergenic (perfume)

23. BHT	Suspected Endocrine disrupter	
24. Butylphenyl Methylpropional	Suspected Endocrine disrupter	Allergenic (perfume)
25. Ethylhexyl salicylate	Suspected Endocrine disrupter	
26. Ethylparaben	Suspected Endocrine disrupter	
27. Homosalate	Suspected Endocrine disrupter	
28. Methylparaben	Suspected Endocrine disrupter	
29. Octisalate (Ethylhexyl salicylate)	Suspected Endocrine disrupter	
30. Octocrylene	Suspected Endocrine disrupter	
31. P-aminophenol	Suspected Endocrine disrupter	Problematic for the environment
32. Propylparaben	Suspected Endocrine disrupter	
33. Sodium salicylate	Suspected Endocrine disrupter	
34. Isobutylparaben	Suspected endocrine disrupter (not allowed in cosmetics in the EU)	
35. Cyclomethicone	Suspected endocrine disrupter (does not contain cyclopentasiloxane)	
36. Salicylic acid	Suspected Endocrine disrupter / Reprotoxic	
37. Alpha-isomethyl ionone	Allergenic (perfume)	
38. Amyl cinnamal	Allergenic (perfume)	
39. Benzoic acid	Allergenic (perfume)	
40. Benzyl Alcohol	Allergenic (perfume)	
41. Benzyl Benzoate	Allergenic (perfume)	
42. Citronellol	Allergenic (perfume)	
43. Coumarin	Allergenic (perfume)	
44. Eugenol	Allergenic (perfume)	
45. Farnesol	Allergenic (perfume)	

46. Geraniol	Allergenic (perfume)	
47. Hexyl Cinnamal	Allergenic (perfume)	
48. Hydroxycitronellal	Allergenic (perfume)	
49. Limonene	Allergenic (perfume)	Problematic for the environment
50. Linalool	Allergenic (perfume)	
51. Menthol	Allergenic (perfume)	
52. Parfum	Allergenic (perfume)	
53. Citrus aurantium dulcis (orange) peel oil	Allergenic (plant extract)	
54. Citrus aurantium dulcis peel cera	Allergenic (plant extract)	
55. Eucalyptus globulus leaf oil	Allergenic (plant extract)	
56. Lavandula angustifolia oil	Allergenic (plant extract)	
57. Rosa damascena extract	Allergenic (plant extract)	
58. Zinc pyrithione	ECHA: CMR 1B substance	Reprotoxic
59. Zinc sulfate	Problematic for the environment	
60. Disodium EDTA	Problematic in the environment allowed in the "Nordic Ecolabelling Scheme - the Swan label")	
61. EDTA	Problematic in the environment allowed in the "Nordic Ecolabelling Scheme - the Swan label")	
62. Tetrasodium EDTA	Problematic in the environment allowed in the "Nordic Ecolabelling Scheme - the Swan label")	
63. Trisodium edta	Problematic in the environment allowed in the "Nordic Ecolabelling Scheme - the Swan label")	