

Cleaning effectiveness and environmental properties of 25 different liquid laundry detergents were tested by The Association of Conscious Consumers. Green detergents swept to victory.

The products were tested to see how effectively they cleaned, i.e. to what extent the different types of stains were removed from the clothes; the phosphorus content of each product was measured. The hazard symbols and pictograms were examined as well as the fact whether the product is ecolabelled or not.

The products were evaluated by summing their scores for the efficiency of **removing different stains** and then subtracting 1000 times the measured **phosphorus content** from this value. The highest score was set as 100% as a reference, to which the rest of the scores (of all the other products) were compared.

Prices are in unit prices per litre for ease of comparison. The price of the products varies widely, the cheapest product was bought at 500 HUF / l, while the most expensive at 13.000 HUF / l.



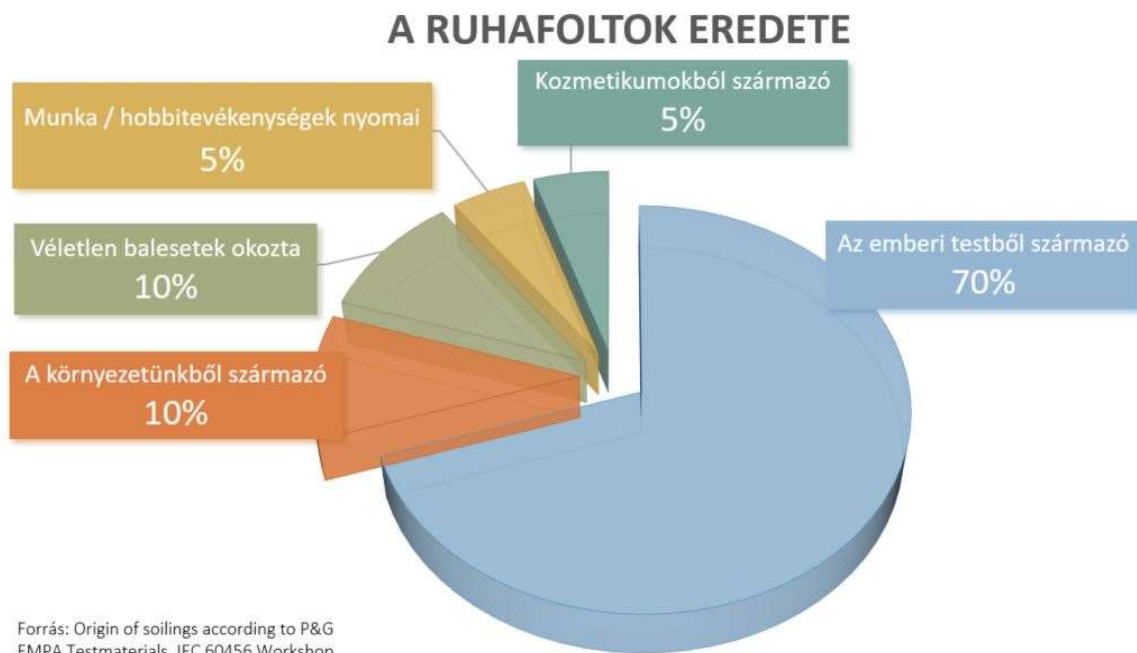
Framework for testing

Efficiency of removing different stains

The Association of Conscious Consumers was eager to find out if the urban legend that eco-detergents were less effective than non-eco-detergents could be refuted. For this end, the performance of each laundry detergent was lab-tested, according to MSZ 19619-3 standards.

The lab tests mimic the everyday dirt and stains you get on your textile clothes, which ensures that all products are subjected to precisely the same test. The strips of clothes were washed in the same washing machine, with the same program, at 40 ° C. Dosage instructions on the label were followed.

In all test cases, the quantity of the detergent used was the quantity recommended for 4.5 kg of moderately soiled clothes and medium water hardness. The color change (fading) of the stains was measured using a special instrument. / The stain-removal power was measured by using a photospectrometer, which shines light on the stains after washing.



The stains on our casual clothes can be grouped according to their origin as shown in the figure above. We may not even think about how much dirt is getting on our clothes from our bodies, as removing them is less of a problem in general than stains from other “groups”. The cleaning effect of detergents is due to the effect of different ingredients on different types of soils. The most common types of soils generated in the household, in terms of their physical and chemical characteristics, can be grouped as follows:

1. substances soluble in water, such as soils deriving from foodstuffs;
2. water-insoluble but water-swellable substances that can be removed mechanically, such as protein-based substances from the human body;
3. substances insoluble in water but soluble in detergent and water, such as grease and oil;
4. contaminants insoluble in water or organic solvents, such as soot, rust, pigments, etc.

The effectiveness of the washing powders was tested on 8 different types of stains (EMPA 108 test strip, Swisstatest) that model different types of soils. We did not use the same set of stains as for washing powders because the laboratory was unable to obtain the very same stain samples. Anyway, there is a match between the two samples; data on the comparison of powders and gels will be reported later. The number(s) of the type of soil represented by artificial soiling are indicated in parentheses after the descriptions.

White, bleached without optical brightener: This is the same textile on which the artificial stains are made, only that in this case it is bleached. Here, during washing, both the additional bleaching ability of the detergent and the graying can be observed.

Greasy soils: A mixture of artificial tallow and pigments (kaolin (clay), soot and iron oxide powder). The most commonly used artificial soil, which models most of the everyday soils, except for the protein type soils. This is the classic “dirt”. For example: baby food, makeup, mud, soil, pencil mark, stains from a repair shop. Sensitive to temperature and active ingredient concentration. (1,3,4)

Sulfur black: A mixture of soot and petroleum. It models similar types of everyday soils to the previous stain, but this one is more sensitive to mechanical and temperature effects. (1,3,4)



Blood: Protein-type soil, sensitive to temperature and concentration. It tests the general performance and the bleaching effect of the detergent. (2)

Cocoa: Protein-type soil, a mixture of cocoa powder and milk. It represents greasy and discoloring food stains, such as cocoa or greasy-spicy stains. (3)

Red wine: It represents fruit stains and other dyes such as: tea, coffee, beetroot, spinach, apple, banana. It tests the bleaching ability of the detergent. (4)

The washing powders were compared to each other in the test. The reference detergent is always the highest-scoring laundry detergent for each type of stain.

Environmental and health impact

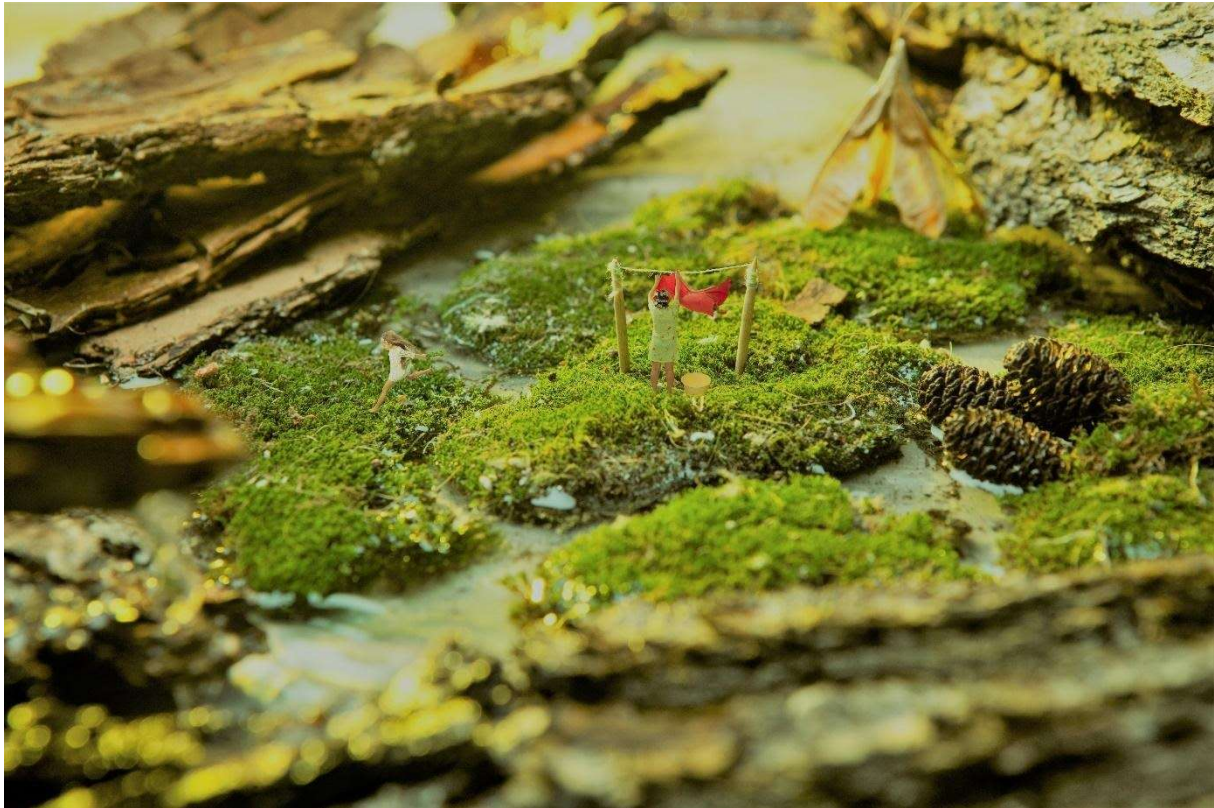
In addition to performance, health and environment records of the products have also been investigated and published. In an accredited laboratory, we measured the phosphorus content of detergents using an accredited method. Based on the product label, we indicated whether the product was hazardous to health, in other words: whether it contained a hazard label. The fact, whether the product is ecolabelled, has been indicated as well.

Why is phosphorus content important?

Among the consequences, aquatic ecosystems are disrupted, algae proliferate and then decompose by consuming the oxygen needed by many species: this is called eutrophication.

The EU had maximized the phosphate content of washing detergents to 0.5 g per wash, so essentially ordered a ban of phosphates in laundry detergents by June 2013. Recently, low environmental impact additives such as phosphonate compounds have been used in laundry detergents to achieve the desired cleaning and water softening effect. They are also effective in achieving the required cleaning effect in detergents, even at a much lower concentration – compared to that of phosphate. Laundry detergents have thus been responsible for only one percent of the phosphorus content of wastewater. Read more on [how the tests were done](#)

The aim of the lab-test was to determine the phosphorus content of products. We wanted to see how much phosphorus the products contain – and compare the figures to the EU limit value.



What does the EU Ecolabel tell consumers?

The EU Ecolabel is awarded to products and services, of which main environmental impacts are reduced in comparison to similar products on the market. To qualify for the EU Ecolabel, products have to comply with a tough set of criteria. This takes the whole product life cycle into account – including but not limited to production, packaging and waste management. Fitness-for-use criteria are set for product categories.

Therefore, when looking at environmental and health impacts of the products, we indicated if the laundry detergent had the EU Ecolabel – or other, similar and independent ecolabels.

Find out more about labels and how reliable they are from our [Product label database](#). Our database includes the EU-Ecolabel, as well as other common product labels, including eco-labels regulated and recognized on a national level. Find out more about labels and how reliable they are from our Product label database. Our database includes the EU-Ecolabel, as well as other common product labels, including eco-labels regulated and recognized on a national level.

The most popular liquid laundry detergents from supermarkets and drugstores were tested by the Association of Conscious Consumers and the outcome of the test was a pleasant surprise: the best cleaning products not only perform well, but are gentle on the environment.

The efficiency of the washing was tested in a laboratory using an accredited method. All products were subjected to precisely the same test. The strips of clothes were washed in the same washing machine, with the same program, at 40 ° C. Dosage instructions on the label were followed. Mimicing the everyday dirt and stains you get on your textile clothes, a textile strip with 6 different types of stain was used for the test wash. The stains represent the different types of soil from the household, such as cocoa, beetroot, red wine, mud, grass, oil stains.

In addition to cleaning efficiency, health and environment records of the products have also been investigated and published. We measured the phosphorus content of laundry detergents since releasing phosphorus into the environment may have a devastating impact on the natural ecosystem of living waters. Thus, the less phosphorus a household chemical contains, the less harmful it is for the environment. Find out more. Safety Data Sheets and labels published by the producer were the main resources for collecting and publishing information on the health and environmental risks of the products. The fact, whether the product is ecolabelled, has been indicated as well. From an ecological point of view, packaging is also a relevant issue. You will find information on that in the table. Read more on [how the tests were done](#)

Huge differences in terms of efficiency – but also in price

Prices are in unit prices per litre for ease of comparison. The tested products cost 2000 HUF / l on average, but prices vary a lot from product to product. The cheapest product is 500 HUF/l only, whereas the most expensive costs 13.000 HUF/l.

Ecolabelled products are on the top

Products tested include supermarkets and drugstores own brands, well-known brands available in most locations, and environmentally friendly alternative detergents. As for packaging, most of the tested laundry detergents come in plastic bottles, but fortunately the selection has been varied lately and so recycled packages and refills, which are more economical, have been on offer too. Two products got 100% in the test: **Seventh Generation** and **Denkmit nature**. These two share first place. Both hold the EU Ecolabel and performed brilliantly in all categories of the test. The former can be purchased in a 100% recycled plastic bottle, while the latter can be purchased in a refill bag containing 64% less plastics compared to a 1.1 liter bottle. Dm's own-brand product stands out from the best-performing tested detergents with its low price. **Zöldlomb** eco laundry detergent and **Ecover Zero** tied for second place. Zöldlomb is a Hungarian product without eco-label but consists of ingredients with a lower-than-average environmental and health impact. Besides, the measured phosphorus content of Zöldlomb is minimal. Ecover Zero is also eco only in its name, but has no authentic, certified label. However, its phosphorus content is low, its bottle is 50% recycled and it is a good stain remover. Ranked third is **Frosch** color, which holds the EU Ecolabel.

Among the middle-ranked contenders, either the phosphorus content is high or the efficiency is low

Among the middle-ranked contenders too there's an ecolabelled product: it is the **Green Emotion** eco-washing gel with lavender oil. It is available in economical refill packaging in larger drugstores. In addition, several low-phosphorus products sold as environmentally friendly, although without an

authentic, independent label. You can see them in the 80-60% range in our table.

The two most expensive products (among the tested products) belong to this category too. You can get them through MLM. As our washing powders test had showed, high-phosphorus detergents could get in the middle range at most, such as products that can be found everywhere (**Tomi, Biopon, Persil, Ariel, Surf**), plus the larger drugstores' own brand products (**Denkmit, domol**). In our test none of the detergents' phosphorus content was higher than the EU limit of 0.5 g per dose.



Why should consumers rely on the EU Ecolabel?

According to the Association of Conscious Consumers washing gel test results, opting for the ecolabelled product does not involve any unacceptable compromise from the customer's side. It is a realistic option to use an ecolabelled laundry detergent which does the job well and at the same time is affordable.

For most of the consumers, it is a real challenge to recognize and be aware of the ingredients on the label of household products, and to assess the environmental impact they might have is even more difficult. Following the EU Ecolabel, however, consumers can easily make an informed decision among product choices. The EU Ecolabel, one of the most common labels in Hungary, is a label of environmental excellence, recognised across Europe and worldwide. The EU Ecolabel promotes the circular economy by encouraging producers to generate less waste and CO₂ during the manufacturing process. EU Ecolabel minimises the use of hazardous substances and substances that may be harmful to the aquatic environment. To qualify for the EU Ecolabel, products have to comply with a tough set of criteria. These environmental criteria are set by a panel of experts, and trademark is independent from the industry. EU Ecolabel is awarded to products which are less harmful to the environment, in comparison to similar products on the market.

Tudatos Vásárlók Egyesülete

Association of Conscious Consumers

H-1114 Budapest, Móricz Zsigmond krt. 3A fsz. 3, T: (36-1) 225 81 36, tve@tve.hu



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