

How we tested washing powder and laundry detergents

Cleaning efficiency of 13 different washing powder brands were tested by The Association of Conscious Consumers. 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 after the test wash; while 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 given in unit prices per kilogramme for ease of comparison. The price of the products varies widely, the cheapest product was bought at 600 HUF / kg, while the most expensive at 4.600 HUF / kg.

Framework for testing

Assessing the efficiency of detergents: removing different types of 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 washing powder was lab-tested, according to MSZ 19619-3 standards.

The lab tests mimic the everyday dirt and stains you get on your textile: artificially soiled textile strips were used for the test, which ensures the repeatability of the test (i.e. that all products are subjected to precisely the same test). In each case, 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 washing powder 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 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 compared to 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 103 test strip, Swisstatest) that model different types of soils. The numbers 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, either the extra bleaching ability of the detergent or the graying can be observed.

Coal / olive oil: 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, make-up, mud, soil, pencil mark, stains from a repair shop. Stain type 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)



Blood / milk / ink: Protein-type soil, it characterizes the effectiveness of protein-degrading enzymes in detergents. (1,2,3,4)

Sulfur black: It represents fruit stains and other organic dyes such as: coffee, tea, grass stain. It tests the bleaching ability of the detergent. (4)

Raw, white, unbleached textile material: The original textile, without any pre-treatment. It shows whether the detergent has an “additional” bleaching effect on the raw white textile.

Red wine: It represents fruit stains and other dyes such as: 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 washing powder 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. The phosphorus content of washing powders was measured in an accredited laboratory, using accredited tests. 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.

Why is phosphorus content important?

Without phosphorus, life is not possible. A fundamental element of life, it is essential to natural ecosystems and agricultural production. However, human activities (agriculture, wastewater, urban

expansion, industry) are profoundly changing its cycle. Among the consequences, aquatic ecosystems are disrupted, algae proliferate and then decompose by consuming the oxygen needed by many species: this is called eutrophication.

Due to the widespread use of phosphates-containing detergents, the phosphate content of wastewater had become extremely harmful to the environment, so many countries have banned the use of phosphates in detergent. The EU had maximized the phosphate content of washing detergents to 0.3 g per wash, so essentially ordered a ban of phosphates in consumer laundry detergent by June 2013.

Recently, instead of phosphates, low environmental impact additives have been used in washing powders to achieve the desired cleaning and water softening effect. An example of such an additive is a group of phosphonate compounds. They are also effective in achieving the required cleaning effect in detergents, even at a much lower concentration - compared to that of the phosphate. Thanks to this change, laundry detergents have lately been responsible for only one percent of the phosphorus content of wastewater.

The aim of the lab-test was to determine the phosphorus content of washing powders. 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 washing powder 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 ecolabels regulated and recognized on a national level.

Consumer Guide

The most popular detergents from supermarkets and drugstores were tested by the Association of Conscious Consumers and the outcome of the test was a pleasant surprise: there is a product that is gentle on the environment, inexpensive and cleans extremely well.

Cleaning effectiveness of 13 different washing powder brands were tested by The Association of Conscious Consumers. 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 8 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 washing powders 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 on phosphorus here](#). 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 given in unit prices per kilogramme for ease of comparison. The tested products cost 1260 HUF / kg on average, but prices vary a lot from product to product. The cheapest product is 600 HUF/kg only, whereas the most expensive costs 4.600 HUF/kg.

The best washing powder was the only ecolabelled product

Products tested include supermarkets and drugstores own brands, well-known brands available in most locations, and environmentally friendly alternative detergents. Packaging: most items come in plastic bags, but to our great delight, you can get the top washing powder of our test in a paper bag. Müller's drugstore own-brand product, **Blink Öko**, is the only washing powder in the test that holds the EU Ecolabel certification. The phosphorus content of **Blink Öko** is very low and it achieved outstanding results in all categories in terms of its efficiency. On top of that, it only costs 55 HUF / dose – this is one of the cheapest prices of the 13 tested products. Cardboard packaged **Amway** ranked second. And even though you will not find this washing powder in a regular store, it is easy to order it online – this is just what we did. It is far the most expensive product of all, 4600 HUF / kg, but the dose you need for one load is the smallest. Which is in line with the company's principle: Amway products are concentrated and therefore clean effectively in small quantities. Among the test's top products Surf is the easiest to get – you can get it in smaller and larger stores and chain stores. Considering the price and efficiency, however, Surf is not among the top tested products.

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

Another washing powder, **Almawin's** product, which was ranked fourth, is also advertised as an environmentally friendly washing powder and is available in organic stores. It is important to note, however, that this product does not hold an independent certificate, an ecolabel. Almawin belongs to

the first category in terms of price, its phosphorus content is low, but it showed medium efficiency against stains. DM and Rossmann own-brand products, **Denkmit** and **Domol** washing powders performed very well in the efficiency test and their prices are very favorable (60 HUF / dose), but due to their high phosphorus content they are not among the top products.

In the second half of the table you will find the well-known washing powder brands, such as **Ariel**, **Persil**, **Biopon Takarékos (Economical)** and **Tomi**, which are essentially available in all stores. In overall, their washing efficiency is good – they all have their strong points and weak points. As for their price, they fall into the same category, they all cost around 1300 HUF/ kg, except for Biopon, which belongs to the economical category, as it costs 785 HUF/ kg only. With the exception of Ariel, however, their phosphorus content is quite high, which is why they ended at the tail of the field.

Searching for the most eco-friendly solutions, **washing soda** had to be included in the test. In terms of its stain remover efficiency, it did not perform very well at the test, however, those who choose this environmentally friendly form of washing usually combine it with other green practices against stains (ox gall soap, stain remover salt). Because of its price and composition, we consider this detergent a conscious choice.

Spar's own-brand **S-Budget** performed just as we expected. It is cheap and removes stains from clothes with medium performance. We appreciate the cardboard box packaging though.

Almacabio's “eco-friendly” detergent was unfortunately disappointing. It is at the bottom of the list because – according to our measurement – it has the highest phosphorus content among the contenders. Fortunately, this value is still below the maximum limit value set by the EU (0.5 g P / dose). Despite the eco-friendly image, this product does not hold any ecolabel.

Why should consumers rely on the EU Ecolabel?

According to the Association of Conscious Consumers washing powder 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 washing powder, 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.

We also tested washing machines and household appliances. [Check out what and how we tested here.](#)

Do you want to go green in your household? [Our EcoTeams will guide you](#)

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