



Swiss
Aqua
Technologies



IonPolarization
System

IPS WashBall

Efficiency & Protection



Product sales manual
Test report
Leaflet

Why to buy WashBall

- Protects your washing machine from limescale.
- Reduce the need of chemical softeners. It's an ecological product.
- Increases detergent performance.
- Creates a soft water effect, provides better foaming and dissolution of detergent, therefore reducing its consumption.
- Provides better dissolution of organic impurities.
- Helps to remove animal fur from laundry.
- Softens laundry without the use of fabric softener and helps to maintain fresh colors.
- Save your money.

How to use WashBall in washing machine

- Just put in the washing machine together with the laundry.
- For all types of washing machines (top or front opening).
- For all types of clothes and all colors.
- For all temperatures.
- In most cases allows you to use 1/3 less detergent than the recommended quantity.
- It is not necessary to use softener to keep the laundry delicate.
- Do not add any chemical water softeners or anti-limescale liquids.
- WashBall remains in the machine all the washing cycle.

WashBall features

- It is made of special plastic with rubber properties, it is gentle on laundry and washing machine
- Resistant to impacts and abrasion. The shape is designed to roll as best as possible
- Maintenance-free
- The service life is maximum 10 000 cycles. When used in a washing machine with a maximum load of 95 ° C washing program, it is at least 1,500 cycles (3 times a week for approx. 5 years)
- It is ecological product, contributes to environmental protection

How WashBall works

- Maintenance-free equipment with its own „source“ of energy.
- Does not change the chemical composition of water, but modifies its properties so that the detergent dissolves well and effectively removes dirt and odours.
- Contains a patented electrode system of various conductive materials, that together form a galvanic wet cell when water flows through the system.
- The structure of minerals changes during the washing process.



WashBall removes limescale from old washing machine.

This is how the filter of old washing machine looks when using WashBall. WashBall was used several times in 20 years old washing machine. After short time limescale was removed from internal parts and was caught in a filter. Using WashBall protects heating coils against limescale creation while also increase lifetime of washing machine and save money.

- The modified water properties cause calcium (calcite) not to settle on the heating coil and other parts of the washing machine as hard limescale, but to be flushed away with the water in the form of fine sludge (aragonite).

NOTICE:

- **WHEN USING WASHBALL, THE SIPHON / FILTER IN THE WASHING MACHINE (WHERE LOOSE SCALE CAN BE TRAPPED), SHOULD BE CHECKED AND CLEANED REGULARLY.**
- **WASHBALL IS NOT A CHILD'S TOY.**

Other uses of WashBall

- Dishwashers - just put in the basket with dishes. Do not add any chemical water softeners. It protects the dishwasher from limescale and corrosion and does not leave white stains on the dishes after washing
- WC cisterns - protects against the formation and deposition of scale on drain and inlet valves, seals and ceramics - just put in the cistern and about every 2 months remove the ball and rinse aragonite under running water.



This is how the WashBall from cistern tank looks, if it is not regularly cleaned.

Test I – Efficiency

Test was done similarly according to methodology for testing of washing liquids. Totally was checked 12 different samples of dirty spots made from different materials. We used the same washing conditions (temperature, volume of washing gel; kind and parameter of dirty spots) without and with using of WashBall. We used vector method (measure intensity of colours) to measure to what percentage the original color was achieved after washing.

From all 12 comparisons (12x with and 12x without WashBall) were:

- Similar results with and without using of Washball 5 times
- Better results with using of Washball 7 times
- Worse results when using Washball 0 times

100 % of tests were with the same or better results with using of WashBall.

- Average washing performance when using WashBall is 3,67% higher; highest efficiency achieved by black tea, the washing performance with WashBall was about 36,79% higher.
- If WashBall is used in standard washing cycle, the effectiveness of the washing effect is usually increased (dependent on kind of contamination). The effect of using WashBall can be clearly recommended without negative side effects.

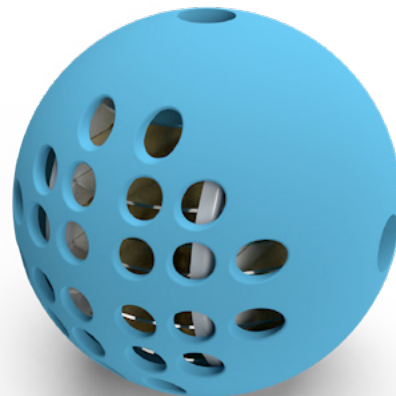




Cotton/40°C/60ml washing gel	Without WashBall		Efficiency %		worse result	better result	similary result	particular improvement
					0	7	5	
Red Wine	$\Delta E_{W1-S1} =$	27,561	reference	$\Delta E_{W1-S1} =$	25,446	x		
	$\Delta E_{W2-S2} =$	25,217	8,508	$\Delta E_{W2-S2} =$	23,514	7,591		
Red Juice	$\Delta E_{W1-S1} =$	14,529	reference	$\Delta E_{W1-S1} =$	12,244	x		
	$\Delta E_{W2-S2} =$	3,461	76,179	$\Delta E_{W2-S2} =$	2,324	81,022	6,36%	
Black Tea	$\Delta E_{W1-S1} =$	27,226	reference	$\Delta E_{W1-S1} =$	29,717	x		
	$\Delta E_{W2-S2} =$	18,074	33,616	$\Delta E_{W2-S2} =$	16,052	45,982	36,79%	
French Mustard	$\Delta E_{W1-S1} =$	26,057	reference	$\Delta E_{W1-S1} =$	27,602	x		
	$\Delta E_{W2-S2} =$	5,348	79,475	$\Delta E_{W2-S2} =$	5,785	79,040		
Tomato Sauce	$\Delta E_{W1-S1} =$	69,171	reference	$\Delta E_{W1-S1} =$	74,406	x		
	$\Delta E_{W2-S2} =$	3,274	95,266	$\Delta E_{W2-S2} =$	3,297	95,569		
Baby Carrot	$\Delta E_{W1-S1} =$	39,364	reference	$\Delta E_{W1-S1} =$	74,406	x		
	$\Delta E_{W2-S2} =$	2,885	92,672	$\Delta E_{W2-S2} =$	3,275	95,598	3,16%	
Chocolate	$\Delta E_{W1-S1} =$	80,178	reference	$\Delta E_{W1-S1} =$	78,905	x		
	$\Delta E_{W2-S2} =$	2,909	96,372	$\Delta E_{W2-S2} =$	2,888	96,340		
Used Motor Oil	$\Delta E_{W1-S1} =$	66,115	reference	$\Delta E_{W1-S1} =$	65,732	x		
	$\Delta E_{W2-S2} =$	16,780	74,619	$\Delta E_{W2-S2} =$	14,112	78,531	5,24%	
Coffee	$\Delta E_{W1-S1} =$	34,041	reference	$\Delta E_{W1-S1} =$	34,033	x		
	$\Delta E_{W2-S2} =$	8,745	74,310	$\Delta E_{W2-S2} =$	7,694	77,394	4,15%	
Make Up	$\Delta E_{W1-S1} =$	41,650	reference	$\Delta E_{W1-S1} =$	42,887	x		
	$\Delta E_{W2-S2} =$	10,944	73,724	$\Delta E_{W2-S2} =$	9,607	77,600	5,26%	
Grass	$\Delta E_{W1-S1} =$	32,079	reference	$\Delta E_{W1-S1} =$	36,642	x		
	$\Delta E_{W2-S2} =$	5,403	83,159	$\Delta E_{W2-S2} =$	5,962	83,730		
Mud	$\Delta E_{W1-S1} =$	51,776	reference	$\Delta E_{W1-S1} =$	50,534	x		
	$\Delta E_{W2-S2} =$	2,704	94,778	$\Delta E_{W2-S2} =$	1,643	96,749	2,08%	

Average efficiency without WashBall 73,556%

Average efficiency with WashBall 76,262%



Test II – Saving

Test was done similarly according to methodology used for testing washing detergents. Totally was checked 12 different samples of dirty spots; cases with efficiency less than 15% (by both cases - with and without WashBall) were excluded from the test evaluation (Red Wine, Makeup).

Two different washing conditions were tested:

- regularly temperature, reduction of detergent by 1/3,
- regularly temperature, reduction of detergent by 2/3.

Vector method measured to what percentage the original color was achieved after washing.

From all comparisons were:

- Similar results with and without using of Washball 12 times
- Better results with using of Washball 6 times
- Worse results when using Washball 2 times (Red Juice, Chocolate)

90 % of tests were with the same or better results with using of WashBall.

- Average washing performance when using WashBall was improved by 7,22% (reduction of detergent by 1/3) respective 20,41% (reduction of detergent by 2/3)
- Really bad spots like those made from Red Wine or Makeup are very hard to be effectively washed away with less detergents than recommend. WashBall can not be recommended here as an effective tool to improve washing results.
- In general, washing with less detergents leads to worse washing performance, but it very much depends on the origin of the spot. Simple spots like Mud, Tomato Sauce or Carrot can be washed away almost with the same efficiency while using less detergents.
- Using WashBall in washing cycles with less detergents in mosts cases leads to better washing performance. Only in the case of extreme pollution, WashBall cannot be recommended as an effective tool for increasing the washing effect.

Our tests have proven exactly, that washing with WashBall is more efficient, economical and gentle. However, another very important reason for using WashBall is the protection of the washing machine against limescale and higher energy consumption for water heating. This is verified by testing the patented TGP technology and confirmed the efficiency of descaling (up to 76% in IPS).



Average efficiency in %	Cotton/40°C/40ml washing gel			Cotton/40°C/20ml washing gel		
	without WashBall		73,264	without WashBall		53,313
	with WashBall		78,557	with WashBall		64,196
Sample	1	1	8	1	5	4
	With WashBall		Efficiency %	With WashBall		Efficiency %
Red Juice	$\Delta E_{W1-S1} =$	8,816	x	$\Delta E_{W1-S1} =$	11,213	x
	$\Delta E_{W2-S2} =$	3,322	62,321	$\Delta E_{W2-S2} =$	5,082	54,678
Black Tea	$\Delta E_{W1-S1} =$	29,097	x	$\Delta E_{W1-S1} =$	31,699	x
	$\Delta E_{W2-S2} =$	20,026	31,177	$\Delta E_{W2-S2} =$	22,802	28,067
French Mustard	$\Delta E_{W1-S1} =$	22,974	x	$\Delta E_{W1-S1} =$	20,854	x
	$\Delta E_{W2-S2} =$	3,212	86,017	$\Delta E_{W2-S2} =$	7,384	64,591
Tomato Sauce	$\Delta E_{W1-S1} =$	68,236	x	$\Delta E_{W1-S1} =$	66,903	x
	$\Delta E_{W2-S2} =$	3,694	94,586	$\Delta E_{W2-S2} =$	5,825	91,293
Baby Carrot	$\Delta E_{W1-S1} =$	68,236	x	$\Delta E_{W1-S1} =$	66,903	x
	$\Delta E_{W2-S2} =$	0,865	98,732	$\Delta E_{W2-S2} =$	1,866	97,211
Chocolate	$\Delta E_{W1-S1} =$	75,980	x	$\Delta E_{W1-S1} =$	77,722	x
	$\Delta E_{W2-S2} =$	8,543	88,756	$\Delta E_{W2-S2} =$	28,031	63,934
Used Motor Oil	$\Delta E_{W1-S1} =$	66,035	x	$\Delta E_{W1-S1} =$	61,444	x
	$\Delta E_{W2-S2} =$	13,544	79,489	$\Delta E_{W2-S2} =$	41,912	31,788
Coffee	$\Delta E_{W1-S1} =$	34,592	x	$\Delta E_{W1-S1} =$	36,559	x
	$\Delta E_{W2-S2} =$	9,930	71,294	$\Delta E_{W2-S2} =$	14,296	60,897
Grass	$\Delta E_{W1-S1} =$	29,153	x	$\Delta E_{W1-S1} =$	32,685	x
	$\Delta E_{W2-S2} =$	7,076	75,729	$\Delta E_{W2-S2} =$	15,901	51,349
Mud	$\Delta E_{W1-S1} =$	49,866	x	$\Delta E_{W1-S1} =$	50,428	x
	$\Delta E_{W2-S2} =$	1,262	97,470	$\Delta E_{W2-S2} =$	0,933	98,151

Test III – Softness

- In process now.

Test IV – Color fastness

- In process now.

LIMESCALE PROTECTION

Up to
10.000
CYCLES



EFFECTIVELY PREVENTS CORROSION AND LIMESCALE CREATION

- Protects appliances from limescale.
- Easy to use, no chemical softeners.
- No maintenance required.



- **LIMESCALE PROTECTION**
- **WATER SAVING**
- **HIGHER WASHING EFFICIENCY**
- **MONEY SAVING**
- **ENVIRONMENT FRIENDLY**



IonPolarization
System

IPS effectively prevents the formation of solid sediments and corrosion in cold and hot water appliances. WashBall is a flow-through body with inside placed turbine-shaped electrodes of two different electrically conductive materials. The electrode design is patent-protected (TGP® - turbulent galvanic polarization) and generates a swirling water flow, causing a change in the structure of the minerals.



Swiss
Aqua
Technologies



PATENT
PROTECTED

swatec.ch