

Detergent Powders-

Top & Front Load: Deciding the Best for You!

Detergent Powders are an important item in every household, using for doing laundry and keeping them fresh and sparkling. However, does buying a high-priced detergent powder guarantee cleaner clothes? There are grades specified in the national standard for detergent powders, based on active ingredients composition and quality. Sure, they are all supposed to clean our clothes and if they do that effectively enough, what else are we supposed to know that should matter to us? Is it their chemical composition, their quality aspects, their implications for personal health, or their environment-friendliness?

The test report that follows will tell you how 3 premium brands each of top load and front load detergent powders compare against each other.

A Consumer VOICE Report

The objective of comparative testing was to assess and evaluate the popular brands available in the market. The test program for Comparative Testing (CT) was based on the Indian Standard IS: 4955: 2020 specifications for household laundry

detergent powder. There are 3 grades prescribed in this standard based on the composition, quality as well as performance. The most selling brands of premium detergent powder were identified for comparative testing.

Comparative Product Testing



Brands Tested

We purchased the high selling brands of detergent powder recommended for use in top loading and front loading washing machines and got them tested as per relevant Indian standard in an Independent, NABL accredited laboratory.

Rank	Overall Score	Brand	Net Quantity, gm	MRP, Rs.	Marketer/ Manufacturer
Detergent Powder -Top Load					
1	95	Surf Excel Matic	1000	240	HUL Limited
2	90	Ariel Matic	1000	235	P&G Home Products Ltd.
2	90	Henko Matic	1000	190 (Rs.35 off)	Jyothy Laboratories Ltd.
Detergent Powder -Front Load					
1	90	Ariel Matic	1000	250 (2 liquid pouch free)	P&G Home Products Ltd.
1	90	Henko Matic	1000	215 (Rs.35 off)	Jyothy Laboratories Ltd.
2	78	Surf Excel Matic	500	140	HUL Limited

Rating: >90 – Excellent *****, 71-90- Very Good ***, 51-70- Good **, 31-50- Average **, upto 30 – Poor*

CV Recommendations

Top Performers

Top Load
Surf Excel Matic

Front Load
Ariel Matic/Henko Matic

Value for Money Brand
Henko Matic

Key Findings

- ❖ Surf Excel Matic is the top performer in the top load category of detergent powder.
- ❖ Ariel Matic & Henko Matic jointly performed on top in the front load category of detergent powder.
- ❖ Henko Matic is the Value for Money brand in both the categories.
- ❖ In detergency (washing performance) test of top load category, Surf Excel Matic performed the highest followed by Ariel Matic/Henko Matic.

- ❖ In detergency (washing performance) test of front load category, Henko Matic performed the highest followed Ariel Matic
- ❖ In the top load category active ingredients were found highest in Surf Excel Matic and in front load category in Ariel Matic & Henko Matic.
- ❖ Phosphate was well within the requirement of standard and STPP was not detected.
- ❖ The test findings reveal that the costliest detergents were found to be the better cleaners.
- ❖ The Indian standard has defined three quality grades for detergent powder. None of the brands declared their grade on the labels as Indian standard is voluntary.

Comparative Performance Score

Brands Parameters	Weight-age %	Top Load Detergent Powder			Front Load Detergent Powder		
		Surf Excel Matic	Ariel Matic	Henko Matic	Ariel Matic	Henko Matic	Surf Excel Matic
MRP(Rs.)/Net Quantity (gm)		240/1000	235/1000	190/1000 (Rs.35 off)	250/1000 (2 liquid pouch free)	215/1000 (Rs.35 off)	140/500
Percent Detergency	40	39.72	36.16	37.26	35.79	38.13	29.74
Active ingredients	20	19.87	17.79	17.00	16.03	16.03	13.23
Ash built-up	10	8.30	7.70	8.80	9.30	9.20	8.30
Physical tests	7	7.00	7.00	7.00	7.00	7.00	7.00
Total phosphates	6	5.76	6.00	4.80	5.88	4.68	5.16
Active Alkalinity	6	3.91	5.11	4.68	5.30	4.44	4.32
STPP	6	6.00	6.00	6.00	6.00	6.00	6.00





Test Parameters and Results

Percent Detergency Test

Detergency is the ability to clean or remove soil, generally associated with the action of a cleaning agent such as soap, detergent, alkaline salt. Detergency is main performance test for a detergent powder. As per the Indian standard the percent detergency of detergent powder is specified for detergent powders as below.

Grade 1 - 65 min

Grade 2 - 55 min

Grade 3 - 45 min

All the brands performed well in detergency test. In the top load category, Surf Excel Matic had the highest detergency followed by Henko Matic and Ariel Matic. In the front load category, Henko Matic had the highest detergency followed by Ariel Matic and Surf Excel Matic.

Active Ingredients

The active ingredients used in the formulation of synthetic detergent powders should comprise one or more of the surface active agents and are responsible for ensuring their cleaning performance. The national standard has specified

different minimum active ingredient levels for the three grades of detergents-

Grade 1:19% min

Grade 2:16 %min

Grade 3:10% min

In the top load category, Surf Excel Matic had the highest active ingredients followed by Ariel matic and Henko Matic. In the front load category, highest active ingredients were found in Henko Matic/Ariel Matic followed by Surf Excel Matic.

Ash Buildup

Sodium tripolyphosphate (STPP) is used in detergents as a 'builder' to soften the water. It prevents dirt particles from redepositing in the garment. However, the use of STPP is also associated with environmental hazards. We have considered a lower amount as better. This test determines the built-up of ash on a fabric. The minimum ash built-up/deposited on washed fabric, the better the detergent powder is. The Indian Standard has set the requirement as 1 per cent maximum for Grade 1, 5 per cent for Grade 2, and 10 per cent for Grade 3.



The lowest ash built up was found in Henko Matic followed by Surf Excel Matic and Ariel Matic in the top load category. It was lowest in Ariel Matic followed by Henko Matic and Surf Excel Matic in the front load category.

Total Phosphates

Detergent powder should contain 2.5% maximum phosphates as an ingredient. As per the Eco mark criteria, material should not contain any phosphate. Any substitute used for phosphate should be environment-friendly but should be of sufficient quantity to ensure similar performance of the product as compared to a detergent with phosphate. The use of Zeolite, which is a non-phosphate based builder and use of co-builders enzymes (bio-based actives) for detergent has been recommended as an alternative to phosphate based builder. Tri-sodium citrate has also been incorporated in the list of conventional builders and additives since it has the potential to replace phosphates and is more environment friendly than the phosphates.

As per international practices, the level/quantity of phosphate has been drastically reduced and alternate substitutes have been found for

satisfactory performance. BIS requirement for phosphate, for three grades, has been modified as 2.5 % maximum. All the brands were found to contain total phosphate well within the specified limit 2.5% maximum. Phosphate was found between 'not detected to 0.11%. It was not detected in Ariel Matic in both categories.

Active Alkalinity

Alkalinity is balanced in many detergents in order to improve their cleaning efficacy. Since most dirt is acidic, the alkalinity in the detergent makes it a good cleaner for common dirt. As per the Indian standard the Active alkalinity of detergent powder of Grade 1, 2, 3 should be as below:

- Grade 1 - 15 max
- Grade 2 - 20 max
- Grade 3 - 30 max

Alkalinity was found between 10.9 to 16.7 ml, thus meeting the requirement standard. Ariel Matic scored highest in both categories.

STPP (Sodium tripolyphosphate)

In household cleaning products, sodium tripolyphosphate is used most widely as builder, for a water softener. In conjunction

Comparative Product Testing

with surfactants, it allows detergents to perform efficiently in all washing conditions. It should be 2.5 % maximum. Sodium tripolyphosphate was not detected in any brands tested (detection limit – 0.01).

Physical Observations

The material should be in the form of a free flowing powder, free from any unpleasant odour, and should possess good lathering and cleaning properties. The synthetic detergent powders should not cause any damage to the fabrics during wash.

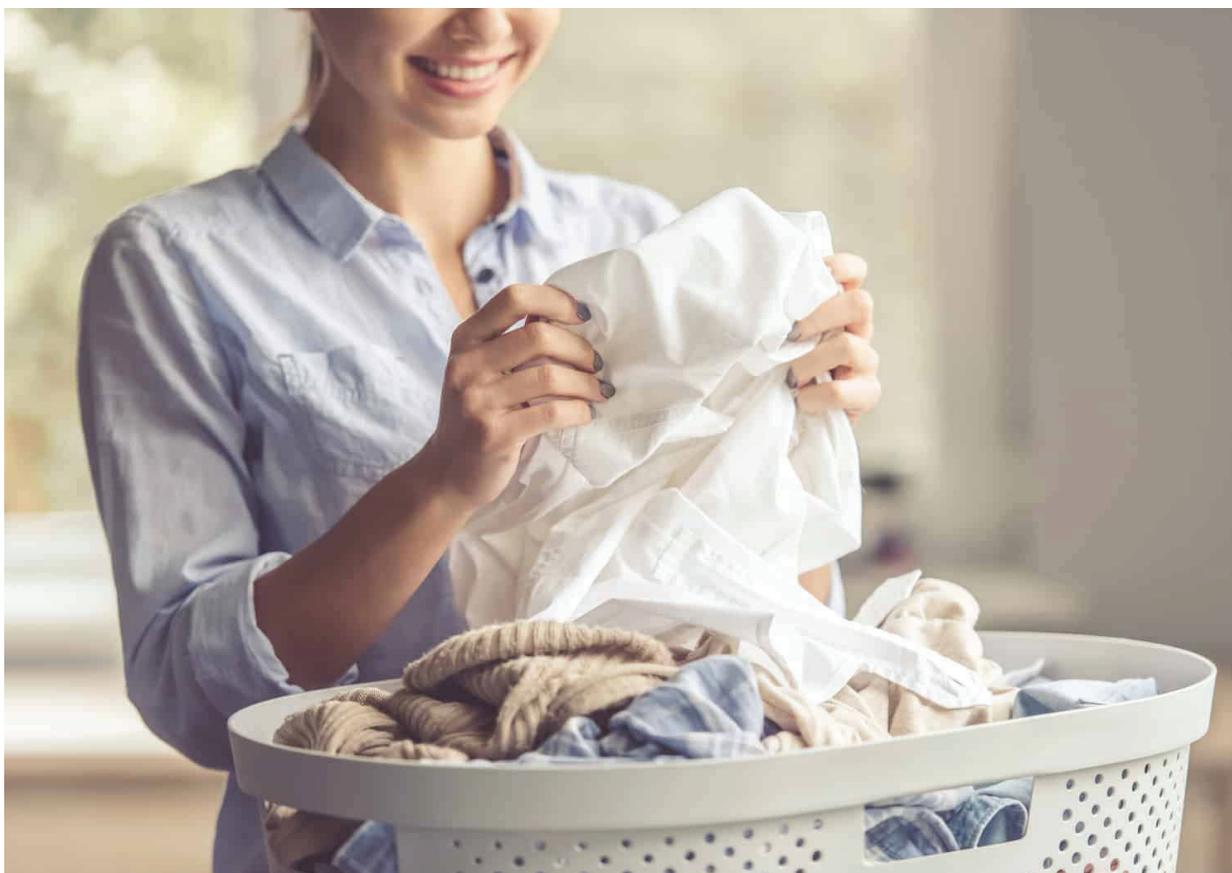
The colour of detergent powder solution was checked. All the samples were free-flowing powder. Odour was acceptable in all brands.

Marking

Each package should be securely closed and marked with the following information.

- a) Name and grade of the material
- b) Indication of the source of manufacture
- c) Net mass of the material when packed
- d) Batch number or lot number in code or otherwise
- e) Month and year of manufacture
- f) MRP
- g) Standard mark
- h) Critical ingredients in descending order of quantity (Active ingredients, Builders, Soda ash, Fillers and Enzymes)
- i) Instructions for use
- j) A cautionary notice: Detergent solutions can be skin irritants. Avoid prolonged contact. Rinse garments and hands thoroughly
- k) Direction for use

The products tested were checked against the marking requirements of Indian standard. It was found that 'Best before' use was only marked by



Ariel Matic. However, this is not a requirement of Indian standard but most important to users. None of the brands marked critical ingredients in descending order of quantity.

Packing

The packing should be capable of preventing any moisture absorption. For Eco mark, the product should be packed in such packages which are made from recyclable/reusable or biodegradable materials and declared by the manufacturer and may be accompanied with detailed instructions for proper use of product.

All the brands were suitably packed. Henko Matic top load & front load and Ariel Matic front load detergent powders were packed in double packing. Other brands were packed in thermo-plastic polypack.

Net weight/Quantity

Net weight should be as per declared quantity. Legal Metrology has prescribed limits/tolerance as per pack size. All the brands were found

having the declared quantity of detergent powder.

Conclusion

Indian households use different brands of laundry detergent powder or liquid detergents. There are premium/high priced detergent powders for washing machine uses and economy/lower priced detergents for hand washing. Consumer VOICE tested 3 brands each of top load and front load of detergent powder and rated them not just according to their washing performances but also according to how environment-friendly they were, and how much value for money they give. The performance test (Detergency) is the ultimate requirement from a customer's point of view where Surf Excel Matic was the top performer in the top load category and Ariel Matic/Henko Matic in the front load category.

If we consider how well detergents wash dirt or clean stains, test findings revealed that the costliest detergent powders were found to be the better cleaners.

Some Useful Tips

- The more active ingredients like surfactants that lift soil away from fabric and suspend it in the water and enzymes that remove stains in the product, the better the detergent. Also, those ingredients raise the price of the product.
- Always store powder and liquid detergent in a cool, dry place. Unlike food, most laundry detergents can be used past their expiry date. Expired laundry detergents however become less effective and lose their clean scent.
- A top load washing machine has an agitator in the drum and so it needs more water for washing and has a longer washing cycle. A front load, on the other hand, has no agitator and works on tumble action. A front load requires less water and less detergent for washing and has a shorter cycle.
- When calculating the cost per load, powder detergent is generally the more economical option compared to liquid detergent. Its lighter weight makes it less expensive to transport and often easier to manufacture in comparison to liquid detergent, making it cheaper for you to purchase.