



# Detergent Powders

## No getting wishy-washy about them

Does buying a high-priced detergent powder guarantee cleaner clothes? What makes the grade, and literally so? For there are grades specified in the national standard for detergent powders, based on active-ingredients composition, quality and performance. 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? All of these perhaps. The test report that follows will tell you how 12 regular-selling brands in the Indian market compare against each other. Is it all the same irrespective of price and positioning? Knowing that the most expensive detergent brands cost up to Rs 215 for a kilogram, do they also deliver superior performance?

*A Consumer Voice Report*

**W**e tested the brands on a range of quality, safety, performance, environment-friendliness and acceptability parameters. These included detergency, active ingredients, active alkalinity, total phosphates, sodium tripolyphosphate (STPP), ash built-up,

foam generation and moisture. The 'detergency' test establishes how well detergents can remove dirt from soiled fabrics. Interestingly, our test findings reveal that the costliest detergent powders are the better cleaners. The brands have been categorized into four groups to make comparison within a particular price range; recommended applications have also been

considered while categorizing. The price of these detergent brands varies from Rs 43 per kg to Rs 215 per kg.

The Indian Standard defines three grades of laundry detergent powders – specifically 1, 2 and 3 – on the basis of active-ingredients composition, quality and performance. However, none of the brands have claimed/declared their grade as per the Standard. It may be noted that the declaration of grade is voluntary here since these brands do not carry the ISI certification mark.

The skin irritation and sensitization tests prescribed in the Standard are to be ascertained by the

manufacturers, who are expected to test the safety of their formulation before releasing it into the market.

The samples were tested as per requirements specified in IS 4955:2001 and reaffirmed in 2014 (specifications for household laundry detergent powders). Currently the same are under revision. It may be noted that the requirement for total phosphate and STPP has been modified to 2.5 per cent maximum. The tests were conducted at an NABL-accredited laboratory.

### BRANDS TESTED

Rank	Total Score out of 100 (rounded off)	Brand	Net Weight (gm)	MRP (Rs)	Price per kg (Rs)	Manufactured by
<b>Premium – Top Load (High Price Range) (Rs 192–Rs 215)</b>						
1	95	Surf Excel Matic	2 kg	405	202.5	HUL Ltd
2	89	Henko Matic LINTelligent	1 kg	192 (Rs 222, Rs 30 off)	192	Jyothy Laboratories Ltd
3	88	Ariel Matic	2 kg	430	215	P&G HomeProducts Ltd
<b>Sub-Premium (Medium-to-High Price Range) (Rs 112–Rs 190)</b>						
1	89	Surf Excel Quick Wash	500 gm	95	190	HUL Ltd
2	84	Henko Stain Champion Oxygen Power	1kg	112 (Rs 26 off)	112	Jyothy Laboratories Ltd
<b>Regular (Medium Price Range) (Rs 70–Rs 94)</b>						
1	79	Tide Plus Jasmine & Rose	500gm	47	94	P&G
2	76	Rin	500	35	70	HUL Ltd
3	74	Mr White 2X Active Power	1 kg	75 (Rs 10 off)	75	Jyothy Laboratories Ltd
<b>Economy (Lower Price Range) (Rs 43–Rs 60)</b>						
1	74	Active Wheel 2 in 1	500	25	50	HUL Ltd
2	71	Fena Superwash Rose & Chandan	500	30 (free Fena cake worth Rs 5)	60	Fena (P) Ltd
3	67	Ghari	500	27	54	RSPL Ltd
4	60	Nirma	1kg	43	43	Nirma Ltd

Score Rating: >90: excellent\*\*\*\*\*, 71–90: very good\*\*\*\*, 51–70: good\*\*\*, 31–50: average\*\*, up to 30: poor\*

## Comparative Test

### CV RECOMMENDATIONS | TOP PERFORMERS

Premium – Top Load (High Price Range)

**Surf Excel Matic**

Sub-Premium (Medium-to-High Price Range)

**Surf Excel Quick Wash**

Regular (Medium Price Range)

**Tide Plus Jasmine & Rose**

Economy (Lower Price Range)

**Active Wheel**



### Key Findings

- Based on the overall score, the top performers are Surf Excel Matic in premium (top load) category, Surf Excel Quick Wash in sub-premium category, Tide in regular category, and Active Wheel in economy category.
- In detergency (washing performance), active ingredients and ash built-up tests, Surf Excel Matic, Surf Excel Quick Wash, Tide and Active Wheel scored highest in their respective categories.
- The test findings reveal that the costliest detergents are the better cleaners.
- The Indian Standard has defined three quality grades for detergent powders. However, none of the tested brands declared their grade on the label. Declaration of grade is voluntary here since none of them are covered under the BIS certification mark.
- From the consumer's perspective, the most important factors include stain cleaning, mildness on hands, suitability for coloured clothes, fragrance, affordability, biodegradability and usability in washing machine.



## Machine Wash or Hand Wash?

Three brands – Ariel Matic, Henko Matic and Surf Excel Matic – are recommended for use in top-load washing machines. Five brands – Surf Excel Quick Wash, Henko Stain Champion, Rin, Fena and Mr White – claim to be suitable for both machine wash and bucket wash. The remaining brands do not mention any specific wash.

The laundry soap that has traditionally been used for washing of cloths/fabrics has limitations in terms of performing in highly alkaline or acidic water. In alkaline water, part of the soap is consumed to first soften the water and in the process its cleaning property gets reduced. In acidic water the soap gets split into fatty acids and caustic solution, and this retards its cleaning property. These limitations of soaps have led to the development of synthetic detergents that are superior in performance.

## TEST RESULTS FOR PHYSICOCHEMICAL PARAMETERS

**Detergency | Active ingredients | Ash built-up  
| Active alkalinity | Total phosphates | STPP |  
Foaming Power | Moisture**

### ◆ Detergency (Washing Performance)

Detergency is the ability to clean or remove soil, generally associated with the action of a cleaning agent such as soap, detergent, or alkaline salt. As per Indian Standard, the detergency percentage specified for detergent powders is: 65 per cent minimum for Grade 1, 55 per cent for Grade 2, and 45 per cent for Grade 3.

- All brands except Nirma performed well. Nirma, which was also the cheapest among the 12 brands, had the lowest detergency at 38.6 per cent.



- Surf Excel Matic, Surf Excel Quick Wash, Tide and Active Wheel scored highest in their respective categories.
- The three brands in the premium category (high price, top load) – namely Surf Excel Matic (77.93 per cent), Henko Matic (75.42 per cent) and Ariel Matic (72.29 per cent) – had the highest detergency.

Sl No.	Brand	Detergency (%)
1	Surf Excel Matic	77.93
2	Henko Matic	75.42
3	Ariel Matic	72.29
4	Surf Excel Quick Wash	67.54
5	Henko Stain Champion	65.83
6	Tide Plus Jasmine & Rose	57.98
7	Rin	54.01
8	Active Wheel	52.43
9	Fena Superwash	51.48
10	Mr White	51.05
11	Ghari	46.67
12	Nirma	38.60

### ◆ Active ingredients

Detergents have certain ingredients (known as 'active ingredients') that comprise one or more of the surface-active agents and are responsible for ensuring their cleaning performance. The national standards

## Comparative Test

have specified different minimum active ingredient levels for the three grades of detergents: 19 per cent for Grade 1, 16 per cent for Grade 2, and 10 per cent for Grade 3.

- All the brands fall in either Grade 1 or Grade 3 based on their active ingredients. None of the brands fall in Grade 2.
- As mentioned earlier, none of the brands claimed the relevant grade as specified in Indian Standard.
- Surf Excel Matic, Surf Excel Quick Wash, Tide and Active Wheel scored highest in their respective categories.
- In the 'lowest price' category, Nirma was found to have a lower level of active ingredients at 9.11 per cent (against 10 per cent minimum).
- Overall, the highest percentage of active ingredients were found in Surf Excel Matic (23.70 per cent), Surf Excel Quick Wash (23.36 per cent), and Henko Matic (20.96 per cent).

Sl No.	Brand	Active Ingredients (%)
1	Surf Excel Matic	23.7
2	Surf Excel Quick Wash	23.36
3	Henko Matic	20.96
	Henko Stain Champion	19.51
4	Ariel Matic	19.27
5	Tide Plus Jasmine & Rose	15.73
6	Rin	15.19
7	Active Wheel	14.8
8	Mr White	14.66
9	Fena Superwash	13.07
10	Ghari	12.16
11	Nirma	9.11

The less the ash built-up/deposited on the washed fabric, the better the detergent powder is.

### ◆ Ash built-up

This test determines the built-up of ash on a fabric. 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 less the ash built-up/deposited on the washed fabric, the better the detergent powder is.

- The brands that performed best were the top-load detergent powders Surf Excel Matic (0.24 per cent), Henko Matic (0.28 per cent), and Ariel Matic (0.32 per cent).
- Nirma (7.12 per cent) had the highest percentage of ash built-up.

### ◆ Active alkalinity

Alkalinity is added to many detergents in order to improve their cleaning efficacy. Since most dirt is acid, the alkalinity in the detergent makes it a good cleaner for common dirt. As per Indian Standard, the active alkalinity of detergent powder of grades 1, 2 and 3 should be a maximum 15 per cent, 20 per cent and 30 per cent, respectively.

Since none of the brands have declared their respective grades, we considered lower active alkalinity as better.

- Tide, Rin, Active Wheel and Ariel Matic had lower active alkalinity.

### ◆ Total phosphates

As per Indian Standard, detergent powder shall contain a specified quantity of phosphates as an ingredient. Alongside, as per the Ecomark criteria for detergent powders in the Indian Standard, any substitute used for phosphate shall be environment-friendly but should be of sufficient quantity to ensure similar performance of the product as compared to a detergent with phosphate.

As observed in international practices, the level/quantity of phosphate has been drastically reduced and alternate substitutes have been found for satisfactory performance. In the Indian Standard currently under revision, the requirement for phosphate for all three grades has been modified as 2.5 per cent maximum. Accordingly, we have considered a lower amount as better.

- The tested samples were found to contain total phosphate in various proportions. Henko Matic, Henko Stain Champion, and Ariel Matic had considerable amounts of phosphate.
- Phosphate in the other nine brands ranged from nil to 0.68 per cent.

An environmentally superior detergent is one that uses fewer chemical ingredients. Synthetic surfactants may be replaced by non-petrochemical surfactants or vegetable oil soaps; builders like phosphates can be replaced by sodium citrate and sodium bicarbonate; sodium aluminosilicate (zeolite) dyes and fragrances can be eliminated or minimised. Environment-friendly packaging can reduce harm to the environment substantially.

### ◆ STPP

Sodium tripolyphosphate (STPP) is used in detergents as a 'builder' to soften the water. It prevents dirt particles from adhering to the garment. However, the use of STPP is also associated with environmental hazards. We have considered a lower amount as better.

- STPP content was found in five brands that fell in the premium and sub-premium categories. All the brands except one were found well within the proposed limit (2.5 per cent maximum).
- The brands in the regular and economy categories had no STPP.

### ◆ Foaming Power

There is no specified requirement for lather in the national standard, but foam generation should be high and at a faster rate.



- Foaming power was highest in Surf Excel Matic, Surf Excel Quick Wash, Tide and Active Wheel in their respective categories. It was lowest in Nirma.

### ◆ Moisture

The national standards have not prescribed a maximum limit for moisture content in detergents, but it is known that the presence of high moisture leads to the detergent powder turning lumpy.

- The brands with higher moisture content were Ghari (5.75 per cent), Nirma (5.34 per cent), Surf Excel Matic (4.5 per cent), and Fena Superwash (4.16 per cent).
- At 1.56 per cent, Tide had the lowest moisture content.



Parameter ↓	Weightage (%)	Premium (High Price Range) (Rs 192–Rs 215)			Sub-Premium (Medium-to-High Price Range) (Rs 112–Rs 190)		
		Surf Excel Matic	Henko Matic	Ariel Matic	Surf Excel Quick Wash	Henko Stain Champion	
Detergency	35	34.13	32.72	31.76	29.76	29.05	
Active ingredients	20	18.96	16.77	15.42	18.96	15.61	
Ash built-up	10	9.98	9.86	9.84	9.82	9.79	
Active alkalinity	6	4.95	5.20	5.32	5.14	4.96	
Total phosphates	5	4.75	3.39	4.54	4.73	3.82	
STPP	5	4.89	3.55	4.61	4.83	4.09	
Foaming power	5	4.80	4.60	4.50	4.80	4.50	
Moisture	4	2.88	3.28	3.10	3.06	3.60	

### Physical Observations

#### Appearance and colouring matter

Colour of 2% detergent-powder solution was checked. All the samples were free-flowing and had colouring matter.

#### Odour

It was acceptable in all brands.

#### Property of washed fabric

This was checked 10 minutes after washing. None of the samples spoiled the fabric.

#### Microbeads/synthetic abrasive material

These were absent in all the brands.



## SCORES

	Regular (Medium Price Range) (Rs 70–Rs 94)			Economy (Lower Price Range) (Rs 43–Rs 60)			
	Tide Plus	Rin	Mr White	Active Wheel	Fena Superwash	Ghari	Nirma
	25.75	24.08	22.84	23.42	23.02	21.00	17.61
	12.58	12.15	11.73	11.84	10.46	9.73	7.29
	8.21	8.08	7.96	8.03	7.12	6.71	6.44
	5.89	5.72	5.10	5.36	5.14	5.10	4.36
	4.93	5.00	4.89	4.96	4.97	4.96	4.98
	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	4.00	4.00	3.80	3.90	3.80	3.70	3.20
	3.82	3.72	3.68	3.63	2.99	2.48	2.61

### Packing, Marking and Net Weight

Three brands – Ariel Matic, Henko Matic and Surf Excel Matic – had double packing and also supplied a scoop (measuring container), making it easy for users to take only as much as is required.

The rest of the brands were in polypack.

Each packet of detergent powder should be marked/labelled with these particulars: 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) maximum retail price (MRP); g) standard mark, if any; h) critical ingredients in descending order of quantity (active ingredients, builders, soda ash, fillers and enzymes); and i) instructions for use.

According to the labelling requirements laid down by the national standard, each packet of detergent powder should also carry a cautionary statement that reads: *Detergent solutions can be skin irritants. Avoid prolonged contact. Rinse garments and hands thoroughly.*

- None of the tested brands carried the prescribed cautionary statement or mentioned the critical ingredients in descending order.
- Active Wheel, Fena, Ghari, Nirma, Rin and Surf Excel Quick Wash did not provide instructions for users.
- Net weight of all brands was as declared on the pack.



### Tips Are Good

#### How much laundry detergent should I use?

Depending on which laundry detergent you choose, you may be able to use half (yes, half!) the recommended dose and still get a great wash, saving yourself money and giving the environment a bit of a break.

#### What is better – powder or liquid laundry detergent?

This really depends on the type of stain you're dealing with, the characteristics of your washing machine, and personal preference. In general, though, powders are the best for general soil and stain-removal performance.

#### Should I wash my clothes in warm or hot water?

Generally, there's an overall benefit to washing in warm water, but only by a couple of percent, and it really depends on the type of stains you're trying to remove. Some detergents are also designed for and perform better in cold water.

Washing in cold water is a great way to reduce your energy consumption and save yourself some cash. But it can also lead to a waxy film building up inside your washing machine – especially if you use a fabric softener. If you normally use cold wash, then regularly running a full hot-wash cycle without clothes (or a cleaning cycle if your machine has one), using a good detergent, will help keep the build-up at bay. Alternatively, periodically selecting a warm or hot wash instead of cold can help keep your machine's internals at their clean and shiny best.

#### Can I use top-loader detergent in a front loader or high-efficiency top loader?

It's best not to use top-loader detergent in a front-loading machine.

Front-loading machines generally use less water and more mechanical action (turning) than top loaders, so front-loading detergents contain anti-foaming ingredients to stop too many suds from developing. Using top-loading detergents in your front loader can cause too many suds to build up in the machine, which can overflow and fill your laundry with foam. It can also cause 'suds lock' – a condition where foam builds up between the inner and outer drums of your washer, creating suction issues that can cause the motor to burn out. The combination of excess suds and low water usage also means your rinse performance (how well the detergent is washed away) will plummet, leaving detergent residue on your clothes.

Source: <https://www.choice.com.au>

