



# Laundry Detergent Bars

## Which has the best detergency?

The following comparative assessment of laundry detergent bars gains significance in light of the fact that the Bureau of Indian Standards (BIS) has revised certain important parameters including detergency (which establishes how well detergents can remove dirt from soiled cloths/fabrics). Other parameters that have been revised are ash built-up and phosphate limit. All of these ultimately determine the overall quality of the product you are using. While foaminess and mushiness are perhaps the qualities that we notice more while using a detergent bar, there are other aspects that are equally or more crucial. Due to the large number of detergent bars available in the market, the process of selecting a 'best' brand is often a formidable one. In order to find out if some of the better-known detergent bars are complying with the national standards and how these come out on quality parameters, we tested nine brands.

*A Consumer Voice Report*

**A**part from detergency, phosphate and ash built-up, the tests covered other parameters related to quality and acceptability. These included foam generation, mushiness, insoluble matter, active ingredients and active alkalinity.

The Indian Standard defines four grades of detergent bars but none of the nine brands have declared their grades since it is voluntary.

The samples were tested as per requirements specified in the relevant Indian Standard 8180, specifications for household laundry detergent bar and its finalized revised draft that is under printing. The tests were conducted at an NABL-accredited laboratory.

## BRANDS TESTED

Rank	Total Score out of 100 (rounded off)	Brand	Variant	Net Weight, gm (when packed)	MRP (Rs)	Cost per 100 gm (Rs)	Manufactured/Marketed by
1	87	Reliance Sudz	Superior Whitening	250 x 4	60	6	Reliance Retail Ltd
1	87	Henko	Stain Champion	250	25	10	Jyothy Laboratories Ltd
2	86	Surf Excel	Stain Eraser	200 x 4	92	11.5	Hindustan Unilever Ltd
3	83	Rin		250 x 4	64	6.4	Hindustan Unilever Ltd
4	79	Fena	Super Wash	210 x 4	38	4.5	Fena (P) Ltd
5	78	555	Super Power	230	10	4.35	Goramal Hariram Ltd
6	76	Ghari		100	5	5	RSPL Ltd
7	75	Clean Mate	White Magic	200 x 5	56	5.6	Future Consumer Enterprise Ltd
8	71	Patanjali	Antibacterial Neem	250	16	6.4	Patanjali Ayurved Ltd

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



CV RECOMMENDATIONS | TOP PERFORMERS

**Reliance Sudz | Henko**

Value for Money

**Reliance Sudz**



## Comparative Test



### Key Findings

- Based on the overall scores, the top performers are Reliance Sudz and Henko.
- The value-for-money brand is Reliance Sudz.
- In performance test (percentage detergency), Henko scored highest followed by Rin and Reliance Sudz. Patanjali scored lowest.
- Highest percentage of active ingredients was found in Henko, followed by Reliance Sudz and Surf Excel.
- Ash built-up was lowest in Reliance Sudz and Henko, and highest in Patanjali.
- Mushiness was lowest in Henko and Reliance Sudz and highest in Patanjali.
- None of the brands declare their grade as the relevant Indian Standard is voluntary in nature.

All types of soaps for household purpose were traditionally made of natural vegetable oils and edible fats. These raw materials are now increasingly scarce. Moreover, soaps made from natural elements had their limitations as they were not much effective when used with hard water. Hence, synthetic detergents—or non-soapy detergents (NSD)—began to be formulated with components like surface-active agents and complementary components like builders. These products are specially formulated to promote the development of detergency.

## TEST RESULTS FOR QUALITY AND PERFORMANCE

**Detergency | Active ingredients | Ash built-up | Active alkalinity | Matter insoluble in water | Foam height/generation | Mushiness | Total phosphates**

### ◆ Detergency

The higher the ability to remove soil, the better is the detergent bar. As per the final revised Indian Standard draft, the minimum detergency of detergent bars of grades 1, 2, 3 and 4 shall be 65 per cent, 55 per cent, 45 per cent, and 35 per cent, respectively.

- Detergency was highest in Henko (60.12%), followed by Rin (59.10%) and Reliance Sudz (58.55%). It was lowest in Patanjali (42.14%).

Detergency refers to the process by which soil is removed from a surface and undergoes solubilization or dispersion. The detergent solution wets the surface and is absorbed by it, which then lowers the surface's tension to allow the soil to separate itself from the surface. Generally, soil removal/detergency is associated with the action of a cleaning agent such as soap, detergent and alkaline salt.



### ◆ Active ingredients

Simply put, the more the percentage of active ingredients, the better the detergent bar tends to perform.

- Highest active ingredients were found in Henko (17.85%), followed by Reliance Sudz (17.24%).
- None of the brands have declared their grade as the relevant Indian Standard is voluntary. On the basis of active ingredients, 3 brands fall in Grade 1; 4 in Grade 2; and the rest in Grade 3.

The active ingredients used in the formulation of a synthetic detergent bar shall comprise one or more of the surface-active agents, namely linear alkyl benzene sulphonate, secondary alcohol sulphate, fatty alcohol sulphate, fatty alcohol ethoxylate, salts of sulphated fatty alcohol ethoxylate, sodium alpha sulpho fatty acid esters, alpha olefin sulphonate, soap, sugar, esters and other non-ionic detergents.

The Indian Standard for active ingredients in different grades of detergent bars is as follows:

Grade	Minimum Percentage of Active Ingredients by Mass
1	16
2	14
3	12
4	10

### ◆ Ash built-up

As per the final revised Indian Standard (draft IS: 8180), the maximum ash built-up in detergent bars of grades 1, 2, 3 and 4 shall be 1 per cent, 5 per cent, 10 per cent, and 12 per cent, respectively.

- Ash built-up was lowest in Reliance Sudz (1.85%) and Henko (2.18%). It was highest in Patanjali (6.67%).

### ◆ Active alkalinity

Alkalinity is a measure of the ability of a solution to neutralise acids to the equivalence point of carbonate or bicarbonate. As per Indian Standard, the active alkalinity of detergent bars of grades 1, 2, 3 and 4 shall be 10 ml, 12 ml, 15 ml, and 20 ml, respectively.

## Comparative Test

- All brands except Ghari met the requirement for Grade 1 active alkalinity.
- Ghari with 13.80 ml had the highest active alkalinity among all the tested brands; Clean Mate with 3.20 ml and Reliance Sudz with 3.60 ml had the lowest.

### ◆ Matter insoluble in water

There is no requirement in this regard in the national standard. Insoluble materials indicate the quantity of filler material in the bar's composition and a lower quantity is considered to be good. Apart from adding on to the weight, insoluble materials can also make a difference to the overall cleaning ability of the detergent bar.

- Clean Mate (71.79) had the highest percentage of insoluble matter. It was lowest in Henko (35.43) and Surf Excel (39.67).

### ◆ Foam height/generation

While the national standard has not specified any requirement for foam generation, it is important to consumers. A high and faster rate of foam generation is perceived to be indicative of cleaning efficiency.

- All brands performed well in this test (140 cm–190 cm).
- Foam generation was highest in Reliance Sudz (190 cm) and Henko (185 cm).

### ◆ Mushiness

Mushiness is the property of a bar to absorb water and also get dissolved in it. While no requirement has been specified in this regard in the national standard, it is an important factor for consumers. Mushiness should be lower but the detergent bar should not be too hard either. The amount of mushy part was measured and reported.

- Mushiness was highest in Patanjali and lowest in Henko, followed by Reliance Sudz.

Phosphate is not an ecofriendly ingredient and should be in lower/limited quantity. Zeolite is recommended as an alternative to phosphate-based detergent builders.

### ◆ Total phosphate as P<sub>2</sub>O<sub>5</sub>

As per the revised Indian Standard draft, detergent bars shall not contain total phosphate more than the specified maximum limits as given below:

Grade 1: 5 per cent; Grade 2: 8 per cent; Grades 3 and 4: 5 per cent

- All the samples met the requirement for phosphate content.
- No phosphate was found in Rin, Fena and Ghari.



## QUALITY AND PERFORMANCE SCORES

Parameters ↓	Weightage (%)	Reliance Sudz	Henko	Surf Excel	Rin	Fena	555	Ghari	Clean Mate	Patanjali
Detergency	26	22.43	22.92	22.37	22.60	19.87	19.27	19.53	18.94	17.31
Active ingredients	20	18.76	18.86	17.78	16.24	15.47	15.18	15.42	14.47	13.11
Ash built-up	12	10.89	10.70	8.82	9.61	9.11	9.24	9.45	8.53	8.00
Active alkalinity	7	6.55	5.82	5.80	6.26	6.06	6.38	3.70	6.66	6.44
Matter insoluble in water	7	4.89	6.62	6.32	5.08	4.66	4.38	6.06	4.07	4.26
Foam height/generation	7	6.58	6.37	6.16	4.48	6.16	5.95	4.48	4.48	5.32
Mushiness	7	6.41	6.48	6.02	6.01	5.54	6.10	5.57	5.09	4.82
Total phosphates	6	4.20	2.64	5.38	6.0	6.00	5.21	6.0	5.64	5.48

### GENERAL QUALITIES

#### ◆ Marking

The detergent bar shall be securely closed and marked with the necessary information including

- name and address of manufacturer as well as trademark, if any
- batch or lot number
- grade/type
- month and year of manufacturing
- maximum retail price (MRP) in rupees
- net weight when packed
- standard mark, if any
- critical ingredients – active ingredients, builders, fillers, soda ash, enzymes if added, bleach and bleach activators if added – in descending order of quantity up to 0.5 per cent by mass
- direction for recyclability of packing material
- caution for avoiding prolonged contact
  - The caution to 'avoid prolonged contact' was not visible on the packet of any of the tested brands.
  - Only Clean Mate had 'best before' date.
  - Instruction for storage was given only by Surf Excel.

Detergent solutions can be skin irritants. Avoid prolonged contact. Rinse garments and hands thoroughly.

#### ◆ Packaging

The detergent bar shall be suitably packed, as agreed to between purchaser and supplier. Improper packing may cause loss of moisture and the detergent bar may become hard and difficult to rub.

- All brands were properly packed.

