



Surface Cleaners

Checking out their cleaning and disinfecting claims

We use these for cleaning hard surfaces such as floors, laminated table tops, kitchen table tops and cabinets. While removal of dirt and stain is what is expected of these products, today we have various brands claiming to contain antibacterial/disinfecting agents, otherwise known as quaternary ammonium compounds. Apparently, these improvised products not only clean the surface superficially but also reduce the bio-burden (harmful bacteria) and help to keep the environment clean due to the effect of the antibacterial agents. Without getting caught up in the technicalities, let's just find out some important things about the brands that claim to do the job more effectively. We tested eight brands on attributes that determine their efficacy. Do these fulfil the basic requirements specified in the national standard?

A Consumer Voice Report

We tested the brands on quality and acceptability parameters. These included quaternary ammonium compound (QAC) content, cleaning properties, pH level, stability, non-volatile matter, odour and colour. Of the eight brands, six are QAC-based.

The samples were tested as per specifications in Indian Standard 14364: 1996 (reaffirmed in 2013) related to quaternary ammonium compound-based surface cleaners. We followed the standard test methods at an NABL-accredited laboratory.



BRANDS TESTED

Rank	Total Score out of 100 (rounded off)	Brand	Description	Fragrance	MRP (Rs)	Net Quantity (ml)	Price (Rs) per 100 ml	Best before (years)	Manufactured/Marketed by
Quaternary ammonium compound-based									
1	91	Lizol	Disinfectant surface cleaner	Pine	89	500	17.8	2	Reckitt Benckiser Ltd
1	91	Clean Mate	Disinfectant floor cleaner	Pine	69	500	13.8	2	Future Consumer Ltd
2	90	Vow	Disinfectant surface cleaner	Floral	89	500	17.8	2	Aditya Birla Retail Ltd
2	90	Patanjali	Disinfectant floor cleaner	Refreshing	125	1000	12.50	Not marked	Patanjali Ayurved Ltd
3	88	Presto	Disinfectant surface cleaner	Citrus	164	975	16.82	2	Clouttail India Pvt. Ltd
4	84	Mopz	Disinfectant surface cleaner	Lime	87	500+500 Buy 1 get 1 free	17.4/ 8.70	2	Reliance Ltd
Other types of surface cleaners									
	See note*	Mr Muscle	Disinfectant floor cleaner	Floral	142	1000	14.2	2	S.C. Johnson Products Pvt. Ltd
	See note*	CIF	Disinfectant surface cleaner	lemon	99	250	39.6	3	Hindustan Unilever Ltd

Note: Mr Muscle has non-ionic surfactant and benzalkonium chloride (0.2000%) as active ingredients. In CIF, the active ingredient is sodium salt of benzene sulphonic acid. Therefore, these two brands have not been compared with the other QAC-based brands.

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

CV RECOMMENDATIONS |
TOP PERFORMERS
Lizol | Clean Mate

VALUE FOR MONEY
Patanjali



Key Findings

- Based on the overall test findings, Lizol and Clean Mate are the top performers and are followed by Vow and Patanjali.
- The value-for-money brand is Patanjali.
- All brands passed in tests for cleaning properties and stability.
- QAC content in all the QAC-based brands met the minimum requirement specified in the Indian Standard.
- All QAC-based brands met all requirements specified in the standard except in the case of pH.
- Mr Muscle met the specified limit for pH.

WHAT THEY CLAIM

Brand	Claims	Uses
Lizol	Removes 100 types of stains and germ strains, kills 99.9% germs	Floor, kitchen and bathroom surfaces
Clean Mate	Kills up to 99.9% germs, effective stain cleaner, safe on hands	Kitchen and bathroom surfaces
Vow	Kills 99.9% germs, cleans tough stains	Floor, kitchen and bathroom surfaces
Patanjali	Kills germs, hypochlorite-free disinfectant	Floor, kitchen and bathroom
Presto	Kills 99.9% germs, safe on hands, removes stains	Floor, kitchen and bathroom
Mopz	Effective germ kill, long-lasting shine	Floor, kitchen and bathroom surfaces
CIF	Tough cleaning, minimum effort	Kitchen, bathroom and around the house
Mr Muscle	Kills 99.9% germs	Floor tiles, kitchen sink

TEST RESULTS FOR PHYSICOCHEMICAL PARAMETERS

QAC Content | Cleaning Properties | Non-Volatile Matter | Stability | pH | Odour | Colour

◆ QAC content

QAC content in surface cleaner shall be a minimum 0.40 per cent.

- All QAC-based brands had more than the minimum required amount of the compound.
- As for the other types of surface cleaners, Mr Muscle was found to have 0.16 per cent QAC. CIF did not claim to have QAC.

Disinfectant products using quaternary ammonium compounds as the active ingredient are most extensively used. The advantages of QACs are good stability and toxicology, surface activity and compatibility with cleaner formulation ingredients, and lack of odour. These properties make it well suited for consumer products that combine cleaning with disinfection.

◆ Cleaning properties

The material, when applied either neat or diluted with water by means of a clean lint-free cloth or a cotton mop, will clean as described in the Indian Standard.



- All brands were found to clean the surface effectively.

◆ Non-volatile matter

Determination of non-volatile matter or residue is an important qualitative test for products in which the presence of any residue may affect product quality and performance, or process efficiency. Non-volatile matter is the soluble, suspended, or particulate material remaining following evaporation of the volatile solvent that contains the material. For surface cleaners, this shall be a minimum four per cent as per Indian Standard.

- Clean Mate and Lizol scored highest among the QAC-based surface cleaners.
- Non-volatile matter in all the QAC-based brands was above the minimum requirement. As for the non-QAC brands, it was 1.51 per cent in Mr Muscle and 45.32 per cent in CIF.

◆ Stability

This is to know if the product will remain effective during its life period.

- All brands cleared the test.

The pH scale goes from 0 to 14, 7 being considered neutral. Anything below 7 is considered acidic and anything above 7 is considered alkaline.

◆ pH

pH value of surface cleaners shall be in the 5–7 range. This is considered to be neutral value since it will not adversely affect either the surface or the person who is using the cleaner.

- All brands except Mr Muscle were above the specified limit (5–7).

When chemicals are dissolved in water, the mixture's pH level can become either acidic or alkaline. pH indicates the concentration of acidity or alkalinity in the same way temperature tells how hot or cold something is. Alkaline solutions are better at cutting through dirt, grease, proteins, oils and other organic items. Acids are better for removing calcium, rust and other minerals.

Comparative Test

Odours and Colours

◆ Odour

The material shall be odourless or with a pleasant fragrance.

- All tested brands had acceptable odour and pleasant fragrance.

◆ Colour

The material shall be colourless or with a suitable colour. The product, when applied for cleaning and subsequent wiping out with wet mop, should not leave any coloration or stain on the floor or any other surface. On dilution with water as recommended, the colour shall be faint to colourless.

- All the brands were light-coloured.

PHYSICOCHEMICAL SCORES

Parameter ↓	Weightage (%)	Quaternary ammonium compound-based						Other types of surface cleaners	
		Lizol	Clean Mate	Vow	Patanjali	Presto	Mopz	CIF	Mr Muscle
QAC content	40	35.52	35.52	36.56	40.00	33.68	31.92	Not claimed	0.16% (test result)
Cleaning properties	18	18	18	18	18	18	18	18	18
Non-volatile matter	15	14.28	14.41	12.36	9.57	13.28	11.50	45.32% (test result)	1.51% (test result)
Stability	8	8	8	8	8	8	8	8	8
pH	5	1.19	1.00	1.23	0.75	0.97	1.00	10.77 (test result)	5.89 (test result)
Odour	3	3	3	3	3	3	3	3	3
Colour	2	2	2	2	2	2	2	2	2



Packing and Marking

Packing should be proper because it protects the product from deterioration and increases its shelf life. The material should be packed in glass bottles or suitable plastic containers, provided with a pilfer-proof cap made of either metal or plastic. The size of the container should be 200 ml, 500 ml or 1 litre.

Each pack should feature the following details about the product:

- a) Indication of the source of manufacture
- b) Net content of the material
- c) Name of the material
- d) Month and year of manufacture, and Batch No. and Code No.
- e) Direction for use
- f) Cautionary label stating 'do not mix with household soap & detergents'
- g) MRP
- h) Customer-care details
 - *All the brands were packed in plastic bottles.*
 - *Patanjali did not feature both cautionary label and the 'best before' date.*

In order for surfaces to be effectively disinfected, the instructions on product labels need to be followed carefully.

QAC-based surface cleaners versus phenolic compound-based floor cleaners

	QAC-based surface cleaners	Phenolic compound-based floor cleaners
Active ingredient	Cetylpyridinium chloride, cetalkonium chloride, benzalkonium chloride, or any proven quaternary ammonium compound, suitable for the purpose	Emulsions consisting of coal-tar acids or similar acids derived from petroleum with or without hydrocarbons, or other phenol compounds including substituted phenolic compounds or a mixture of these
Uses	Floor, kitchen and bathroom surfaces	Floor/bathroom
Environment effect	None or very less	Yes, high
Odour	Acceptable	Not acceptable
Price	Rs 120–Rs 170 per litre	Rs 40–Rs 60 per litre
Germicidal effect	High	High
Hygiene	High	Low
Cleaning and disinfectant	Both	Both
Stability	High	Low

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