

Water Bottles

How Useful for your Children?



Kids, today, are very stylish and they like to cover themselves with branded accessories from head to toe. The more they grow, the more their demands increase for branded products and when it comes to school items water bottle is one of the most important essentials as a branded product. There is a wide range of kids water bottles available in various attractive colours and sizes to suit the preferences and demands of kids. *Consumer VOICE* brings the test findings of 5 brands of water bottles to help you choose the best, depending upon the key parameters like water potability and temperature rise.

About Water Bottles

Water bottle is a container which is used to carry and keep water or any liquid in stable temperature for consumption. This allows a person to transport or carry water from one place to another for consumption when thirsty. A water bottle is usually made of plastic compound, glass, or enameled metal. Plastic bottles are more popular among the consumers but from time to time they have been warned about some dangerous effects of using warm water in polycarbonate because of possibility of releasing harmful chemicals to the drink.

Brands Tested

Consumer VOICE tested 5 popular

and most selling brands of water bottles. Name of the brands we tested are given below:

Brand	Rank
Nayasa	1
Cello	2
Bharat	3
Jayco	4
Milton	5

Packaging

Packaging is an important part of the product for safe upkeep, handling and transportation for retail sale. The water bottles should be packed in accordance with the best trade practice.

All the bottles were packed in paperboard packs.

Marking

As per the National Standards, each bottle is expected to be marked or labelled with the following information:

- i) Name and/or trade mark of the manufacturer.
- ii) Nominal capacity, in ml.
- iii) Recycling symbol.
- iv) Each bottle may also be marked with the standard mark.

No brand mentioned the batch number and standard mark (ISI). Brand Bharat did not mention the date of packing. Except brand Milton, all other brands were found with no instructions/direction for storage.

Comparative Test

Workmanship & Finish

The bottle should be manufactured in accordance with good manufacturing practices. They are supposed to be free from manufacturing defects such as foreign particles, burnt, oxidized or unhomogenized matter, flash, rocking bottom, sharp edges, etc.

Brand Cello was found to be good in context of workmanship and finish followed by Milton and Nayasa. Brands Bharat and Jayco were found with sharp edges.

Capacity

As per the Indian Standards, the bottles should be manufactured in nominal capacity of 500ml, 750ml and 1000 ml or any other capacity as agreed between the purchaser and the supplier. The brimful capacity should exceed the nominal capacity by a minimum of 5 per cent.

Brands Cello and Milton did not meet the requirement for capacity and failed the test. Rest of the brands were found with capacity more than mentioned.

Cap (Pilfer Proof)

"The bottle should be closed with a suitable closure made of metal or plastic and pilfer-proof in character."

All the brands had pilfer proof

Except brand Milton, all other brands were found with no instructions/direction for storage.

cap, hence passed this test.

Hanging Cord/Strap Strength Test

A flexible hanging cord or strap is provided with the bottle to hang it on shoulder. It may be hinged or strapped to the body of the bottle. The hanging cord or straps, if provided, should be made of a flexible material, which is not affected by water contact. As per the Indian Standard, the hanging cord/strap should be capable of supporting the mass equal to 3 times the mass of filled bottle for 10 minute without breaking. The elongation under load should not exceed 10 per cent of the total length of the cord.

All brands tested passed the test and were also found with minimal elongation percentage (1.20 – 1.90) in hanging cord/strap.

Water Potability Test

As per the National Standards, potable water stored in the bottle for 72 hours should not acquire any unpleasant odour or off taste or

Key Findings

- Brand Bharat & Nayasa were found with minimum temperature rise of water during storage, hence most acceptable.
- Brand Cello is better among all, in workmanship & finish.
- All brands are leak proof.
- All brands passed water potability test, hence do not have unpleasant taste and odour and are not hazardous to health during storage of water.
- All brands are found satisfactory in overall migration of plastic ingredient in water.
- The outer body of brands Bharat and Jayco cracked under drop impact (destructive) test.
- Brand Milton was found with maximum temperature rise.

should not be hazardous to health.

There was no unpleasant odour or off taste observed in any of the tested brands and the water from all brands was also free from any fungal growth.

Odour

The bottle are supposed to be free from any odour and all the bottles passed this test.

Overall Migration

The ingredients in plastic may cause toxicity because of their migration to food stuff. It was difficult to estimate all the migrants individually. Hence we zeroed in on putting together the overall migration of all the migrants for safe use unless they found beyond the maximum limit. As per the Indian Standards, the limit of overall migration with water shall not



exceed 60mg/l inside the bottle.

All the brands tested were found within the limit in overall migration. Brand Milton (6) was found with minimum migration inside the bottle. However, brand Bharat (27) was found with maximum migration.

Closure Leakage Test

The bottle should be filled to its nominal capacity with coloured water at ambient temperature and closed tightly with the cap. The filled bottle is supposed to be kept in vertically inverted position over a piece of blotting paper for a period of 30 minutes. At the end of the test, there should not be any sign of leakage of water in the bottle.

All the brands performed well in this test and were found free from any leakage.

Drop Impact Test

The bottle, when subjected to drop test should not show any sign of cracking. Slight de-shaping of the body do not make the bottle unacceptable in the test.

Brand Bharat and Jayco had cracked when dropped horizontally, hence failed this test. In the rest of the brands, no breakage was observed thus passed the test.

User Experience

There was a time when water bottles were a craze among school children. A child possessing an exotic water bottle brand would be looked upon with envy. But for my sons, studying in primary classes, water bottles have come way down their priority list for school items. They keep rotating bottles according to their fancy, taking a discarded coke bottle or a branded Milton bottle with additional features. When they go on tours from school they say "give me a coke bottle so that I can throw it away when the bottle is empty".

Water bottles, mostly branded, are now available in uniform shops which come with some added features like the cooling rods that can be frozen overnight in the freezer and fitted inside the bottle so as to keep the water cooler for a longer time. Children prefer bottles that can be easily slipped in to the built-in bottle pouches in school bags rather than the older variations which would be hung round the neck. They prefer small, sleek and compact bottles as water bottles are not their only source of water; they drink water from the drinking water taps in schools and also get milk.

Plastic bottles are preferred mostly, while high quality steel bottles are also available, which are not as popular as they are heavy, unattractive and costly.

Plastic water bottles are changed every three months as buying bottles does not pinch the pocket and the parent readily agrees to children's pestering. In addition, children get bottles as return gifts in parties. Children do not want to take a bottle with a faded cartoon picture. My son says "I want a new bottle tomorrow as this bottle is leaking" he knows that he does not have to convince me too much to buy him a new plastic water bottle.

It is noteworthy that for today's children bags and bottles are considered routine, utility items low on their priority list. They take pride in possessing latest remote control toys, access to internet, computer games, PSP and the list continues as the technology advances. Maybe children lack interest in buying bottles as they are not much advertised on televisions and do not come with freebies.

*Experience of our in-house member/
mother*

Temperature Rise

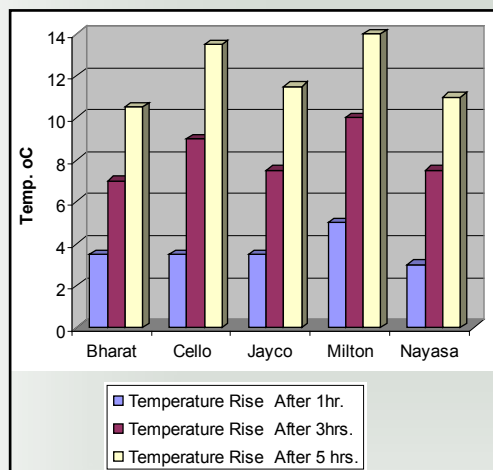
The water bottles are made to store the water and also to maintain the water temperature (as cold as possible). There is no requirement prescribed in Indian Standards for temperature retention. Therefore we observed the bottles for temperature rise after certain intervals. The bottles were filled with potable water at 10°C and stored at the room

temperature. We measured the temperature rise in the interval of 1, 3 & 5 hours.

Brand Bharat was found with minimum (10.5°C) temperature rise followed by Nayasa (11.0°C) and Jayco (11.5°C), however brand Milton was found with maximum (14.0°C) temperature rise followed by Cello (13.5°C).

Our Recommendation

The test programme was based on the Indian Standards IS: 8688-2004, IS: 9845 & IS: 2798. The testing



Comparative Test

was carried out in an accredited laboratory.

The key parameters of the test were Temperature Rise, Water Potability, Overall Migration and Drop Impact.

Though there was no requirement in Indian Standard for temperature rise in water during storage, we tested the bottles for temperature rise also (keeping in view the hot Indian summer, when water bottles are most useful) as the main purpose of this product is to keep water at stable temperature during storage. Water potability is also a very important test, since the water is expected to be potable during storage. The good thing is that all the brands were found satisfactory in this test and had no unpleasant taste and odour after storage of 72 Hrs. at 38 ± 2 °C. Overall migration test shows the migration of plastic ingredients in water which may cause lethal effect if found beyond the maximum limit. All the brands were found within the maximum limit. Since water bottles are mainly used by school going children, hence it is expected to be robust and most of the brands we tested were found satisfactory in this test. However brand Bharat and Jayco got cracks when dropped from a certain point, hence failed this test.

After the analysis and evaluation of all test parameters, brand Nayasa scored top and rated as first in overall performance followed by Cello and Bharat.

Brand Nayasa scored top and rated as first in overall performance followed by Cello.

COMPARATIVE PERFORMANCE SCORE OF INSULATED WATER BOTTLES FOR POTABLE WATER

Parameter	Brand	Weightage %	Nayasa	Cello	Bharat	Jayco	Milton
Model			Scoop	Go Kids	Cool Trac	Jackpot	Slim Gym
MRP in ₹			189	171	118	130	123
Retail Price in ₹			160	155	110	110	120
Quality Tests 58%							
Water Potability		10	10.0	10.0	10.0	10.0	10.0
Overall Migration		10	9.04	9.1	8.38	8.68	9.64
Drop Impact		9	9.0	9.0	3.15	3.15	9.0
Odour of Water		6	6.0	6.0	6.0	6.0	6.0
Closure Leakage		6	6.0	6.0	6.0	6.0	6.0
Hanging Cord/Strap Strength		6	5.73	5.78	5.71	5.82	NA
Capacity		6	6.0	3.81	6.0	6.0	4.12
Cap (Pilfer Proof)		5	5.0	5.0	5.0	5.0	5.0
Performance Tests 30%							
Temperature Rise		30	24.4	20.7	24.7	23.5	18.0
General Parameters 12%							
Packing		3	2.90	2.90	2.90	2.90	2.90
Marking		5	4.0	4.0	4.0	4.0	4.5
Workmanship & Finish		4	3.9	4.0	3.5	3.5	3.8
Overall Score		100	92.0	86.3	85.3	84.6	84.04

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

NA - Not Applicable as not provided

