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THE CONSUMER MAGAZINE

Tomato Ketchup & Sauce

15 Brands Tested



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CONSUMER EDUCATION AND RESEARCH SOCIETY, AHMEDABAD, INDIA





Tomato Sauce & Ketchup

How Much of Tomatoes Do They Have?

Slice a few tomatoes for sandwich or salad, grind them into chutney, make gravy, juice, or puree out of them. And if none of these whets your appetite, go and buy them in bottles — in the form of ketchup...Have them any way you want. They are good for health.

Tomato and related products are considered healthy foods for several reasons. They are low in fat and calories, cholesterol free, and a good source of fibre and protein. Tomatoes are rich also in vitamins A and C, potassium and lycopene.

We tested — and, of course, tasted — 15 brands of tomato sauce and ketchup from across the

country and 2 unbranded locally available samples from Ahmedabad. Our findings will tell you where your favourite brand stands.

Brands Tested

The brands tested were *Druk Tomato Sauce, Heinz Tomato Ketchup, Kissan Tom Tom Tomato Sauce, Kissan Tom Tom Tomato Ketchup, Madhur Premium Tomato Sauce, Madhur Tomato Ketchup, Maggi Tomato Sauce, Maggi Tomato Ketchup, Nilon's Tomato Sauce, Nilon's Tomato Ketchup, Ohms Tomato Sauce, Paulson Tomato Ketchup, R.K.'s Tomato Ketchup, Sona Tomato Ketchup* and *Tops Tomato Ketchup*.

The Magic Of Lycopene

Lycopene is the pigment responsible for the characteristic deep red colour of ripe tomato fruits and tomato products. It has many benefits. Some of them are:

- An antioxidant that once absorbed by the body helps to prevent and repair damaged cells.
- Studies show that lycopene from tomatoes is absorbed better into the blood stream if it is first heat processed.
- Studies suggest that lycopene levels in the blood may be associated with reduced incidence of prostate, digestive tract, lung and cervical cancer.
- Lycopene comes primarily from tomatoes, although apricots, guava, watermelon, papaya are also significant sources.



We also tested two brands, *Sona Continental Sauce* and *Tops Continental Sauce*, which had vegetables among the ingredients, besides tomatoes. Hence we treated these two as a separate category.



Standards

The samples were tested against the specifications laid down in the *Fruit Products Order* (FPO), 1955, the *Bureau of Indian Standards IS : 3882* and the *Prevention of Food Adulteration* (PFA) Act, 1954. The PFA Act and the FPO are mandatory, but the BIS is voluntary. None of the brands carried the ISI mark.

How Much of Tomatoes They Have

The tomato content of the ketchup can be ascertained by the lycopene content. We checked the lycopene content in all the brands. The more the lycopene, the more is the tomato content. Low levels of it may be due to less of tomato pulp or poor quality of tomatoes used. None of the standards talks about the lycopene content of the sauce. This was an additional test we did on our own to check the lycopene content of each brand. *Madhur Ketchup* (10.2mg/100gm) had the highest lycopene content followed by *R.K.'s Ketchup* (9.9mg/100gm) and *Maggi Sauce* (9.1mg/100gm).

Germs in Your Ketchup

(Microbiological Parameters)

Microbial contamination is a serious issue. We tested all the brands for mould, yeast and spore count and bacterial count. Bacteria, yeast and mould are responsible for many types of food spoilage before and during the processing. A high count of these in the finished food product indicates decomposition or poor sanitary conditions in the factory.

Yeast & Spores count : Though the BIS is silent on the yeast and spores count, the PFA Act and the FPO specify that

Key Findings

● We tested 15 brands of tomato sauce and ketchup from across the country and two unbranded samples from Ahmedabad. The brands tested were *Druk Tomato Sauce*, *Heinz Tomato Ketchup*, *Kissan Tom Tom Tomato Sauce*, *Kissan Tom Tom Tomato Ketchup*, *Madhur Premium Tomato Sauce*, *Madhur Tomato Ketchup*, *Maggi Tomato Sauce*, *Maggi Tomato Ketchup*, *Nilon's Tomato Sauce*, *Nilon's Tomato Ketchup*, *Ohms Tomato Sauce*, *Paulson Tomato Ketchup*, *R.K.'s Tomato Ketchup*, *Sona Tomato Ketchup* and *Tops Tomato Ketchup*.

● We also tested two brands *Sona Continental* and *Tops Continental* which had vegetables as ingredients, besides tomatoes. Hence we kept them as a separate category.

● The samples were tested against the specifications laid down in the *Fruit Products Order* (FPO), 1955, the *Bureau of Indian Standards IS : 3882* and *Prevention of Food Adulteration Act* (PFA), 1954. The PFA Act and the FPO are mandatory while the BIS is voluntary. None of the brands carried the ISI mark.

● We checked the lycopene content of all the brands. The more the lycopene, the more will be the tomato content. Low levels of lycopene may be due to less quantity of tomato pulp or poor quality of tomatoes used. None of the standards talk about the lycopene content of the sauce. This was an additional test we did on our own to check the lycopene content of each brand. *Madhur Ketchup* (10.2mg/100gm) had the highest lycopene content followed by *R.K.'s Ketchup* (9.9mg/100gm) and *Maggi Sauce* (9.1mg/100gm).

● We tested all the brands for mould, yeast & spores count and bacteria count. Bacteria, yeast and mould are responsible for many types of food spoilage before and during the processing. *Paulson Ketchup* (165), *Sona Ketchup* (231), *Druk Sauce* (140) along with both the unbranded samples were found with a very high yeast and spores count and hence failed this test. *Sona Ketchup* and both the unbranded samples failed the test for bacteria count. *Sona Ketchup* had the bacteria count as 200 million per c.c against the limit of 100 million per c.c.

● *Paulson Ketchup* (0.7), *Sona Ketchup* (0.9), *Ohms Sauce* (0.8) and one unbranded sample L-1 (0.8) failed in the test for acidity as acetic acid. If the acidity (acetic acid)

is lower than the minimum limit, mould and yeast may grow reducing the shelf life of the product. The PFA Act and FPO have set the limit as not less than 1.0 while the BIS has set the lower limit as 1.2. *R.K.'s Ketchup* (1.1) and another loose sample L-2 (1.1) could not meet the requirement of BIS but passed as per the PFA Act and the FPO.

● The presence of preservatives prevents the microbiological spoilage and increases the shelf life of the product. But too much of it is not desirable. The PFA, BIS as well as the FPO have set the limit as 750ppm. *Paulson Ketchup* (1457), *Sona Ketchup* (898) and one unbranded sample L-1 (2812) were found with very high levels of benzoic acid. *Heinz Ketchup* (87) was found with the lowest amount of preservative.

● *Sona Ketchup* and one unbranded sample L-2 were found with sunset yellow and hence both failed the PFA test for coal tar colour.

● *Madhur Tomato Ketchup*, *Paulson Tomato Ketchup*, *R.K.'s Tomato Ketchup* and *Sona Ketchup* did not label the weight as per the requirement of the standard. One sample of *R.K.'s Ketchup* was found with less weight. The 1000 gm bottle weighed only 966 gm where the variation allowed by the standard is 15 gm.

● *Ohms Tomato Sauce* did not give the batch number.

● The FPO specifies that the bottle shall be sealed in such a manner that it cannot be opened without destroying the licence number and the identification mark of the manufacturer. *Paulson* did not label the FPO licence number as the requirement.

● Our trained panellists tested the samples for colour, consistency, flavour and absence of defects. Among the national brands, *Heinz Tomato Ketchup* was preferred the most by them. Among the regional brands, *Madhur Sauce* was liked the most.

● Among the national brands, *Maggi Ketchup* (79) scored the highest followed by *Kissan Sauce* (78) and *Heinz Ketchup* (78). Among the regional brands, *Madhur Premium Sauce* and *Ketchup* topped the list.

● Among the national brands, *Nilon's Sauce* is our best buy while among the regional brands, *Madhur Ketchup* is our best buy.

● In the Continental category both the brands were found non-conforming, hence they were not rated and ranked.



TOMATO KETCHUP/SAUCE : RESULTS

									MICRO TEST	
Brand Name Standard	Rank	Overall score	* Price/ 500 gm	Chemical score	Sensory score	Labelling score	Labelled net weight (gm)	Actual weight (gm)	Yeast & spores count (per 1/ 60 cmm)	Bacteria count (million/ cc)
IS:3882-1966									NM	NM
PFA A:16.06									NMT 125	NMT 100
FPO									NMT 125	NMT 100
CONFORMING (Tomato Ketchup and Sauce)										
NATIONAL										
* Maggi Ketchup	1	79	60.00	52.8	16.2	10.0	200	201	103	53
Heinz Ketchup	2	78	59.00	51.8	16.6	10.0	500	503	97	55
Kissan Sauce	2	78	49.00	52.2	16.2	10.0	500	503	40	55
Maggi Sauce	3	77	60.00	51.7	15.6	10.0	200	200	92	66
Nilon's Ketchup	3	77	45.00	52.8	14.2	10.0	500	497	40	61
* Nilon's Sauce	4	75	35.00	50.2	15.2	10.0	1000	1003	39	66
Kissan Ketchup	5	73	62.50	47.3	15.6	10.0	200	199	109	58
Tops Ketchup	6	72	35.00	46.2	15.6	10.0	1000	1006	76	71
REGIONAL										
* Madhur Sauce	1	73	31.50	46.4	16.4	10.0	1000	1011	61	68
* Madhur Ketchup	1	73	23.75	50.5	12.2	10.0	1200	1213	79	60
R. K's Ketchup	2	72	25.00	49.3	13.0	10.0	1000	984	75	64
NON-CONFORMING (Tomato Ketchup and Sauce)										
NATIONAL										
Druk Sauce	-	62	62.50	38.9	12.8	10.0	200	217	140	64
Paulson Ketchup	-	45	25.00	25.3	12.8	7.0	1000	1003	165	54
REGIONAL										
Sona Ketchup	-	18	24.00	-1.8	12.2	8.0	1000	1017	231	200
Ohms Sauce	-	64	21.22	41.9	13.0	9.5	700	685	40	76
CONTINENTAL SAUCE										
Tops Con. Sauce	-	28	22.50	5.6	12.0	10.0	1000	1007	92	56
Sona Con. Sauce	-	61	17.92	42.1	11.8	7.0	980	994	140	204
UNBRANDED TOMATO SAUCE										
Gurukul Area L-1	-	-	-	-22.1	-	-	-	1005	149	349
Paldi Area L-2	-	-	-	-15.5	-	-	-	1051	133	421
WEIGHTAGE		100		70	20	10				

Note:

- * Price as at the time of purchase was calculated for 500 gm.
- Paulson and Sona Ketchup did not mark veg logo.
- Batch No. not given by Ohms.
- Paulson did not label the FPO licence No. as per the requirement.
- The brands did not label the net weight as per the requirements.

All brands were also tested for Total soluble solids, sp. gravity, heavy metals (arsenic, tin, lead, copper, zinc), pesticide residues (aldrin, dieldrin, heptachlor), mould count and fermentation. All the brands complied with these parameters.





SENSORY		KEY	NM = Not Mentioned		= Failed as per PFA Act & FPO	
25-19	●		NLT = Not Less Than		= Failed as per PFA	
18-16	◐		NMT = Not More Than		= Failed as per FPO	
≤ 15	●				○ = Non-conforming to IS	

CHEMICAL TEST				ADDITIONAL TEST				SENSORY			
Acidity as acetic acid %	Benzoic acid (ppm)	Coal tar colour	Labelling	Lycopene (mg/100g)	Salt (%)	Protein (%)	Viscosity (at 30°C)	Colour	Consistency	No defects	Flavour
NLT 1.2	NMT 750	permitted Colours allowed		NM	NM	NM	NM				
NLT 1.0	NMT 750	Absent		NM	NM	NM	NM				
NLT 1.0	NMT 750	0.2 gm/kg		NM	NM	NM	NM				
1.6	315	Absent	✓	3.9	3.4	1.6	1768	●	●	●	●
1.3	87	Absent	✓	8.3	3.0	1.0	1931	●	●	●	●
1.4	407	Absent	✓	4.2	3.1	1.2	996	●	●	●	●
1.5	385	Absent	✓	9.1	3.1	1.0	1296	●	●	●	●
1.2	407	Absent	✓	6.1	3.0	1.7	1885	◐	●	◐	◐
1.2	474	Absent	✓	4.7	3.0	1.4	1425	◐	●	●	◐
1.4	460	Absent	✓	5.8	2.9	0.9	1507	◐	●	●	●
1.3	585	Absent	✓	6.3	3.0	0.9	1255	●	●	●	◐
1.4	556	Absent	✓	2.5	3.2	1.4	1196	●	●	●	●
1.2	688	Absent	✓●	10.2	3.9	1.3	2061	◐	●	●	●
(1.1)	335	Absent	✓●	9.9	2.7	1.2	915	◐	●	●	◐
1.4	528	Absent	✓	1.2	3.6	0.7	1465	◐	◐	◐	●
(0.7)	1457	Absent	X●	3.1	2.8	0.3	1311	●	●	●	●
(0.9)	898	Present	X●	1.3	2.9	0.4	3464	●	●	●	●
(0.8)	245	Absent	X	1.8	2.1	1.1	1066	◐	●	●	●
1.1	642	Absent	✓	0.6	2.5	0.4	2545	●	●	●	●
(0.8)	607	Present	X	1.4	2.4	0.3	3460	●	●	●	●
(0.8)	2812	Absent		1.5	1.3	0.8	914	-	-	-	-
(1.1)	590	Present		0.48	1.7	0.5	3038	-	-	-	-

Continental Sauce :

The standards for the continental sauce are as follows :

1. Yeast and Spores count - NMT 12h per 1/60 cm (FPO)
2. Bacteria count - NMT 100 million/cc (FPO)
3. Acidity as acetic acid - NLT 1.0 (PFA) NLT 1.2 (FPO)
4. Colour - Absent (PFA), Permitted colour allowed, Red or any shade of Red not allowed (FPO).

■ The company's communication says that they are not adding benzoic acid. We have followed the BIS methodology. It could be that the spices added by the company have come up as benzoic acid in the test.



Among the national brands, **Maggi Ketchup** (79) scored the highest followed by **Heinz Ketchup** (78) and **Kissan Sauce** (78).

Among the regional brands **Madhur Sauce** and **Madhur Ketchup** topped the list.

Best Buy

The 'Best Buy' is based on the overall score and price. In the national category, **Maggi Ketchup** scored the highest. Although **Nilton's Sauce** scored lower, it was the 'Best Buy' since its price was less than that of **Maggi Ketchup**.

In the regional category, both **Madhur Sauce** and **Ketchup** scored the same. **Madhur Ketchup**, priced lower than **Madhur Sauce** is our 'Best Buy'.

BEST BUY

Rating and Ranking

For rating and ranking the brands we decided to give 70 per cent weightage to chemical parameters, 20 per cent to sensory and 10 per cent to labelling.



yeast and spores should not exceed 125 per 1/60 c.m.m. **Paulson Ketchup** (165), **Sona Ketchup** (231), **Druk Sauce** (140), along with both the unbranded samples, were found with a very high yeast and spore count and hence failed this test.

Bacterial count : **Sona Ketchup** and both the unbranded samples failed this test. The PFA Act and the FPO have set the limits at 100 million per c.c. **Sona Ketchup** had the bacteria count as 200 million per c.c.

Shelf Life

The brands were tested for acidity as acetic acid. If the acidity (acetic acid) is lower than the minimum limit, mould and yeast may grow, reducing the shelf-life of the product. The PFA Act and the FPO have set the limit as not less than 1.0 while the BIS has set the lower limit at 1.2. **Paulson Ketchup** (0.7), **Sona Ketchup** (0.9), **Ohms Sauce** (0.8) and one unbranded sample L-1 (0.8) failed this test. **R.K.'s Ketchup** (1.1) and another unbranded sample L-2 (1.1) could not meet the requirements of the BIS but passed as per the PFA Act and the FPO. The BIS, the PFA Act and the FPO have only specified the lower (minimum) limit for acetic acid and there are no higher limits. On the other hand, high acetic acid would indicate an extremely sour taste. The maximum limit for acidity should be given, for which we have written to the BIS.

As tomato ketchup is highly acidic in nature, it is better to avoid contact with metallic vessels or utensils made of copper and aluminium. Longer contact can dissolve the metallic content of the vessels and contaminate the sauce with metals.

Preservatives Used

(Benzoic acid)

The presence of preservatives prevents the microbiological spoilage and increases the shelf-life of the product. But too much of it is not desirable. With so much of packed instant food around, we are all the more worried about the amount of preservatives we take.

We checked the amount of preservatives in all the brands. The PFA Act, the BIS and the FPO have set the limit at 750 ppm. **Paulson Ketchup** (1457), **Sona Ketchup** (898) and one unbranded sample L-1(2812) were found with very high levels of benzoic acid. **Heinz Ketchup** (87) was found with the lowest amount of preservative.



Is The Method Correct ?

While reviewing the entire gamut of testing methods for ketchup — Indian and foreign — we found that the BIS method for testing for the presence of benzoic acid as a preservative was not specific. But in compliance with the official and revised method prescribed by the BIS, we had no option. We have, therefore, decided to make a representation to the BIS to review its method. **Heinz** claimed that it used no artificial preservatives, colours or emulsifiers. It also informed us that it did not add any artificial preservatives. BIS method uniformly applies to all manufacturers. According to the BIS method, we have found benzoic acid as 87 ppm. In order to be fair to **Heinz** we also tested by other methods but the results were not consistent. In the process we delayed our publication. Hope by now most of our subscribers have received our intimation on the delay.

Added Colour

(Coal Tar Colour)

The PFA Act does not allow any permitted synthetic colours in ketchup or sauce. The BIS allows the addition of permitted colours and additives. The FPO allows the addition of certain colours to the ketchup and sauce but it should not exceed 0.20 gm a kg. **Sona Ketchup** and one unbranded sample L-2 were found with the colour sunset yellow and hence both failed the PFA test. Sunset yellow can provoke asthma attacks, skin rashes, hyperactivity and gastric problems.

The brands were also tested for total soluble solids, specific gravity and

heavy metals. All the brands conformed to these tests.

Is Your Sauce Thick Enough ?

(Viscosity)

With some brands you tilt the bottle and the sauce comes out very easily while with some bottles you have to wait for ages for the sauce to trickle down on your samosa. All of us have gone through this experience some time or the other. What should be the ideal thickness of a sauce ? The standards do not talk about it. We checked this on our own. **Sona Ketchup** was found to be the most viscous, followed by **Madhur Ketchup** in the branded category.

Salt and Protein

We wanted to assess the salt and protein content of all the brands. Check the results table to find how much of salt and protein are present in your favourite sauce.

Is the Weight Right ?

The Standards of Weights and Measures (Packaged Commodities) Rules, 1977 has different specifications for different size bottles. For 100-200 gm bottles the variation allowed is 4.5 per cent which works out to 9 gm for a 200 gm bottle. Both for 500 gm - 1 kg bottles and 1 kg - 10 kg bottles the variation allowed is 15 gm.

The Standards also specify that products of 1000 gm or more need to label the net weight in kilogram. **Madhur Tomato Ketchup**, **Paulson Tomato Ketchup**, **R.K.'s Tomato Ketchup** and **Sona Ketchup** did not label the net weight as per the requirement of the Standard. One sample of **R.K.'s Ketchup** was of less weight. The 1000 gm bottle weighed only 966gm whereas the variation allowed by the Standards is of 15 gm. The FPO, however, allows a variation of 5 per cent in the net content which means **R.K.'s Ketchup** should weigh minimum 950 gm. With 966 gm it meets the FPO.

Marking

All the brands had the complete labelling information except **Ohms**

Tomato Sauce which did not give the batch number.

The FPO specifies that the bottle shall be sealed in such a manner that it cannot be opened without destroying the licence number and identification mark of the manufacturer. **Paulson** did not label the FPO licence number as per the requirement.

We strongly feel that instead of just labelling 'preservatives added', the companies should name them. So that if a person is allergic to a certain preservative, he can avoid that product.

How They Tasted

(Sensory)

We followed the method suggested by the BIS for the organoleptic (taste) analysis of ketchup/sauce. Our trained panellists tested the samples for colour, consistency, absence of defects and flavour. The most preferred was **Heinz Tomato Ketchup** among the national brands and **Madhur Sauce** among the regional brands.

Areas Of Action

- Harmonisation of standards should be done.
- Though there is a lower limit for acetic acid, there is no upper limit. Upper limit should be specified.
- The BIS needs to look into the method to check the preservatives (benzoic acid). The present method is not specific.
- The labelling laws need to be revised. Instead of just writing 'class II preservatives', the manufacturer should specify the name of the preservative so that if a person is allergic to a certain preservative he/she can avoid it.

Manufacturers' Response

As a policy before publishing, we convey the test results to all the manufacturers, irrespective of whether their brands have passed or failed. The

results are posted to their registered offices by Registered A.D/ Courier. All the manufacturers receive the results of their own product only and are given two weeks from the date of receipt to respond. Even most consumer groups in industrially advanced countries do not do this. The extracts from the companies' reply and our response (in colour) are given below.

Hindustan Lever Limited, the manufacturers of **Kissan Tomato Ketchup** and **Kissan Tomato Sauce**, raised concerns on the ranking based on sensory attributes and the age of the samples. They said, "We do not think ranking on sensory attribute scores is a fair representation...For example, on texture a score may be scaled from 1 to 10 from very thin to very thick. Consumers may actually prefer a score of 6 and dislike products thicker than this. But a quantitative ranking of two products one with 8 and the other with 6, will erroneously convey that the very thick product is 'better'."

The sensory analysis has been done as per the pattern given in the BIS.

They also felt that the samples used by us for testing were rather old.

The samples were purchased from the market and immediately taken up for testing well within the expiry period.

Heinz India, the manufacturers of **Heinz Tomato Ketchup**, did not agree to the presence of benzoic acid in their product. They said that they do not add any preservatives, colour or thickeners/stabilizers/emulsifiers unlike other brands. They further said that "Benzoic acid determination is based on BIS method which is known to give interference due to presence of spices. Analyses of raw spices such as cinnamon and clove using this method gives a benzoic acid reading of 2000-3000 ppm. **Heinz** in India and anywhere else in the world does not add benzoic acid or class II preservatives to their tomato ketchup. We are about pure and natural."

We tested the brand by the method suggested by the BIS and the preservative calculated as benzoic acid was found to be 87.

Heinz also wanted to know the methods used for testing lycopene, sucrose and



viscosity. Regarding lycopene they said that "unless the inputs are controlled, the lycopene content will vary from batch to batch. Though your findings in this case may be accurate it is not representative of what the concerned products can deliver round the year and hence the comparison may mislead the consumers".

Test methods have been sent to them. The results refer to testing done on a particular batch.

Heinz also said that "we strongly feel that there is every likelihood of your findings, in their present form, misleading the consumers if published. This might affect our business adversely and in such a case the responsibility will solely lie on CERS."

We are not misguiding any one. BIS is a national statutory standards institution. We have no choice but to follow the methodology given by them. Besides all care and caution have been taken and references on the efforts made by CERS, as you find in the article.

J. J. Food Industries, the manufacturers of **Madhur Tomato Ketchup** and **Madhur Premium Tomato Sauce**, said that they would make correction on their label by printing the weight as 1.2 kg instead of 1200 gm.

Ohms Food Products Pvt Ltd., the manufacturers of **Ohms Tomato Sauce**, said that they exercise care and attention to maintain the acidity level as well as the weight of the sample. The problem with the acidity and the weight could have crept in because of human error. They said that it was not intentional and in the future they would take care. Regarding the batch number they said that they plan to mark the batch numbers.

Nilon's Enterprises Private Limited, the manufacturers of





Nilon's Tomato Ketchup and *Nilon's Tomato Sauce*, were happy with the fact that their product conformed to all the parameters but they were disappointed with the sensory score which they felt should be in the higher range.

Sensory testing was done as per the method given in the BIS. We stand by our results.

Regarding the shortage of 3 gm in their bottle, they said that though, "it is within the acceptable limits, the same is not acceptable to us as a company". They

Continental Sauce

We tested two brands of sauce from the continental sauce category. The brands tested were *Sona Continental Sauce* and *Tops Continental Sauce*. This category has vegetables among the ingredients.

Both the PFA Act and the FPO have specifications for this kind of sauce but the BIS has not specified any Standards.

Sona Continental Sauce was found with a bacteria count of 204 million per c.c against the limit set by the FPO as 100 million per c.c. The brand also failed the test on the yeast and spore count where the FPO has set the limit at 125 per 1/60 c.m.m. The yeast and the spore count was found to be 140. PFA Act is silent on these parameters. *Sona Continental Sauce (0.8)* failed the test for acidity as per the PFA and FPO. *Tops Continental Sauce (1.1)* failed the test as per the FPO.

Sona Continental Sauce was found with sunset yellow colour which should not be present as per the PFA Act and hence it failed this test also.

Sauce and Ketchup

Is there any difference between sauce and ketchup? Not really. If you go by the standards, they are one and the same thing. The standards are also the same for them.

Hindustan Lever Ltd. informed us that in India there is no difference between ketchup and sauce. Traditionally, in the US, tomato ketchup is prepared with tomatoes, sugar, vinegar/acetic acid and spices. It is used as a

dressing or table condiment to be consumed with chips, burgers, etc. Ketchup is cold and is never heated as a rule. Tomato sauce, on the other hand, is made from tomatoes, oil, meat or vegetable stock and spices. Vinegar is not usually used. Sauces are generally served hot.

Most of the manufacturers informed us that ketchup is made with spices, onions and garlic while sauce is generally without the spices.

said that they are taking suitable measures to give more quantity to make up for any subsequent moisture loss.

Nestle India Limited, the manufacturers of *Maggi Tomato Ketchup* and *Maggi Tomato Sauce*, were pleased to note that their products conformed to all the parameters.

R.K.'s Food Products, the manufacturers of *R.K.'s Tomato Ketchup*, were happy with their results. Regarding their brand not meeting the acidity as per the BIS they said that they manufacture their products as per the FPO and the PFA Act, which is clear from the results as well.

The company complied with the requirements of the PFA Act and FPO for the acidity parameter; however, it does not comply with the IS limit.

They also said that they have started using the unit of weight as 1 kg from May 2003.

Regarding the less weight in one of their samples they said that they use automatic filling machine and check the weight on a random basis every month. They promised to take extra care in the future to avoid such lapses.

Bhutan Fruit Products Limited, the manufacturers of *Druk Sauce*, were concerned about the high yeast and spore count in their product. They said that normally yeast and spores are maintained well within limits. Maybe, the particular bottle had the problem. They gave assurance that in the future they would be careful.

Everest Beverages & Food Industries, the manufacturers of *Sona Tomato Sauce* and *Sona Tomato Ketchup*,

wrote to us that they need another 15 days to investigate the matter but till our going to press there was no response.

The manufacturers of *Tops Tomato Ketchup*, *Tops Continental Sauce* and *Paulson Tomato Ketchup* did not respond till our going to press.

Manufacturers' Addresses

Kissan Ketchup/Sauce

Hindustan Lever Limited 165/166 Backbay Reclamation, Mumbai - 400 020

Maggi Ketchup/Sauce

Nestle India Ltd., M-5A, Connaught Circus New Delhi - 110001

Tops Ketchup/

Tops Continental Sauce

G.D. Foods Mfg(I) Pvt. Ltd. Plot No. 61, Matiala Complex, New Delhi - 110 059

Paulson Ketchup

Khanna Foods & Chemical Industries 360, Naniwala Bagh, Azadpur, Delhi - 110 033

Sona Ketchup/

Sona Continental Sauce

Everest Beverages & Food Industries D-21, Indl. Estate, Partapur, Meerut

Ohms Sauce

OHMS Food Products, Mettu Street, Iyappanthangal, Chennai - 600 056

Heinz Ketchup

Heinz India Private Ltd.

The Great Eastern Center

70, Nehru Place, New Delhi - 110 019

Nilon's Sauce/Ketchup

Nilon's Enterprises (P) Ltd., Utran - 425117

Druk Sauce

Bhutan Fruit Products Ltd.

Tai Industries Ltd., 53A, Mirza Ghalib Street Kolkata - 700 016

R.K.'s Ketchup

RK's Food Products

5/13, G.I.D.C. Pandesara, Surat, Gujarat

Madhur Ketchup/Sauce

J.J. Food Products, G.I.D.C. Naroda Ahmedabad - 382 380.

For queries write to us at editorinsight@yahoo.co.in.