

Is Your Wheat Flour – Okay or Not Okay?



Ten wheat flour brands tested: Is your brand okay?

Brands tested for 7 parameters and also for adulterants and contaminants

No meal is complete without hot, fluffy *phulkas* gently smeared with ghee to eat with *dal* and the *sabzi* of the day. Wheat flour or *atta*, which rotis are made of, is a staple in most Indian households.

How good is the quality of packaged wheat flour available in the market? To find an answer to this question, Ahmedabad based Consumer Education and Research Centre (CERC) has tested samples of 10 brands of wheat flour.



The good news was that all brands conformed to the parameters set by the Bureau of Indian Standards (BIS) and Food Safety and Standards Authority of India (FSSAI). Moreover, all brands were free from adulteration and contamination.

CERC has tested the samples for the following parameters – moisture, total ash, acid insoluble ash, gluten, alcohol acidity, crude fibre and granularity. CERC also, tested brands for the presence of the following adulterants and contaminants – excess sand and dirt, excess bran, chalk powder, starch, insects and fungus.

Brand Tested:

- Patanjali Whole Wheat Atta
- Star Chakki Fresh Atta
- Aashirvaad Shudh Chakki Atta
- 24 Mantra Organic Whole Wheat Atta
- Pro Nature100% Organic Whole Wheat Atta
- Shakti Bhog Chakki Fresh Atta
- Organic TattvaWheat Chakki Atta
- Golden Harvest Chakki Fresh Atta
- Reliance Select MP Wheat Chakki Atta
- Pilsbury Chakki Fresh Atta

Key Findings (See table for detailed results):

- The **moisture** content in all the 10 brands was found to be complying with the mentioned BIS limit of Not More Than (NMT) 13.0% by weight, and FSSAI limit of NMT 14.0% by weight, with results ranging from 7.1- 11.2%. Flour with excess moisture content is likely to be attacked by microorganisms and insects. Over time, mould growth may develop.
- All the brands complied with the BIS as well as the FSSAI limits for the **total ash** of NMT 2.0% on dry basis by weight. The ash of wheat flour consists principally of the phosphates of potassium and magnesium. The ash content of whole-meal flour is much higher than that of refined white flour.
- All the brands conformed to the BIS and FSSAI limits for **acid insoluble ash** of NMT 0.10% by weight on dry basis. A high value for acid insoluble ash suggests the presence of dust, dirt, stones which get mixed during processing or are present in the parent material as an adulterant.



- All the brands had **gluten** levels within the BIS limit of Not Less Than (NLT) 9.0% and FSSAI limits of NLT 6.0% by weight on dry basis. Very low gluten content frequently results in dough deterioration when machine handled and also in baking faults.
- **Crude fibre** was found to be within the BIS limit of NMT 2.5% by weight in all the brands, ranging from 0.9-1.5%. Crude fibre gives an indication of adulteration of the sample with extraneous matter of plant origin.
- All the ten brands tested passed the test for **alcoholic acidity** with results below the BIS limit of 0.1% and FSSAI limit of 0.18% by weight. The acidity of flour increases during storage. Hence, alcoholic acidity provides an indication of the age of the flour.
- All the ten brands complied in the test for **granularity**. The texture of wheat and milling conditions determine granularity.
- **Adulteration and contamination:** None of the brands tested positive for adulteration or contamination. The presence of **excess bran or chalk powder** was not detected in any brand. Excess bran and/or chalk powder may be added to wheat flour to increase the bulk of the product. Dirt and insect infestation indicate a failure to maintain good sanitary conditions in grain storage areas, mills and inadequate cleaning of grains.
- **Labelling requirements:** All the brands complied with the FSSAI (Packaging and Labelling) Regulations 2011.

Wheat Flour: Test Results

Brands	Rank	Overall Score ¹ (%)	Price/5kg (Rs.)	Moisture (%)	Acid Insoluble Ash (%)	Gluten (%)	Crude Fibre (%)
Limit				NMT² 13% (BIS)	NMT 0.1% (BIS)	NLT³ 6% (FSSAI)	NMT 2.5% (BIS)
Patanjali Whole Wheat Atta	1	86	160	7.1	0.01	12.6	1.4
Star Chakki Fresh Atta	2	85	180	9.1	0.01	12.7	0.9
Aashirvaad ShudhChakki Atta	3	83	175	9.3	0.00	13.6	1.3
24 Mantra Organic Whole Wheat Atta	4	81	260	7.5	0.04	13.6	1.3
Pro Nature100% Organic Whole Wheat Atta	5	74	280	10.8	0.03	13.9	1.1
Shakti Bhog Chakki Fresh Atta	6	73	190	9.8	0.03	11.8	1.0
Organic Tattva Wheat Chakki Atta	6	73	280	9.3	0.01	12.2	1.5
Golden Harvest Chakki Fresh Atta	7	71	210	10.4	0.04	13.8	1.2
Reliance Select MP Wheat Chakki Atta	8	70	225	11.2	0.01	12.3	1.2
Pilsbury Chakki Fresh Atta	9	69	175	10.6	0.02	12.5	1.3
Weightage (%)	0	0	0	25	25	25	25

Notes:

¹The Overall Score was calculated by giving the following weightage – Moisture – 25%, Acid Insoluble Ash – 25%, Gluten – 25% and Crude Fibre – 25%. The parameters Total Ash and Alcohol Acidity were not considered while rating because there was not much variation in the test results among the brands. The parameters Granularity, Test for Excess Bran and Test for Chalk Powder were not considered for rating because the test results show that all brands conformed or the adulterants were absent. Labelling was not considered for rating as all manufacturers provided all mandatory information.

² NMT=Not more than

³ NLT = Not less than

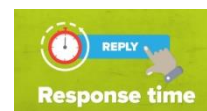
Best buy:

Patanjali obtained the highest overall score of 86 followed by **Star Chakki Fresh** at 85 and **Aashirvaad** at 83 respectively. If we compare the prices per 5 kg of the product, **Patanjali** is the least expensive at Rs. 160. Hence, with the best score and the least price, **Patanjali** is our Best Buy.

**BEST
BUY.**

Manufacturers' response:

As a policy, CERC convey the test results to all the manufacturers and await their response. CERC sends only test results of their products to get their views. CERC has given them two week time. CERC received the following responses from manufacturers before the release of the press note:



- **Pro Nature 100% Organic Whole Wheat Atta:** We are thankful to CERC for connecting us. We are feeling very good as our product is as per the guidelines. We are small venture and we would like to work with CERC for product quality rectification. We really want to learn, Can we connect to CERC regards the alike?
- **Organic Tatva Wheat Chakki Atta:** We don't want to say anything on product report. You can visit our website to know more about our product and Organic Tatva.
- **Reliance Select MP Wheat Chakki Atta:** We really appreciate, CERC for writing to us. We have sent your analysis report to the concerned team for further help.

Previous testing:

The CERC laboratory had earlier tested 13 brands of wheat flour and the results were published in *Insight*, May-June 2000. Problems with respect to quality and labelling were observed then. Eight brands did not conform to alcohol acidity limits indicating that they were not fresh. Three brands had insect matter and 11 out of 13 brands had excess sand and dirt. Moreover, the labelling was inadequate, with three brands not even having the expiry date.

Role of gluten:

Recently, there has been some fake news regarding the presence of so-called 'plastic' in wheat flour. It is gluten, a natural component of wheat flour, which results in the elasticity of the dough. When water is added to flour and mixed to form dough, the proteins interact to form elastic, cohesive gluten.

Areas of action:

- Consumers should be made aware that it is always advisable to buy packaged food products instead of loose products.
- They should be informed about simple household tests for detecting adulteration.
- Wheat flour should be made available in smaller packaging, say, 1 kg.
- Regular monitoring of loose as well as packaged products by regulatory bodies is necessary to ensure safety and quality.

Grahak Sathi's conclusion:

It is indeed heartening news that all the brands of wheat flour tested proved to be good in terms of purity, freshness and overall quality. Branded wheat flour is more expensive than the unbranded product, but in the latter there is always the danger of adulteration or contamination due to unhygienic handling practices. That's why it is always advisable for consumers to buy the packaged product.



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