FAQs on Milk Fortification

Food Fortification Resource Centre
www.ffrc.fssai.gov.in/fortification

Food Safety and Standards Authority of India
Inpiring Trust, Assuring Safe & Nutritious Food
Ministry of Health and Family Welfare, Government of India
FAQs on Milk Fortification

Q: What is Milk Fortification?
A. Milk fortification is the process of adding vitamin A and D or other micronutrients to milk.

Q: Why fortify Milk?
A. Recent National Nutrition Monitoring Bureau (NNMB) survey and a Report of the expert group of ICMR in 2012 has stated that India has very high burden of Vitamin A and D deficiencies, amongst both young children and adults particularly in urban areas are physically less active and have a very limited exposure to sunlight.

Since milk is consumed by all population groups, fortification of milk with certain micronutrients is a good strategy to address micronutrient malnutrition.

When fat is removed from full-fat milk while processing it to produce toned and double toned milk, it also leads to depletion or loss of fat-soluble vitamins, especially the vitamins A and D. Fortification of milk thus helps to top up these lost vitamins.

Milk fortification benefits the low income population groups, who prefer the low fat milk due to the lower cost and many others who prefer consuming low-fat milk.

Q: What is the feasibility of milk fortification in India?
A. Technology for milk fortification is simple and equipment are readily available. The concept, technology and quality control procedures are well established for sustained production of fortified milk within India. Hence, appropriately and adequately fortified milk can be made available through the milk dairies and through the regular open market commercial channels.

Q: What are the micronutrients which can be used as fortificants to fortify milk?
A. Usually, vitamin A and D are added into milk for fortification.

Q: Is the micronutrient premix used for fortification, of vegetarian source?
A. Yes, premix is manufactured from vegetarian sources. Vitamin A in the form of Retinyl Acetate/Retinyl Palmitate/Retinyl Propionate and Vitamin D2 (Ergocalciferol) that are added to milk for fortification are of vegetarian origin.

Q: How safe is fortified milk for consumers?
A. Consumption of any type of food is self-limiting. Considering that milk is fortified at 25-30% of the recommended dietary allowances (RDA), and that its consumption is self-limiting; a person cannot consume fortified milk in such high quantities that would exceed the upper safety levels of vitamin and mineral intakes. Hence milk fortification is entirely safe.
By applying strict monitoring and supervision measures, companies can ensure that fortification levels do not exceed the safe limits.

**Q:** Do added vitamins get removed, if the fat layer is removed from milk after boiling?

**A.** As water soluble forms of vitamin A and D are preferred for fortifying liquid milk in India, there is uniform blending of premix with milk without the need for a homogenizer. Also, when fat layer is removed after boiling, these vitamins will remain in the liquid milk.

**Q:** How does fortification affect the shelf life of milk?

**A.** Fortification has no impact on the shelf-life of any kind of milk. The vitamins have a shelf life of their own although they do become less active over time.

**Q:** Does fortification change appearance, taste, texture and flavor of milk?

**A.** No. When deciding on the appropriate premix for milk fortification, only those vitamins are considered, which will not change the appearance, taste, texture and flavor of the milk. The concept is based on the fact that the consumer buying behavior should not be affected by the fortification process.

**Q:** Is milk fortification costly?

**A.** Fortification of milk is relatively inexpensive and affordable and costs less than 2 paisa per litre. Micronutrient premixes for milk are made within India and are readily available at competitive prices.

**Q:** What are the standards for milk fortification set up by FSSAI?

**A.** Toned, double toned or skimmed milk may be fortified with the following micronutrients, singly or in combination, at the level given in the table below:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Nutrients</th>
<th>Minimum Level of nutrient per litre of toned/double toned/skimmed milk</th>
<th>Source of nutrient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Vitamin A</td>
<td>770 IU</td>
<td>Retinyl acetate, Retinyl palmitate and Retinyl propionate</td>
</tr>
<tr>
<td>2.</td>
<td>Vitamin D</td>
<td>550 IU</td>
<td>Cholecalciferol, Ergocalciferol</td>
</tr>
</tbody>
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**Q:** What is the process for storing premix used for fortification of milk?

**A.** Premix should be stored at 20-25 degree centigrade temperature, in a cool, dry place, preferably in an air conditioned room.

**Q:** Can the premix used for milk fortification be consumed directly?

**A.** No, never. Premix has micronutrients in the range of million grams or million international units, which is toxic for the body if consumed directly.
Q: Will there be any loss of micronutrients after heating the fortified milk?
A. There is 10-15% loss of the micronutrients during boiling of milk.

Q: What claims is a company allowed to make to market their fortified milk?
A. Milk processing and packaging dairies can state that their product (milk) is fortified with vitamins. But they need to indicate levels of added micronutrients on the label, as is required by the Ministry of Health and Family Welfare, (Food Safety and Standards Authority of India) Notification, New Delhi, dated the 1st August, 2011, F.No. 2-15015/30/2010

Q: Does India have prior experience of milk fortification?
A. During 1984, the Department of Food introduced a scheme of fortification of milk with Vitamin A to prevent nutritional blindness. During 1988-89, the total quantity of milk fortified with vitamin A through these dairies was around 3.2 million liters per day. Currently, Mother Dairy, Rajasthan Cooperative Dairy Federation, Haryana Milk Federation and many private dairies are fortifying milk.

Q: Is there any Financial Assistance / Technology Up-gradation / Modernization of Food Processing Industries?
A. Government of India, Ministry of Food Processing Industries, provides financial assistance to entrepreneurs for setting up food processing industries, including up-gradation/ modernization of food processing industries for fortification. Following link provides all details: http://mofpi.nic.in/ContentPage.aspx?CategoryId=233

For more information, please contact

FOOD SAFETY & STANDARDS AUTHORITY OF INDIA
FDA Bhawan near Bai Bhavan, Kotla Road, New Delhi - 110002 India.
EPABX : 011-23236975   |   Telefax: 011-23220994   |   Tollfree Number: 1800112100

www.fssai.gov.in