Food Regulation
on
Confectionery Products in India

(Chewing Gum, Bubble Gum, Sugar and Sugar free Confectionery , Cocoa and Cocoa Products)

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Agenda

- Introduction
- Overview of current FSSAI Standards - impact on industry
- Benefits of harmonizing Indian Food Laws with Codex and other International Standards
- Specific areas to consider:
  - Removal of Vertical standards
  - Food Additives (Sweeteners, Talc and other additives)
- General recommendations for gum and confectionery products
- QA& Discussion

Introduction

- Food sector is one of the most rapidly evolving sectors in India and in the world.
  - The market size of confectionery in India is estimated at **US$ 1127 million** & growing at the rate of **11.9 %** per annum
  - Market Forecast to have value of **US$2005million** by 2014 (Source: Datamonitor Sept-2010 report).

- Food safety and consumer protection is becoming increasingly important owing to advancement of food science.

- There is requirement for a regulatory regime which facilitates novel, nutritious and healthy product development while at the same time protecting consumer's health.

- PFA enacted in 1955, with > 200 amendments to date.

- Modernizing and harmonizing Indian food regulations is important for Indian industry's future growth and international trade.

Current FSSAI Standards

- Emphasis on vertical compositional standards (finished products)
  - Chewing gum and Bubble gum are regulated as Reg 2.7.3 in FSSAI 1st Aug 2011
  - Other confectionery is regulated Under Reg.2.7.1: Sugar Boiled Confectionery; Reg 2.7.2: Lozenges

- Parameters in existing standards are overly restrictive to Innovation and are generally unique to India.

Current FSSAI Standards

Vertical Standards

Current Chewing gum and Bubble gum standards

Parameter	Chewing gum	Bubble gum
Gum content, Min., percent by wt.	12.5	14
Moisture, Max., percent by wt	3.5	3.5
Sulphated ash, Max., percent by wt.	9.5	11.5
Acid insoluble ash, Max., percent by wt.	2.0	3.5
Reducing sugar calculated as dextrose, Min., percent by wt.	4.5	5.5
Sucrose, Max., percent by wt.	70	60

Current FSSAI Standards

- Existing standards are not comprehensive - many finished products do not fall into any of the current vertical standards:
  - Example: Center filled gum

DOUBLE MINT SPLASH

CENTER FRESH

SPOUT

BUBBALOO

A Proprietary Product

Current FSSAI Standards

- **Few additives are included in existing standards** – many globally approved additives used in gums and confectionery are not approved in current standards

- **Certain standards- Conflicting and contradictory**

Example NO -1

As per (*GSR. 184E), usage of Acidulants in chewing gum and bubble gum was omitted from main ingredients list and put to the Table 13(G).However, regulation 3.1.12 allows different limits of acidulants for “miscellaneous foods”. E.g. in new table 13(G) L(+)Lactic acid is not incorporated, while in regulation 3.1.12 L(+)Lactic acid is allows as “As Acidulant in miscellaneous foods” at GMP* level and Miscellaneous food is not specifically defined (grey area).

Affect: Both the above rules contradicts each other, therefore which rule is to be followed, although the ingredient is the same.

Current FSSAI Standards

Example No.2

As per latest notification amendments of (*GSR. 184E), **GLYCERIN** is now in the category of lubricants and earlier it was allowed as the main ingredients of Bubble gum Chewing gum. As per new amendment of Food safety and standards (packaging and labeling) Regulation 2.2.2 (5), we write it as Humectants because there is no category of lubricants for labeling. What should be its class title?

Affect:-

we are declaring glycerin, as humectants, which is not the class title of glycerin.

Current FSSAI Standards

Sugar Boiled /Sugar Free confectionery

Enzymes, , edible food grains & edible seeds and protein isolates are allowed at GMP level

All type of edible starches allowed for Sugar boiled/Sugar free confectionery as GMP

Sodium bicarbonate is allowed for sugar boiled/sugar free confectionery and lozenges at GMP level.

Chewing gum/bubble gum

Enzymes, baking powder, edible food grains & edible seeds and protein isolates are **NOT ALLOWED**.

Only Modified Starch @ 0.5% limited for Chewing gum and Bubble gum.

Sodium bicarbonate is **not allowed** for chewing gum and bubble gum.

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Global Regulatory Framework - CODEX

- Modern additive regulatory frameworks, like CODEX, are based on creation of horizontal standards
- Safety and intake assessments, and establishment of Acceptable Daily Intakes (ADI) are based on thorough scientific review and consultation by bodies of international experts - Joint FAO/WHO Expert Committee on Food Additives (JECFA)
- Science-based
- Safety reviewed periodically by JECFA as new information becomes available
- Transparency in review process

Global Regulatory Framework - CODEX

- Ingredients other than gum base are regulated internationally within the Codex General Standard for Food Additives (Codex Stan 192)
  - Food classification in GSFA is hierarchical
  - Chewing gum is identified as Food Category 5.3; Hard and soft Candy Under 5.1 and 5.2, respectively, all within the broader category Confectionery (5.0)
  - GSFA covers many classes of functional food additives, such as colours, sweeteners (HIS, polyols), antioxydants, etc.
  - In addition to the specific provisions authorised in each food category, the Codex GSFA has an Annex.(Table 3) that allows the use of additives (those judged by JECFA to have no safety concern) in accordance with GMP

Benefits to Aligning with Codex and International Norms

- Recognised International standards, which are accepted by a large number of export countries and trade partners
- Scientifically sound and independent
- Consistency with other global regulations – promotes and facilitates international trade to ensure Indian companies are internationally competitive
- CODEX standards are basis for resolution of WTO trade disputes
- Wider choice and better quality of products for consumer: Systems of regulation that allows for industry to develop to the evolving nature of food and consumer requirements.

FOOD ADDITIVES

Sweeteners

- India permits use of **Aspartame, Acesulfame potassium, Sucralose, Sodium Saccharin** with restrictions for various products; these levels should be aligned with CODEX
- New sweeteners like *Neotame, Stevia, Thaumatin, Aspartame-Acesulfame salt and Erythritol* need consideration
- Different sweeteners are suitable for different kinds of product
- Safety of these sweeteners is already established and are permitted by Codex, EU etc.
- Use of these sweeteners would provide better quality products and health benefits to Indian consumer (sweeteners are tooth friendly and non-cariogenic)

Neotame

- High sweetness potency
- Good compatibility

Thaumatin

- Good stability
- Synergy
- Long lasting sweetness

Stevia

- Readily soluble
- Good quality sweetness
- Natural

Erythritol

- Good quality sweetness
- Good stability
- Natural

Aspartame-Acesulfame salt

- Good quality sweetness
- Good stability
- Synergistic combination

Combination Of Sweeteners

- Use of combination of Aspartame and Acesulfame potassium permitted only for carbonated water, soft drink concentrate and synthetic drinks for dispensers
- Combination of sweeteners is not permitted for other food products including Confectionery and Chewing gum
- Use of sweetener blends is permitted globally including EU, US, Australia-New Zealand.

carbonated water, soft drink concentrate	**Confectionery and Chewing gum**
 ← Combination of Sweetener Permitted	 ← Combination of Sweetener Not Permitted

Benefits:

- **Variety of products are possible, without impacting consumer health**
- **Improved taste**
- **Greater stability**
- **Enhances sweetness which can reduce overall levels**

Talc (Hydrated Magnesium Silicate)

- Natural compound
- Safety established.
- Functions as a texturizing agent in chewing gum and bubble gum
- Inert and insoluble material
- Does not react adversely with flavours containing fruit acids unlike Calcium carbonate
- Approved globally at GMP levels (EU, China, Russia, Australia, US, CODEX)
- Typical gums have up to 15% talc – India approves only up to 2% in gum and 3.5% in bubble gum

Warning & Advisory Statements

- Artificial sweeteners Aspartame, Acesulfame potassium, Sucralose, Sodium Saccharine require warning & advisory statements for various products
  - Review of warning & advisory statements is required
  - Most countries do not require all of these statements e.g., " Not recommended for children"
- The proposed rule also would require:
  - a warning on product labels if polyols are present: "polyols may have laxative effect"
  - no regard to possible intake of polyol in food
  - warning should be restricted to situations where laxation is likely from excessive consumption, which will not apply to most chewing gums
- These statement gives negative signal about sugar free products in spite of having established benefits such as improved dental health and oral hygiene as confirmed by the FDI World Dental Federation

CURRENT WARNING & ADVISORY STATEMENTS

•THIS CONTAINS (NAME OF THE SWEETENER)

•NOT RECOMMENDED FOR CHILDREN

•NO SUGAR ADDED IN THE PRODUCT

•NOT FOR PHENYLKETONURICS (IF ASPARTAME IS USED)

•CONTAINS ARTIFICIAL SWEETENER AND FOR CALORIE CONSCIOUS

Chewing gum Additives Comparison

Codex Standard	FSSAI Status	Comments
Colors		
Sunset yellow FCF 300 mg/kg	Permitted at 100pppm	Limit should be aligned with Codex
Carmines 500 mg/kg	Not mentioned	Should be permitted at Codex levels
Ponceau 4R (Cochineal red A) 300 mg/kg	Permitted at 100ppm	Limit should be aligned with Codex
Allura Red AC 300 ppm	Not mentioned	Should be permitted at Codex levels
Indigotine/indigo carmine 300 ppm	Permitted t 100ppm	Limit should be aligned with Codex
Brilliant blue FCF 300 mg/kg	Permitted at 100ppm	Limit should be aligned with Codex
Chlorophylls and Chlorophyllins, Copper Complex 700 ppm	Chlorophyll permitted at GMP ; Chlorophyllins and Copper complex not mentioned	Chlorophyllins and Copper complex should be permitted at Codex levels
Fast green FCF 300 mg/kg	Permitted at 100ppm	Limit should be aligned with Codex
Grape Skin Extracts 500 ppm	Not mentioned	Should be permitted at Codex levels
Iron Oxides 10.000 ppm	Not mentioned	Should be permitted at Codex levels

Source: Codex General Standards for Food Additives, CODEX STAN 192-1995

Chewing gum additive comparison

Codex Standard	FSSAI Status	Comments
Antioxidant		
Butylated hydroxytoluene 400mg/kg	Not mentioned	Should be permitted at Codex levels
Butylated hydroxyanisole 400mg/kg	Permitted at 250ppm	Limit should be aligned with Codex
Sequesterant		
Sodium hexameta phosphate 3000ppm	Not permitted	Should be permitted at Codex levels
Sodium bicarbonate GMP	Not permitted	Should be permitted at Codex levels
Source: Codex General Standards for Food Additives, CODEX STAN 192-1995		

- In addition few more additives needs consideration,
- Hydrogenated Vegetable Fat, high MP – 75degC needs to be permitted in Gums
- Glazing agent like Carnauba wax, Candellila wax, Bees wax and Shellac which are permitted for Confectionery products needs to be permitted at GMP levels for chewing gum also

CHOCOLATE STANDARDS

Chocolate Standard Comparison (Codex vs. FSSAI)

Codex Standards	FSSAI Standards	Comments
Emulsifier		
Acid /alkali/oxidised starches-GMP CODEX Table -3	Permitted at 5%	Need to be permitted at GMP
Carageenan and its salts –GMP Codex table -3	Permitted under Regulation 3.1.6	Need to be mentioned in Chocolate Standard as well
Glazing agent		
Carnauba Wax	Carnauba Wax - 500ppm	Need to be permitted at 500ppm in alignment with Codex
Colors		
COCHINEAL RED and ALLURA RED Cocoa and chocolate products -300 ppm	NOT PERMITTED	Need to be permitted at 300ppm in alignment with Codex
Sweeteners		
Cyclamic acids & its Na & Ca Salts - 500ppm	Not Permitted	Need to be permitted at 500ppm

Chocolate Standard Comparison (Codex vs. FSSAI)

Codex Standards	FSSAI Standards	Comments
Anti oxidants		
Butylated hydroxytoluene - 200ppm	Not mentioned	Need to be permitted at 200ppm in alignment with Codex
OTHERS		
Codex permits usage of 5%Vegetable fat in Chocolates	FSSAI doesn't permit usage of Vegetable Fat in Chocolates	Vegetable Fat needs to be permitted at 5% levels in Chocolate
Acid Insoluble Ash is not Chocolate characteristics as per Codex.	Acid Insoluble Ash - NMT 0.2% in Chocolate	Acid Insoluble Ash need not be Chocolate characteristics in alignment with Codex
Ammonium Hydrogen Carbonate (acidity regulators)– GMP-	Ammonium Carbonate – GMP	Ammonium Carbonate - Need to be permitted at GMP
Magnesium Oxide (acidity regulators- GMP	Magnesium Hydroxide – GMP	Magnesium oxide - Need to be permitted at GMP

Cocoa Powder Standard comparison (Codex vs. FSSAI)

Codex Standards	FSSAI Standards	Comments
Moisture Content - NMT 7%m/m	**Not mentioned**	Introduce Moisture Content - NMT 7%m/m- in line with Codex Standards
	Total Ash - NMT 14% (on moisture & fat free basis)	Total Ash shall be omitted from the standard in line with Codex Standards
	Ash insoluble in dilute HCl - NMT 1.0% (on moisture & fat free basis)	Acid Insoluble Ash shall be omitted from the standard in line with Codex Standards
	Cocoa Butter - (i) for low fat = NLT 10% (on moisture free basis) (ii) for high fat = NLT 20% (on moisture free basis)	Cocoa Butter content shall be omitted from the standard in line with Codex Standards
Unsaponifiable matter - NMT 0.7%m/m except in case of press cocoa butter which shall not be more than 0.35%m/m	**Unsaponifiable Matter - not mentioned in FSSAI**	Introduce Unsaponifiable matter - NMT 0.7%m/m except in case of press cocoa butter which shall not be more than 0.35%m/m - in line with Codex
	Iodine Value = 32-42	Iodine Value shall be omitted from the standard
	Melting Point = 29C - 34° C	Melting point shall be omitted from the standard
	Butyro-refractometer reading at 40C =4 0.9-48.0/ OR Refractive Index at 40C = 1.4530 - 1.4580	Butyro-refractometer reading shall be ommitted from the standard
	Saponification Value = 188-200	Saponification Value shall be omitted from the standard

General Recommendations

- For Sugar Confectionery, lozenges, Chewing gum & Bubble gum –
  - Vertical standards and compositional requirements to be removed
  - Horizontal controls on additives should be expanded in line with codex & EU
  - Combination of sweeteners should be allowed
  - Use of aluminum and calcium lakes should be allowed
  - To expand the list of permitted additives in line with Codex (JEFCA) and EU.
  - All the Food, Feeds, Fruits and Vegetables and its extracts, Spices, Condiments etc are to be permitted at GMP level
- Talc should be permitted at GMP level in Chewing Gum and Bubble Gum
- Certain labelling requirements, specifically use of advisory and warning statements, need to be reviewed e.g. sweeteners & ploys
- Permission of all color like Allura red, Cochineal red, Anthocyanins etc. in the chocolate should be as per CODEX.
- Statement to be removed from the definition of Chocolate “The chocolate shall not contain any Vegetable fat other than cocoa butter.
- Permission of Vegetable fat for chocolate products up to 5% in line with CODEX.

Thanks

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