



# Path to Phasing out Industrially-Produced Trans Fats from Bakery and Confectionery Foods

A Manufacturer's Guide for iTFA Replacement

# GUIDE FOR ITFA REPLACEMENT

A practical guide compiled to help food manufacturers around the world begin their journey toward iTFA elimination



WITH CONTRIBUTIONS FROM



## Path to Phasing out Industrially-Produced Trans Fats

from Bakery and Confectionery Foods

Bakery and Confectionery Manufacturers Guide for iTFA Replacement



### YEAST-RAISED DOUGHNUTS

Doughnuts and similar fried yeast-raised sweet dough products have fat from two sources: a dough component (typically an all-purpose shortening) and fat absorbed during frying.

- ▶ Potential Non-PhO alternatives:
  - dough fats — interesterified liquid oil and fully hydrogenated oil, blended with liquid oil (often lowest SFA alternative), palm oil, and blends of palm oil and palm stearin.
  - frying fats — interesterified liquid oil and fully hydrogenated oil, blended with liquid oil (often lowest SFA alternative), palm oil, and blends of palm oil and palm stearin.

▶ Functional considerations: the melting point of the frying fat is important if the doughnut will be glazed or sugar-coated. If the melting point of the frying fat is too low, the liquid fraction of the fat will migrate to the doughnut surface and dissolve the glaze or sugar coating. If the product is consumed soon after frying, this problem is minimized. Also, the frying oil must be sufficiently stable from oxidation to maintain an acceptable doughnut flavor.

### Bakery products using soft wheat: cake, cookies, crackers, pie crust, flaky biscuits

**CAKE**  
Cakes, cake doughnuts, muffins, and other baked leavened goods rely strongly on the solid profile of the fat, which provides tenderness and structure by entrapping air bubbles in the batter. The shortening, which is typically an all-purpose shortening, may contain an emulsifier to aid in air entrapment. If an emulsifier is used, care should be taken that this ingredient is also a non-PhO alternative rather than a PhO. The emulsifier should be a PhO alternative rather than a PhO. The emulsifier should be a PhO alternative rather than a PhO. The emulsifier should be a PhO alternative rather than a PhO.

### Explanation of functionalities

**TEXTURE: Loss of solid fat content @ room temperature**  
Solid fat is needed to provide structure to the fat which in turn will give texture to the food product. As an example, sunflower oil (very low in solid fat) compared to Canola oil influences mechanical properties of fats.

**PLASTICITY: wide plastic range**  
Plasticity refers to a fat having a relatively high content of solid fats over a broad temperature range, making it foldable and keeping its structure at different temperatures. This is especially important for margarines and dough fats for croissant and Danish pastry type of products.

**CRYSTALLIZATION BEHAVIOUR / SPEED**  
Crystallization is the process of solid fat formation, which happens when the fat (in the food product) goes from a higher to a lower temperature. The speed at which this happens determines the time this takes, which needs to fit with the food production process. In case crystallization continues after the production process, this can negatively impact the food quality. In some cases, products are held at certain temperature/time (tempering) to reach the desired consistency and crystallization.

**LINE SPEED DURING PROCESSING / PROCESSABILITY**  
If fat crystallization is part of the food production process, the time this takes needs to fit with the food production process. If not, processability is negatively impacted.

**POST CRYSTALLIZATION**  
Depending on the fat type and the food production process, the fat can crystallize in an unstable form. Over time the crystal type can change, potentially leading to small hard fat lumps making it unpleasant to eat the food product (sandy, grainy).

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# ABOUT IFBA

**ifba**

INTERNATIONAL  
FOOD & BEVERAGE  
ALLIANCE

Since 2008, the International Food & Beverage Alliance (IFBA) has convened leading global food and non-alcoholic beverage companies to empower consumers to eat balanced diets and live healthier lives.



## ABOUT AOCS



Founded in 1909, the American Oil Chemists Society (AOCS) is an international scientific society with more than 4,500 members in over 90 countries. AOCS offers a forum for exchange of ideas, information, and experience among its members and others who have a professional interest in advancing the science and technology of fats, oils, and related materials.

## ABOUT CARGILL



For more than 155 years, Cargill has helped farmers grow more, connecting them to broader markets. As one of the world's top producers and distributors of agricultural products, Cargill is continuously developing products that give consumers just what they're seeking, advancing nutrition, food safety and sustainability.

# WHY PHASE OUT iTFA?

Fats and oils are important ingredients in food products around the world. They are:

- Calorie dense
- Source of essential fatty acids
- A useful ingredient that plays a functional role in giving food products texture, structure, and flavor

Scientific evidence has indicated that **industrially produced trans fats** (iTFA) from partially hydrogenated fats and oils pose a risk of **coronary heart disease**.

- Health officials advocate for reduction in iTFA intake
- Several countries and regions have introduced regulations to limit iTFA content in food
- WHO has initiated an action framework (REPLACE) for the elimination of iTFA from food supplies globally by 2023



iTFAs are used to make products like fried foods, commercial baked goods, and margarine

# IFBA & THE WORLD HEALTH ORGANIZATION

- 2019: IFBA members committed to align with WHO's recommendation for a maximum iTFA threshold not exceeding 2 g of iTFA per 100 g of fat or oil by 2023
- As part of that commitment, IFBA committed to support other businesses in doing the same by:
  - working in collaboration with governments, health authorities, civil society and food and beverage industry associations
  - sharing best practices and helping guide other companies, particularly Small and Medium Enterprises



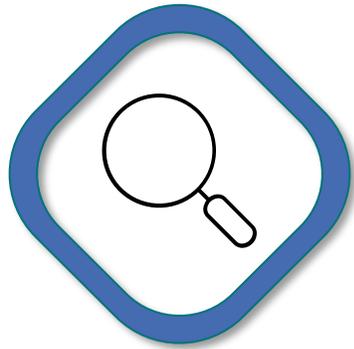
# GUIDE FOR ITFA REPLACEMENT

- A practical guide compiled to help food manufacturers around the world – particularly SMEs - begin their journey toward **ITFA elimination** and replacement of partially hydrogenated oils (PHOs)
- A technical document that highlights the challenges of **oil replacement solutions** while keeping public health objectives front and centre
- Focused on bakery and confectionery products

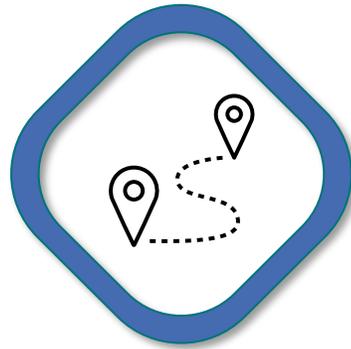
<p><b>POSITIVE HEALTH IMPACT</b> (Lower SFA + more PUFA)</p>	<ul style="list-style-type: none"> <li>&gt; High PUFA oil with antioxidants</li> <li>&gt; High oleic oils, moderate PUFA</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Hardstocks interesterified with high PUFA oils</li> <li>&gt; Hardstocks blended with high PUFA oils</li> </ul>	Not available
	<ul style="list-style-type: none"> <li>&gt; High oleic oils with no/low PUFA</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Hardstocks interesterified with low PUFA oils</li> <li>&gt; Hardstocks blended with low PUFA oils</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Hardstocks interesterified with some PUFA oils</li> <li>&gt; Hardstocks blended with some liquid oils</li> <li>&gt; Hardstocks interesterified with some MUFA oil</li> </ul>
	<p><b>Not recommended:</b></p> <ul style="list-style-type: none"> <li>&gt; Liquid palm fractions</li> <li>&gt; Animal or tropical fats</li> </ul>	<p><b>Not recommended:</b></p> <ul style="list-style-type: none"> <li>&gt; Semi-solid palm fractions</li> <li>&gt; Animal or tropical fats</li> </ul>	<p><b>Not recommended:</b></p> <ul style="list-style-type: none"> <li>&gt; Solid palm fractions</li> <li>&gt; Fully hydrogenated oil</li> <li>&gt; Coconut oil</li> <li>&gt; Palm kernel oil</li> </ul>
	<b>LIQUID</b>	<b>SEMI-SOLID</b>	<b>SOLID</b>

**Figure 1** Summary of partially hydrogenated oil (PHO) alternatives by health impact and solid fat functionality

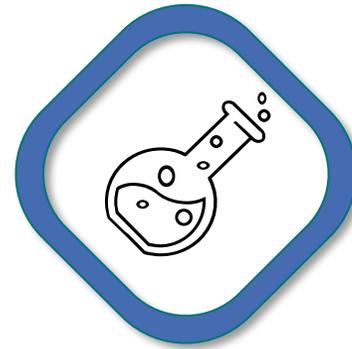
# FROM THE GUIDE: STEPS FOR SUCCESSFUL IMPLEMENTATION OF A NON-HPVO SOLUTION



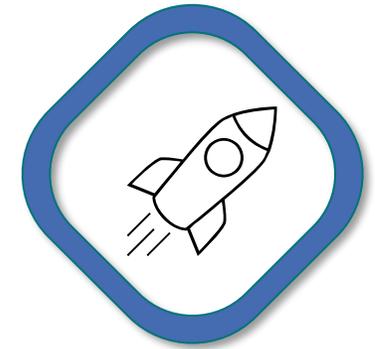
**IDENTIFY**



**TRY**



**TEST**



**LAUNCH**

Know what you are looking for by identifying:

- Key functionalities,
- Labelling requirements
- Potential cost limitations

Find the right alternative ingredient:

- Work with your fat supplier
- Try different products

Test the ingredient and product:

- Pilot-scale testing
- Production-scale trials
- Sensory testing and shelf-life testing

Launch the product after good outcomes of all previous steps

# MOVING TOWARDS A FUTURE FREE FROM ITFA

This guide helps unpack the challenging process of phasing out partially hydrogenated oils while maintaining taste, texture, and structure.

Compiled by experts with a global presence in supplying a variety of fats and oil solutions that do not contain iTFA.

Ultimately, this guide aims to help SMEs in following WHO's REPLACE roadmap to replace iTFA with healthy fats and oils

**For more information and to download the report, visit [www.ifballiance.org](http://www.ifballiance.org)**



# Thank you!

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