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CAOBISCO Q&A ON ACRYLAMIDE MITIGATION STRATEGIES IN THE FINE BAKERY WARES AND CRISPBREAD SECTOR

1. Do fine bakery wares and crisp breads contain acrylamide?

Studies have found that acrylamide is present in a wide range of carbohydrate-based food products such as fried potatoes, potato crisps, bread, fine bakery wares and crisp bread, breakfast cereals and coffee. As research has progressed the list of foods that contain acrylamide has continued to grow. Acrylamide occurs in food prepared in the home, as well as commercial products, and foods prepared within a catering and restaurant setting.

2. How much acrylamide are we exposed to from eating fine bakery wares and crisp breads?

The levels of acrylamide in fine bakery wares and crisp breads will vary considerably due to the very many types of products, these products are minor contributors to the dietary intake of acrylamide. Moreover, most dry biscuits have a relatively low average content of acrylamide.

3. Why do fine bakery wares and crisp breads contain acrylamide?

Acrylamide is formed during the normal preparation and cooking of foods such as fried potatoes, potato crisps, bread & toast, fine bakery wares and crisp breads and breakfast cereals. This occurs equally in a domestic/catering environment as in commercial products. The mechanism of the formation of acrylamide is complex and not fully understood. However, there is general acceptance that in fine bakery wares and crisp bread, as in other carbohydrate-based foods, acrylamide is formed mainly by a reaction of the naturally occurring amino-acid asparagine and sugars.

The formation of acrylamide is very closely linked to the creation of the most desirable attributes in fine bakery wares – flavour, colour, aroma and texture. During

the baking of a given recipe the level of acrylamide increases as colour develops and moisture is lost during baking, yielding the desired characteristic product.

4. What are fine bakery wares and crisp breads manufacturers doing to reduce acrylamide?

Since 2002, fine bakery wares and crisp breads manufacturers have been trying to reduce acrylamide in food products.

Proposals for mitigation strategies for biscuits, crackers and crisp breads have been identified by researchers and assessed by trials at bench and pilot scale, up to commercial implementation.

However, as the contribution of fine bakery wares to the total exposure to acrylamide is small, it can be expected that these mitigation measures will have a minor impact in terms of reducing the overall consumer exposure.

Responses to the sector survey in 2006 confirmed that even with this investment in development, in many cases an approach was only effective for a specific product. Furthermore, the changes made were often detrimental to product quality and consumer acceptability and could not be applied across a range of products and/or markets. Nevertheless, some trials have led to permanent changes resulting in a reduction of acrylamide. A biscuit manufacturer has replaced one of the syrups in one of its biscuits with a syrup containing less fructose. In tests this change showed a reduction in the level of acrylamide and has been adopted as a permanent recipe change since 2006.

A new sector review, conducted in 2008, is currently being compiled and it highlights progress as well as the constraints in our product categories. The most effective mitigation measures to reduce acrylamide (change of baking powder and sugar types) are published in the sector brochure and are detailed in the CIAA Acrylamide toolbox (available on www.caobisco.com). It was also identified that asparaginase is the current focus of industry activity.

5. Are fine bakery wares and crisp breads safe to be eaten?

Despite the knowledge of the presence of acrylamide in fine bakery wares and crisp bread and its possible adverse links to health, consumption recommendations for these foods have not changed. Fine bakery wares and crisp breads can continue to be eaten as part of a normal balanced diet.