

# R&D Priorities European Food Industry 2015

SAMPLE PROFILE – INTERSNACK

June 2015

**GIRACT**

Website: [www.giract.com](http://www.giract.com)

Email: [info@giract.com](mailto:info@giract.com)

*by*

**GIRACT**

*24 Pré Colomb*

*1290 Versoix/Geneva*

*Switzerland*

*Tel: +41 22 779 0500*

*Fax: +41 22 779 0505*

*info@giract.com*

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## 1. SNACKS

### 1.1. INTERSNACK GROUP GMBH & CO. KG

Peter-Müller-Strasse 3  
40468 Dusseldorf  
Germany

Tel: +49 211 71065-221  
Fax: +49 211 71065 111  
www.intersnack.com

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#### Active End-Market Segments

Potato chips, nuts, baked products and specialty snacks

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#### Background

Intersnack is one of the leading European manufacturers of savory snack products – potato chips, nuts, baked products and specialty snacks. The company sells under its own brand as well as manufacturing for private label. It is active in all major European markets. The company has an annual turnover of EUR 2 billion and produces annually around 500kt of snacks. Its product portfolio includes international brands such as Chio and Pom-Bar as well as many well-known local favourites in regional markets within Europe.

The Intersnack Group, headquartered in Düsseldorf, Germany, has 11 management units across Europe. The units responsible for business in a geographical area are Germany, UK, Ireland, Poland, Nordics & Baltics (Sweden, Norway, Denmark, Finland, Estonia, Latvia, Lithuania), Central Eastern Europe (Czech Republic, Slovakia, Romania, Hungary, Bulgaria), Austria & Switzerland, Netherlands, France and Felix Germany; one unit is in charge of Group Procurement. The company exports its products to more than 70 countries and employs over 8000 people.

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#### Production Strategy

Intersnack has a total of between 26–30 production facilities across Europe including those in the Nordic countries, France, UK, Ireland, Poland, Hungary, Czech Republic, Romania and Austria. All its sites comply with the BRC and IFS standards.

It collaborates with the Global Food Safety Initiative, a worldwide alliance of companies and NGOs working together to further improve food product safety. The aim is to constantly benchmark its product safety standards against the best in the food industry. Moreover, it is regularly audited by AIB, a renowned international auditing firm and experts in product safety in the food industry.

The company has an allergen management policy in place, under which a programme has been implemented to increase awareness for dealing with allergenic substances in production processes. This accompanies an additional specific management guideline for handling allergenic substances.

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### R&D Strategy

With over 20 well-known brands and a large range of private label products, the company has a wide range of savory snacks in its product portfolio, salted and unsalted, reduced-fat and low-fat, in different packaging sizes.

The company's R&D team comprises about 40 people across various locations in Europe. Overall, around 10% of Intersnack's annual turnover is invested in R&D.

The R&D team constantly strives to develop healthy and nutritious snack products. In this endeavour, it is permanently seeking ingredients, ingredient solutions and technologies to:

- Reduce food borne contaminants
- Reduce saturated fat (by replacing with unsaturated fat)
- Reduce avoidable allergenic ingredients
- Develop products with lower salt content
- Develop products with lower fat content
- Formulate products with natural flavors only
- Reduce use of artificial taste enhancers

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### Business Strategy:

The company has made some strategic acquisitions over the past few years, e.g. the KP snacks business which is acquired from United Biscuits in December 2012, and Estrella Maarud from Herkules Private Equity Fund II in 2014.

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### Ingredient Issues

#### Commodity Ingredients:

*Sugar:* is used in minimal amounts by Intersnack, so there is no pressure to further reduce sugar like in many other food and beverage product sectors in the European market.

*Salt:* Intersnack produces salty snacks, however, salt content is not high. Nevertheless, the company is under pressure in some countries to reduce salt in its snack products. However, currently, no suitable single ingredient can substitute salt. It is a question of finding the right blend/combination of spicy ingredients in developing flavors to compensate for salt; Intersnack incorporates yeast extract (YE) to some extent, in this endeavor. In addition, YE helps to substitute MSG. However, if MSG and salt are to be replaced at the same time, it is a dual challenge as MSG removal reduces the perception of salt even further.

*Vegetables :* Intersnack uses fresh potatoes, dehydrated potatoes as well as potato granules and flakes. In potato tubers, potato flakes and granules, the company is constantly striving to get the inherent amount of sugar as low as possible, since sugar contributes to acrylamide formation and there is considerable pressure from the EU to reduce these values. It checks for sugar level in potatoes in its in-house labs. The company sources potatoes from approved European farms.

*Cereals:* Corn and wheat are the essential raw materials in baked snacks. The company is trying to remove allergens as much as possible. If the allergenic cereal in the product is not adding any value, then such cereals/flour are avoided. However, in baked products which are wheat-based, it is critical to use wheat. However, as fillers in flavors, the company is in the process of avoiding wheat as much as possible.

Though it is possible to make gluten-free baked snacks, currently, these are not a focus for Intersnack as they represent a small specialised niche segment in the market.

In non-baked products, rice flour, for instance, is being tested to replace allergenic wheat flour, however, other options to replace allergenic cereal/flour would also be examined.

*Dairy Ingredients:* Lactose, to which some people are intolerant, is used as a carrier in some seasonings and as a filling substance and the company has been trying to avoid its use in these applications. However, in a snack product with, for example, a cheese or a sour cream flavor, it is difficult to replace lactose as it is inherently present in the dairy-based flavorings.

*Nuts:* Nuts are allergenic, however, these also have positive health benefits – they are good sources of many important minerals and vitamins and are low in saturated fat. Hence, nutritionists believe that nuts can make a positive contribution to a healthy diet. In addition, nut allergy is not as prevalent as other food allergies.

On the other hand, a growing challenge for Intersnack is the consumer requirement to avoid cross-contamination of its non-nut products with nuts. Hence, Intersnack is making efforts to completely separate production of nut products from that of non-nut containing products. For example, some directly extruded products such peanut flips are currently produced in the same factory as other directly extruded products which are not peanut coated. Hence, even these non-nut products have to be labelled with the statement “may contain peanuts”.

There are many legal standards that have to be complied with while sourcing nuts from suppliers. For example, mycotoxins of different kinds which are also legally defined. Suppliers who already take sufficient prior precautions to comply with legal limits on mycotoxin levels in nuts are preferred by Intersnack.

There are also discussions on an EU regulatory level concerning tests to be conducted at the ports of entry of imported nuts. These would allow rejection of contaminated nuts at the ports themselves and avoid their entry to manufacturers' facilities.

Nuts are mostly sourced from suppliers in Asia and South America.

*Vegetable Oil:* The company has an ongoing programme to reduce saturated fats in all its products, including fried and directly extruded products. It has gradually been able to decrease the amount of saturated fatty acids in its crisps and specialties by more than 75% since 2006. The proportion of unsaturated fatty acids was correspondingly increased, and will be further increased in future product development.

In these efforts, palm oil has been replaced by high oleic sunflower oil (HOSO). The tests are also being conducted on baked goods. However, in its nut-based snacks, this replacement has not been done, since nuts already contain a high level of saturated fat and hence, during roasting, only about 2% oil is taken up by the nuts and the amount of saturated fat is not drastically increased even if palm oil is used. However, to respond to ecological concerns, effective from this year, Intersnack has decided to use only segregated palm oil for its nut-based snacks. An exception is France, where opposition to use of any palm oil or palm oil derivatives is strong, nut-based snacks are fried in HOSO.

Price of HOSO is higher; hence, the company is currently looking a possible blends of HOSO and high oleic rape seed oil. Other options would also be interesting to be tested.

The company tests for free-fatty acids in vegetable oils and it has an ongoing programme with snacks associations for testing of MCPDs. MCPDs are fortunately found in lower amounts in sunflower oil than in palm oils. Even so, constant checks are conducted for MCPDs for all vegetable oils. Its suppliers are also mitigating to ensure that the amounts are going down. These tests additionally help to ensure that these MCPD levels are due to sourced vegetable oils and that no additional levels are created during any of its production processes.

*Spices:* 99% are used as part of seasonings, however, there is a contamination issue (with mycotoxins) in spices; inconsistent sensory profiles from harvest to harvest (year to year) is also a problem.

Commodity ingredient	Tested/Used/Using/May Use	Score
Sugar/Glucose	✓	0
Salt	✓	1
Cereals/Flour	✓	1
Vegetable Fat/Oils	✓	2
Dairy Ingredients	✓	1
Cocoa/CBE/CBS		
Protein/Meat		
Nuts/Fruits	✓	1
Vegetables	✓	1
Spices	✓	1
<b>Overall Score</b>		<b>8</b>

*Score Key (0/1/2): 0 = No issue, 1 = Low level of issue, 2 = Real issue*

#### **Speciality Ingredients:**

*Savory Ingredients:* Intersnack has removed MSG from most of its existing and new products. However, over the last 2–3 years, the company has acquired some brands with formulations containing MSG and is now working towards incorporating MSG-free seasonings in these products. From a consumer point of view, HVP is not considered a natural ingredient. Hence, HVP is not used by Intersnack. YE is the key savory ingredient. The MSG effect is replaced by a combination of YE, seasonings and/or spice blends.

*Starch/Modified Starch:* is used in dough products as a functional ingredient. There is native starch which has to be declared/labelled as “starch”, however, if chemically-modified starch is used then it has to be labelled as “modified starch” in the ingredient list. There is also the option to use physically modified starch, which is produced when native starch is subjected to heat treatment/extrusion to obtain the characteristics of chemically-modified starch and this can still be declared as “starch” on the product label. For example, company uses potato starch which is a native starch, but maltodextrin is a chemically modified starch. Efforts are being made to replace chemically-modified starch by physically-modified starch wherever possible. Currently potato starch is mostly used as a source for physically modified starch.

*Emulsifiers:* soy lecithin is labelled as an allergen. Sunflower lecithin is being used to replace soy lecithin. Intersnack is constantly searching for new alternatives for soy lecithin, however, it is not possible in all products to replace soy lecithin with sunflower lecithin. Intersnack is in touch with only 2 suppliers of sunflower lecithin who have been able to deliver sunflower lecithin with the specifications and characteristics comparable to those of soy lecithin and comply with the company's standards.

*Seasonings:* Intersnack is one of the few snack companies which have an in-house flavor department. It also sources seasonings from seasoning/blending houses. Its flavor department finds recipes to suit its products; these are then given to the blending houses to be worked upon. There are blending companies who work on those recipes exclusively for Intersnack. Around 30% of the seasonings used by Intersnack are formulations developed by its own flavor department, the remaining 70% being purchased directly from flavor houses.

The sensory profile of seasonings supplied by flavour houses is not consistent over a period of time, and deviations are monitored by the quality assurance department. In addition, some suppliers can face difficulties in sourcing core ingredients of a particular formulation, e.g. Intersnack was informed by one of its suppliers of the lack of availability of molasses, which was critical for a particular significant seasoning recipe used by Intersnack. In another instance, some smoke flavoring substances were no longer permitted for legal reasons, hence, the company had to conduct reformulations to remove those from its snack products.

The big trend currently in flavors is allergen-free as well as avoidance of animal-based ingredients. For example, if paprika chips are offered to consumers, no meat-based ingredients would be expected. However, when flavor description reflects, for example "grilled chicken", then consumers accept the use of non-vegetarian ingredients (as part of flavorings/seasonings). In such products, meat extracts, bouillon-type ingredients, chicken powder are examples of ingredients used. Hydrolysed animal protein, if at all used in some vegetarian-flavor Intersnack products, is currently also on the removal list to be replaced with vegetarian flavorings.

*Acids:* citric and malic acids are used as part of some seasonings (employed in some Intersnack products). Malic acid could be examined at for replacement (with a natural ingredient).

*Colours and Flavors:* Natural extracts are used as colorants as well as for flavorings. For example, paprika extracts, curcuma (as colorants); onion powder, garlic powder (as flavorings). With curcuma, there is always confusion about labelling it as a colorant or a spice that also provides a colour. Hence, the company tries to avoid using curcuma.

Other natural colouring and flavoring extracts could also be tested by Intersnack.

*Preservatives:* are mostly avoided by the company as its products are low in moisture, hence, stability is not an issue. Also shelf life of its products is relatively short.

*Enzymes:* are used in baked snacks. Currently they are seen as GM-sourced and therefore, in future, they might be regulated differently.

*Antioxidants:* are used for sensory stability reasons and not as health ingredients, e.g. tocopherols (natural).

Speciality Ingredients	Tested/Used/Using/May Use	Score
Protein Ingredients (for functional properties)		
Colours	✓	1
Flavors	✓	1
Acidulants/Acids	✓	1
Preservatives		
Emulsifiers	✓	2
Hydrocolloids (excluding gelatin)		
Gelatin		
Enzymes/Cultures	✓	1
Fruit Preparations		
Sweeteners		
Palatants		
Savory Ingredients	✓	1
Seasonings	✓	2
Antioxidants	✓	0
Other Ingredients (Starch/Maltodextrin)	✓	2
<b>Overall Score</b>		<b>11</b>

*Score Key (0/1/2): 0 = No issue, 1 = Low level of issue, 2 = Real issue*

#### Health Ingredients:

Health ingredients are not ideal for use in snacks, as snacks are indulgence products. Intersnack does not get any consumer demand for snacks fortified with health ingredients, and, according to the respondent, consumers will not be ready to pay a special price for such snacks.

*Protein Ingredients:* Fortification with proteins has been tried by Intersnack, but addition of proteins does not give the desired texture to snack products.

Health Ingredients	Tested/Used/Using/May Use	Score
Probiotics		
Protein Ingredients (for health benefits)	✓	1
Prebiotics		
Omega-3		
Fibres		
Carotenoids		
Phytosterols		
Vitamins		
Minerals		
Amino acids		
Antioxidants		
Herbal Extracts/Botanicals		
Digestive Enzymes		
<b>Overall Score</b>		<b>1</b>

*Score Key (0/1/2): 0 = No issue, 1 = Low level of issue, 2 = Real issue*

### Food Concepts

*Natural Foods:* The company is constantly striving to use only natural ingredients/additives. For example, its Pom-Bar brand contains no artificial flavors, colourings, added flavor enhancers or preservatives.

Since 2009, only natural flavors have been incorporated in any new branded product. Today more than half of Intersnack's total branded product range contains natural flavors. Similarly, since 2007, in gradual steps, artificial flavor enhancers such as monosodium glutamate, have been reduced by 85% in its branded products.

*Vegetarian Foods:* As discussed under seasonings, the company is making efforts to replace meat-based flavorings with vegetarian-flavorings in its snack products whose flavor reflect "vegetarianism".

*Non-GM Ingredients:* Intersnack strictly uses non-GM ingredients.

*Gluten-free:* As demand increases, the company might roll out a gluten-free range.

*Organic:* It offered organic crisps in the past, but these were not a success. The company might make another attempt with another marketing concept in coming years.

*Fibre-enriched:* Could be an option for some niche snack products.

*High-protein:* This concept has been tested by the company, but with high protein, it is difficult to obtain the desirable texture in snacks.

*Fat Reduction:* Continuous R&D efforts to come up with low-fat version of existing products. Also, the strategy going forward is to introduce completely new snack products with low fat, so that there is no comparison with their full fat variants.

*Low-salt:* This has been discussed under the salt section (commodity ingredients).

*No-additives:* Avoids use of additives to the extent possible.

*Elderly Foods:* this concept has been discussed between marketing and R&D. Marketing opposed the development of snack products targeting specifically the elderly.

Food Concepts	Tested/Used/Using/May Use	Score
Organic Foods	✓	1
Vegetarian Foods	✓	2
Natural Foods	✓	2
Gluten-Free Foods	✓	1
Ethnic Foods		
Fibre-enriched	✓	1
High-protein	✓	1
Diet Foods		
Other Functional Foods		
Calcium-fortified		
Mineral-fortified		
Added Vitamins		
Fat reduction/modification	✓	2
Low Sugar/Low Calorie		
Reduced Cholesterol		
Low Sodium/salt	✓	2
No Additives	✓	2
Microwavable Foods		

Food Concepts	Tested/Used/Using/May Use	Score
Non-GM Ingredients	✓	1
Irradiation		
Children Foods		
Elderly Foods		
On-the-go Foods		
Convenience Foods		
Least Cost Ingredients		
Heart Healthy		
Weight-management		
Women's Health		
Sports Nutrition		
Immunity-boosting		
Healthy Bone/joint		
Healthy Brain/Cognitive Health		
Eye Health		
High Energy		
<b>Overall Score</b>		<b>15</b>

*Score Key (0/1/2): 0 = No issue, 1 = Low level of issue, 2 = Real issue*

### Future Plans

Being a responsible snack producer, the company will continue to focus on developing products with reduced saturated fat, reduced salt and natural ingredients.

Going forward, more portion packs for single serve would be rolled out which would define the appropriate portion size and all its snack products would continue to appeal to people of all age groups.