

This comprehensive report is based on in-depth interviews with food companies completed by a desk review. It provides for **DECISION MAKERS** a global understanding of the sector as well as an outlook on its future.

2009

**MARKET ANALYSIS**

- Trends and outlook
- Use of ingredients: volume-value
- Manufacturers profiles
- Users opinions
- Regulation

**FOOD SEGMENTS**

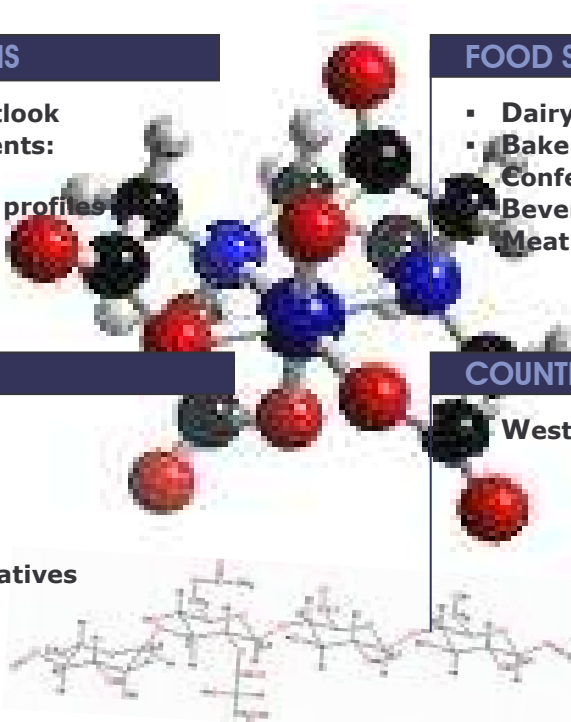
- Dairy products & Ice Creams
- Bakery/Biscuits/Snacks
- Confectionery
- Beverages
- Meat & prepared meals

**INGREDIENTS**

- Algae extracts
- CMC
- Dextrins
- Gelatins
- Milk proteins
- Cellulose derivatives
- Gums
- Pectins
- Starch
- Inulin

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## REPORT FOCUS

### MARKET

Market trends

Applications in food segments

Use of ingredients: volume-values

Outlook

## MANUFACTURERS

Food industry usages and needs

## RESEARCH

New ingredients

Research and technical aspects

## ENVIRONMENT

Regulatory aspects

## INTRODUCTION

### Food industry is reacting to the pressure for more natural products

On the European food market estimated to 802 billion \$ in 2008, texturing agents represent today 0.5% to 0.7% in value of this market.

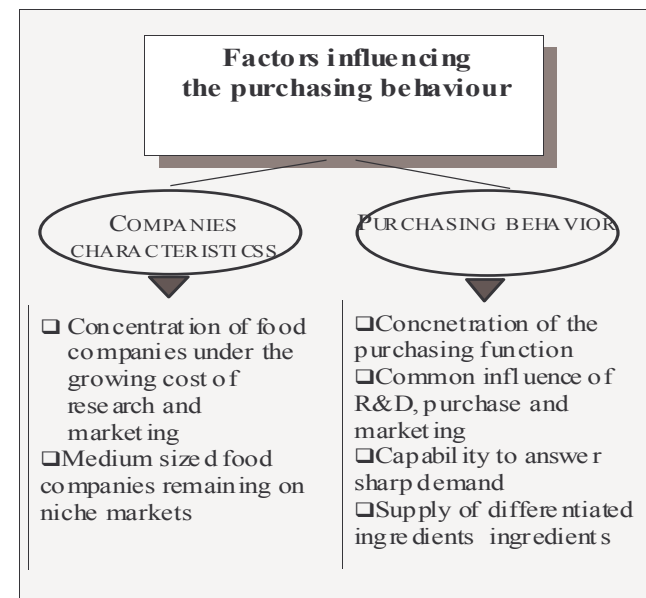
Though food industry sales are in low progression they still offer important opportunities of growth. The food industry is one of Europe's most dynamic industrial sectors. "Product innovation" here is rapid, with the introduction of new products sometimes taking just a few months. The UK sees over 3,000 branded launches per year.

Almost all of the food industry sectors are, in one way or another, texturing agent consumers. It constitutes a major category of additive inasmuch as the texture and appearances of foods are often important factors for the end consumer in deciding on the freshness, the harmlessness and the quality of products.

Ignoring any cultural culinary differences, there are three **main trends** emerging in changes in **food tastes** in developed countries, particularly in Europe.

■ **Increase in consumption of prepared, frozen, vacuum-or controlled atmosphere packed foods**, together with an increase in the number of one and two member households, and

of working women, have shifted demand towards "snacks" and ready-cooked meals. These high added value products require more elaborate industrial processes, more specific technical specifications, and increased attention towards their stability over time.



■ **An ever increasing attraction towards natural products.** Northern Europe rediscovers or reinvents the so-called «forgotten tangs of the soils» as well as the «biological products.

# FOOD TEXTURING AGENTS IN EUROPE

**A growing interest for foods with nutritional and health values.** At the end of the 1980s, there was a veritable **explosion** in the market for foods and products which were **low calorie**, low in sugar, in fats, in cholesterol, and with guaranteed quantities of vitamins, trace elements, essential fatty acids, etc.. In 2008 the Nutraceutical market is evaluated at US\$ 22 billions in the USA, US\$ 18 billions in Japan and US\$8.5 billions in EU.

## Health: a new role for texturants

With the Esb crisis, the origin of all food ingredients has become a sensitive matter for consumers as well as for industrials. As a result, industrials are seeking for gelatin substitutes opening the market to vegetal or artificial products.

Health concerns might turn to be beneficial for many texturants because of their health benefits, prebiotics for instance. Indeed, food companies are increasingly using health claims for food advertising.

## Texturing agents, an answer to new consumption changes

Texturing agents have become one of the key elements of success for food products and for food industry manufacturers. These are all compatible with production imperatives under large scale industrial conditions and a distribution network geared to the Single European Market.../

## A Supply of texturing agents is in a trend for more concentration

Texturing supplying is still fragmented; one can estimate that the four main European producers realize 15% of sales, dairy and vegetable proteins included.

However this market should change following the change toward more technical and sophisticated products, which implies more capitalistic industries operating on a larger scale.

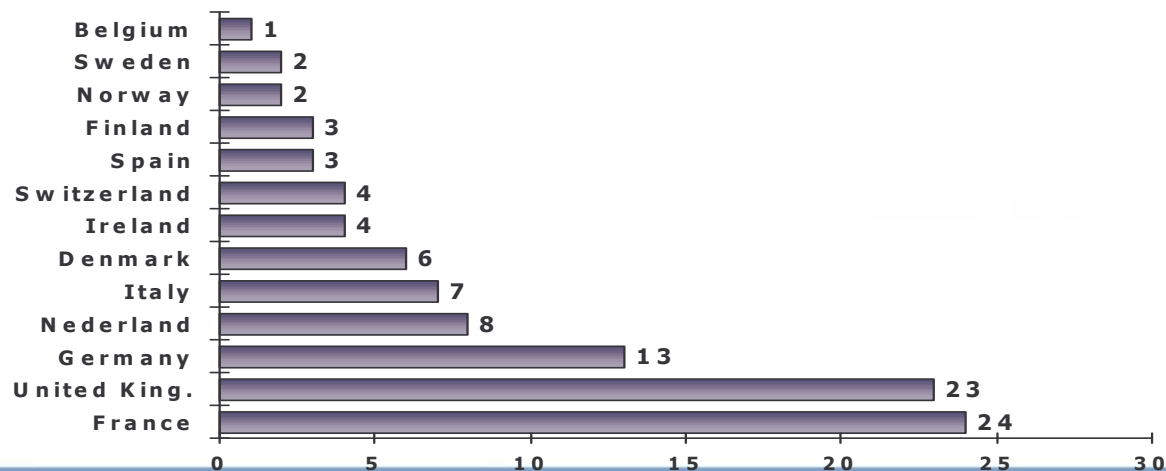
## With impact on buying patterns...

Under the pressure of food industry (the first five groups produce 30 % made by the 100 first groups), itself subject to a downstream concentration (five distributing companies

overpass 50% of national sales, for most northern European countries), ingredient producers are obliged to assure more performing services:

- performing R&D services capable to answer some very sharp demands from customers,
- supply formulation for clients who desire to concentrate on production and marketing of their products,
- increase the company know-how and sometimes the product portfolio to answer to consumers needs (fat replacers, functional food) and follow up this market evolution,
- marketing of their clients' products to sensitize them to consumers' evolutions

THE GOOD ROLE FOR NORTHERN EUROPE  
NUMBER OF GROUPS CLASSIFIED IN THE FIRST 100 EUROPÉANS



# FOOD TEXTURING AGENTS IN EUROPE

## Segmentation: a key for success

Currently, it may be noted that the texturizing agent market is most often broken down into different end usages (confectionery, ready-cooked dishes, ices, pet food, etc...). One of the aims of this study was to ascertain how efficient such segmentation was, and if required, propose a new system.

We considered the expectations of industrial consumers and their own selection criteria:

- the importance of texturizing agents within each user sector in terms of cost and as a product or marketing innovation vector,
- the functional capabilities looked for in their products: water retention, thickening and gelling properties, acid resistance, ingredient thermal resistance, aroma carriers, etc.
- the size/importance of the service offered by the supplier: the extent of the technical service to be offered, such as formulation, storage, etc.

Depending on the importance attributed to each of the criteria by the selection of users interviewed, it was possible to identify four segments which grouped together homogeneous expectations (dairy, ice-cream producers,...) following two principal axes : the relative size of the R&D department and the margin allowed by the end product.../..

The **Fun Food** corresponding to very innovative products in terms of marketing (dairy desserts, ice creams,... This segment covers all ingredients with a good rheology, a good thermo resistance and a good support to aromas. It corresponds to sophisticated multi-functions molecules. Carrageenans, alginates and gellane are the most appropriate additives.

## Main key factor is R & D

▪ **Basic Food:** meat, pork meat, canned food where ingredients must correspond to stability, water exchange stabilizing, gelling and binding, flavor and taste enhancer.

## Key factor consist of a good cost control

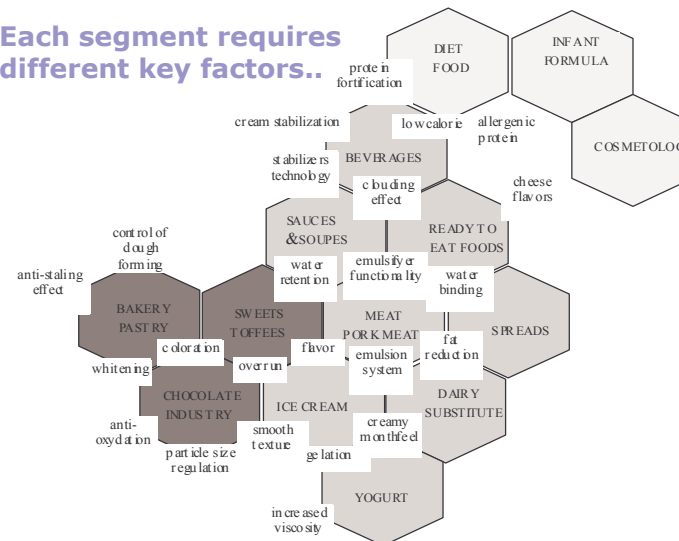
▪ **Neo-traditional** covers traditional products such as bread, confectionery, soups and sauces, ingredients must be good water stabilizers, providing a good dispersion and resist to heat treatment. Caroub, xanthan and gellan are the nearest products.

## Main key factor is technical service (application laboratory)

▪ At last, **Bio-natural:** drinks and nutritional nutriments for which constraints are more from a nutritional aspect. Present ingredients used are: soy, dairy proteins and fructo-oligofructosaccharides.

## Key factor is R & D

### Each segment requires different key factors..



TEXTURING AGENTS:  
INTERLOCKING CORE  
TECHNOLOGY

## COMPANY ADVICE

**Company** X  
**Activity** Fats  
**Country** Europe

### Activity

Specialist in fats, bakery products and most recently a substitute for cocoa butter. the company's products use exploit the properties of hydrocolloids (modified starches for bread-making products : light flaky pastry, low fat baguettes and croissants, gelatine for minarines and low fat butter.

### Turnover

405 million €

### Ingredients used

The texturing agents used are mainly modified starches for bread-making.

INGREDIENTS	QUANTITY	FUNCTIONS
Gelatin/120 bloom	Approx.2.5% for ultralights	Fat replacer agent in water-oil type emulsions.- sufficient for 40% spreads-requires additional texturing agent for ultra-light 25% spreads.
Galactomannan + Xanthan gum	--	Preferred for dressings. Or possibly xanthan, by adding gelatin for low fat spreads (with <0.1%content)
Alginates	< 20 T/Yr	For water-based emulsions
Carrageenan	--	Not used for minarines. However, could be used for water based emulsions
Modified starches	200T/Yr	Cakes and pastry applications
Maltodextrin	Approx.6% for 25% fat spreads	Gelatin texture support ingredient for ultra-light spreads.

### Product usage summary

- Low fat spreads:
  - 40%: gelatin or nothing (1). The texturizing agent composition is largely dependent on the product retail price.
  - 25%: Gelatin + (e.g., maltodextrin), technological gap has in part been overcome to the point where its about to be marketed.
- For bread-type cooked products, preferably modified starches.

The solution chosen to date for spreads (process using emulsified vegetable oil) uses a **gelatin** base. This ingredient alone for low fat products down to 40%.

To obtain a greater reduction in fats, an additional ingredient will be required. X has carried out tests in this regard with **maltodextrins** and has achieved positive results. The major problem comes from the fact that the consumer is wanting an ultra-light spread which has a similar taste to 40% low fat spreads, without an increase in price. The problem is then that texturizing agents are expensive.

The use of lactoproteins creates a patent problem: It cannot combine gelatin with lactoproteins as the process is already owned and patented. It does not believe at all that **fatty acid polyesters** have a future as fat replacers: the only acceptable substitute for mass market products would be a water and texturizing agent combination. They could perhaps be used in ultra-light products, but this represents very low quantities. Microcellulose may be suitable for aqueous systems, but not as a base for margarines, as is the case at X. Instead, it is for use in making dressings.

Other numerous solutions for enhancing the ultra-light product: **inulin** as a complement to gelatin. For their part, creameries could assess alginate combined with inulin to obtain the same product, but using a milk base.

For baked products, the **hydrocolloid** must resist the baking temperature of the bread, avoid any breaking up of the basic starch structure, contribute to water retention and increase the possibility of storage without dessication.

In bread-making, trials with carrageenans have not been conclusive. Carrageenans cannot maintain the volume of a risen loaf, which is a requirement for bread stabilisers. However, they do significantly reduce the rate of dessication of the bread.

### Suppliers

Cargill , for starch and maltodextrin.

### Expectations and supplier selection criteria

Strong collaboration with suppliers such as Cargill. Despite everything, X undertakes all its work independently.

### Markets trends

With the exception of the spread sector, low fats have had relatively limited success. In fact, their contracts with major industrial consumers, for example, still relate to the raw products without any reduced fat. Only spreads that are aimed directly at the end consumer exist in various low fat versions. Minarine demand continues to increase (e.g. the English market grows by more than 10% per annum). 5% and even 0% fat spreads have appeared on the English market.

The representative did not believe that the reduction in fats in the coming years would rely on fat replacers (excepting spreads), but rather on the reduction of their proportions in the "fatty" product, and would see the cessation of complementary texturing agents.

**INGREDIENT  
PRESENTATION  
& PROPERTIES**

**MARKET SIZE FOR  
EACH INGREDIENT**

**TABLE OF  
CONTENTS**

**PROFILES  
OF  
FOOD COMPANIES**

**SUPPLIERS**

## CONTENT

<b>I.ATTRACTIVENESS OF THE EUROPEAN MARKET</b>	<b>7</b>		
I.1. Texturizing agents : key additives in the food industry	8		
I.2. An answer to new consumption usages	10		
I.3. A still fragmented offer	11		
I.4. Facing a more and more concentrated demand	11		
I.5. Segmentation per required functions	13		
I.6. Flavoring -Matrix Interaction :	18		
I.7. Low fat foods under scrutiny	19		
I.8. Texturizing agents performance levels per area of usage	22		
I.9. Quantification by products family and consumption forecasts	39		
<b>II.EXPECTATIONS AND SELECTION CRITERIA FOR THE VARIOUS MARKET SEGMENTS</b>	<b>44</b>		
<b>SEGMENT 1 - Dairy products</b>	<b>45</b>		
II.1.2. Strong expectations in texture innovation	54		
ADAMS FOOD (IRISH DAIRY BOARD- UK)	58		
LACTALIS (F)	60		
DAIRY CREST (UK)	63		
DANONE (F)	66		
NOVANDIE (ANDROS -F)	71		
HIPPERWERK OHG (G)	73		
MILCHWERKE KÖLN/WUPPERTAL eG (G) (CAMPINA)	77		
MILUPA (NUMICO GROUP)	80		
MOLKEREI H. STROTHMANN GmbH (CAMPINA) (G)	81		
MONA (CAMPINA FRIESLAND - NL)	84		
NUTRIPHARM	87		
SCHWALBCHEN MOLKEREI JAKOB BERZ AG (G)	88		
SENOBLE (F)	91		
SODIAAL (F)	93		
VALIO (FIN)	96		
ZOTT (G)	98		
<b>SEGMENT 2 - Ice Creams</b>	<b>100</b>		
II.2.1. A growing market which still remains partly unexploited in Europe Sweden	105		
II.2.2. More fragmented utilisations and new opportunities for multifunctional molecules	108		
COGESAL MIKO (UNILEVER FRANCE) (F)	115		
		EISMANN subsidiary of Milchhof Eiskrem (G)	121
		FRANCE GLACES FINDUS (NESTLE -F)	123
		LANGNESE IGLO (UNILEVER GROUP - G)	126
		DOVEUROPE (MARS EUROPE -F)	127
		NESTLE ICE CREAM (F)	129
		SCHÖLLER (NESLE - G)	133
		SAMMONTANA S.r.l ( I)	142
		<b>SEGMENT 3 - Confectionery and Chocolate Production</b>	<b>145</b>
		II.3.1. One of the biggest markets for texturizing agents.	146
		II.3.2. Highly specific expectations and constraints per products' family	155
		AUGUST STORCK (G)	159
		BARRY CALLEBAULT (F)	160
		HARIBO (G/F)	161
		HOSTA GmbH (G)	162
		KRAFT FOODS (F)	163
		MARS EUROPE (F)	167
		L'EUROPEENNE DU CHOCOLAT (CADBURY FRANCE) (F)	168
		RITTER (G)	171
		NESTLE UK (ROWNTREE MACKINTOSH - UK)	
		NESTLE FRANCE (F)	176
		PERFETTI VAN MELLE (NL)	179
		RICOLA (CH)	180
		SWIZZELS - MATLOW (UK)	181
		UNIBON Kaugummifabrik GmbH, Süßwaren (G)	182
		LU (DANONE) (F)	183
		VAN NETTEN (G)	185
		<b>SEGMENT 4 - Jams / Layers / Fillings / Fruit preparations</b>	<b>186</b>
		II.4.1. A stagnant market	187
		II.4.2. Low innovative dynamicism.	190
		ANDROS (F)	193
		CHIVERS HARTLEY (UK)	194
		HILCONA (G)	196
		HERO (CH)	198
		KÜHNE KG (G)	200
		MATERNE (DANONE GROUP - F)	202
		SCHWARTAUER WERK (G)	204
		AGRANA FRUIT (F - AUS)	206
		LACTALIS CHATEAUBOURG (F)	208

# FOOD TEXTURING AGENTS IN EUROPE

## SEGMENT 5 - Bread / Pastries / Cakes / Biscuits

II.5.1. Bread, Pastries, Cakes and Biscuits: continued growth	211
II.5.2. Cakes and pastries, a segment with high potential for texturizing agents	216
BAHLESEN (F/G)	220
BURTON GM BISCUITS (UK)	222
MARTIN BRAUN Backmittel und Essenzen KG (G)	224
CARL BRANDT ZWIEBACK, SCHOKOLADE, BISCUITS GmbH (G)	226
NUTRITION & SANTE (F)	227
DELACRE (UNITED BISCUITS - B)	230
DE-VAU-GE Gesundkostwerk GmbH (G)	233
GIRBACH SUSSWARENDEKOR GmbH (G)	235
GRANDS MOULINS DE PARIS (F)	236
HEINZ (UK)	240
JACQUET SA (F)	243
MANOR BAKERIES (UK)	246
NORTHERN FOODS (FOXES BISCUITS) (UK)	248
PATISFRANCE (F)	248

## SEGMENT 6 - Pre-prepared desserts 249

II.6.1. Stagnating sales and limited new products' development by reason of texture	250
ANCEL (OETKER -F)	254
UNILEVER BESTFOOD (ex CPC France) (F)	256
August OETKER Nahrungsmittel KG (G)	259
VOGLEY'LEBENSMITTELWERK GMBH (G)	263
S. MARTINO (CLECLA SPA- I)	265

## SEGMENT 7 - Ready-cooked dishes 267

II.7.1. A market with development perspectives for fresh and frozen products	268
II.7.2. Sauces : important user of texturing agents	270
APETITO AG (G)	272
BARILLA (I)	274
BEKINA LEBENSMITTEL (G)	275
BROOKE BOND OXO (UNILEVER BESTFOODS - UK)	276
CAMPBELL'S GROCERY PRODUCTS (UK)	277
ERASCO OHG (a subsidiary of GRAND METROPOLITAN PLC) (G)	279
GENERALE DE TRAITTEUR (F)	281
GORCY (DANONE) (F)	283
GROUPE FLEURY MICHON (F)	285

NAHR ENGEL (G)	287
NATURA-WERK Gebr.HILLER (G)	289
NORTHERN FOODS PLC (PORK FARM) (UK)	293
ORKLA FOOD A.S. (NW)	295
SAUPIQUET (F)	297
SOPAD NESTLE (F)	297
WILLIAM SAURIN (F)	299

## SEGMENT 8 - Meats - Charcuterie - Cured Meats 301

II.8.1. Meats, a mine of productivity for texturizing agents	301
II.8.2. Texturizing agents usage limited by legislation, but with true formulation potential	306
CAMPOFRIO Alimentacion (SP)	307
HERTA (F)	309
KARL KONECKE (G)	311
SOCOPA CHERRE (F)	312
PAUL PREDAULT (F)	312
GROUPE CHARRAL (F)	314

## SEGMENT 9 - Petfood 315

II.9.1. The European petfood market is strong	315
II.9.2. Add nutritional value and improve the synergistic effects between gums	321
DALGETY (UK)	322
MARS Europe (F)	325
NESTLE-FRISKIES Europe (F)	328

## SEGMENT 10 - Sauces & Dressings & Soups 331

II.10.1. Steady growth of consumption	332
II.10.2. A need for innovation and new textures	336
AMORA (F)	341
APPEL & FRENZEL (G)	342
BENEDICTA (G)	344
DEVELEY (G)	346
HACO (CH)	349
H.J. HEINZ (UK)	351
H.P. FOODS (UK)	353
HONIG MERKARTIKELN BV - CSM group (NL)	355
KÜHNE KG (G)	357
LESIEUR (F)	359
MAIZENA (G)	361
STEINHAUS & Co Konserven (G)	363

## SEGMENT 11 - Solid fatty substances

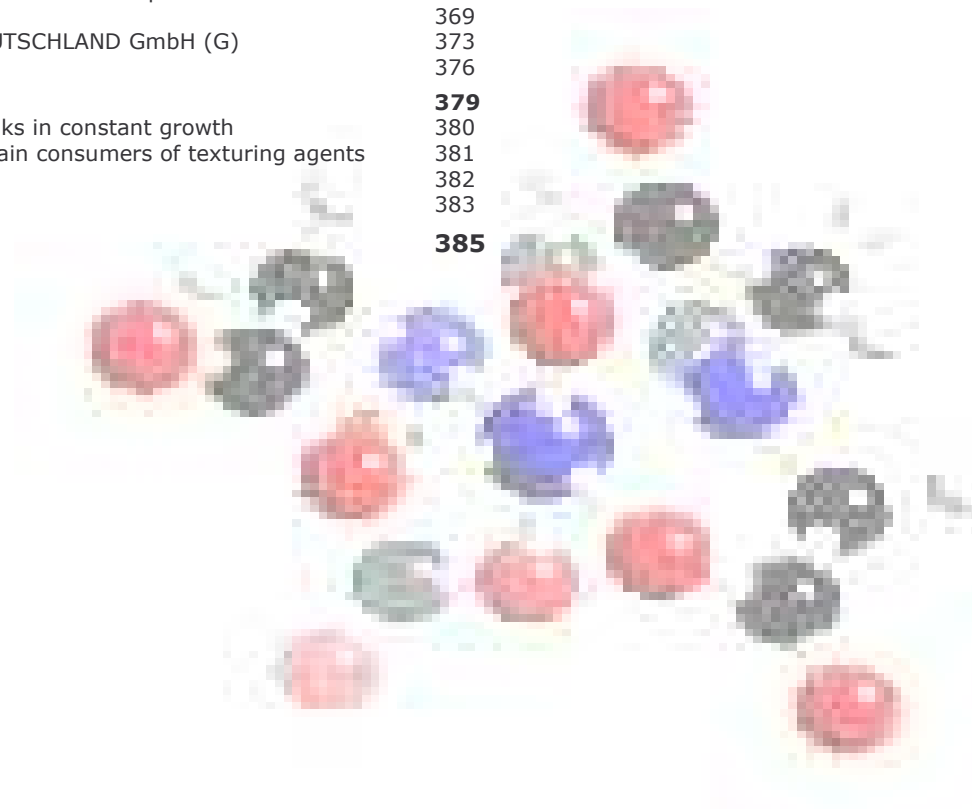
II.11.1. An opening for fat replacers and combined fats	366
II.11.2. The main risks : texture mimesis and preservation of organoleptic qualities	369
BESTFOODS UNILEVER DEUTSCHLAND GmbH (G)	373
VANDEMOORTELE (B)	376

## SEGMENT 12 - Beverages

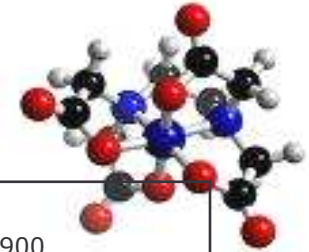
II.12.1. Fruit juices and soft drinks in constant growth	380
II.12.2. Low calorie products: main consumers of texturing agents	381
PEPSI COLA GmbH (G)	382
PERNOD RICARD (F)	383

## ANNEX

385



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