

Food Packaging

Facts+Figures+Trends

JÖRG FEISEL





Employees	410
Average Age	45
Revenue 2016	84 mio. EUR
Property	66,987 sqm
Production and Offices	20,600 sqm
Location	
Im Ruttert, D-35216 Biedenkopf-Wallau	

1922	Foundation of a model making and foundry company in Breidenbach-Wolzhausen by F. Krämer and Co.	
1942 - 1968	Foundation of Krämer & Grebe. Development and production of the first bowl cutter 'Propeller Blitz' / vacuum cutter and first vacuum packaging chamber machines / automatic form-fill-seal machine TIROMAT	
1970 - 1975	Number of employees grows to 512, new office building with 360 sqm; in 1972 construction of new assembly hall for packaging and meat processing machinery	
1989 1991 1993	Swedish Alfa Laval Group acquires Krämer & Grebe. Tetra Pak takes over entire ALFA LAVAL Group. Krämer & Grebe is part of TLF-Tetra Laval Convenience Food	

1994	Development / Introduction of the new Tiromat generation Tiromat Powerpak and Tiromat Compact
1997	Foundation of Convenience Food Systems
2006 - 2011	Launch of new thermoformer generation, machine types PowerPak NT, RT, XT, ST
2011	Take-over by GEA. Creation of GEA Convenience Food Technologies
2012	Rebranding, new segment name: GEA Food Solutions
2014	Integration (Merger) of GEA Food Solutions into GEA Mechanical Equipment
2015	Integration of GEA Food Solutions into ONE GEA

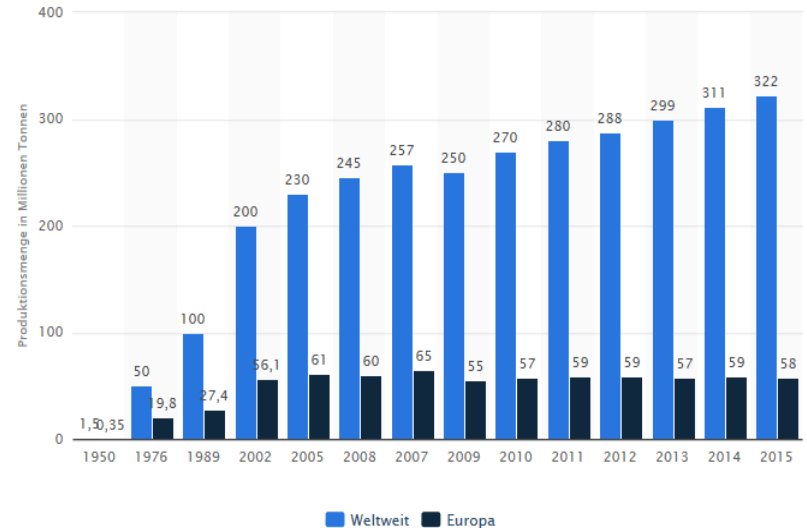




Plastic Packaging Facts + Figures (1)

- 2015: worldwide more than **322 mio tons** of plastic material
- 2016: more than **62 mio tons** of flexible packaging material is produced
Europe: appr. 23 mio tons
CAGR: 3.7%
- Most important plastic materials:
 - Polyethylen (PE)
 - Polypropylen (PP)
 - PETappr. 87%
- **Bio based plastics** market share **less than 1%**, but **CAGR of 15%**

Worldwide + European production of plastics



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- **Flexible packaging material growth based on:**

1. Increase of food packaging

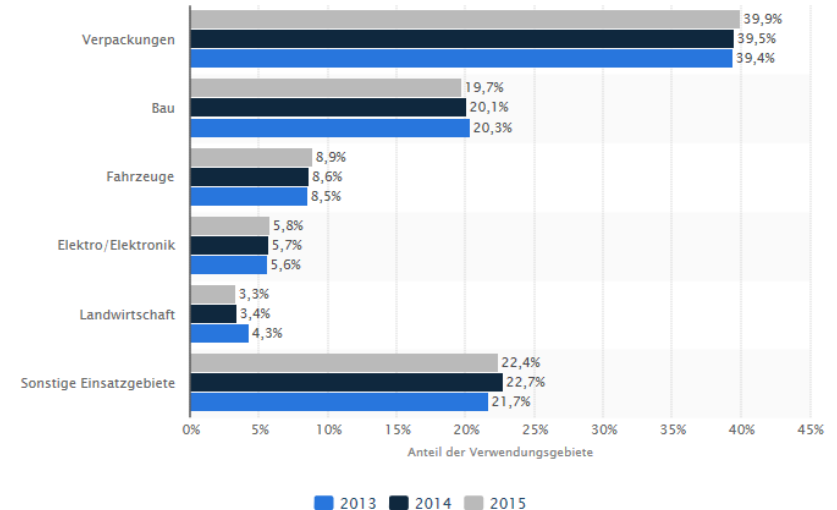
- Emerging countries like Asia-Pacific, South America, Middle East and especially China + India
- Moderate growth in industrialized countries

2. Replacement of paper, aluminium, tin plate and glas packaging

3. Convenience Food Products increasing

- **Meat and meat products consumption in Europe decreasing**

Usage of plastics in Europe



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- **„Green PEs“ based on renewable raw materials**

- + Will have no (negative) impact on the packaging process
- + Proven that the packaging process is safe (f.e. sufficient seal stability)
- High environmental stress, due to the usage of fertilizers and a lot of space necessary (rain forest problematic)
- Alternativ recourse: usage of raw materials made out of natural garbage

- **Polylactid**

- + Fully bio-degradable
- Moisture-sensitive
- Hardly enough raw material available



1. Sustainability, but only if

- The costs will not increase disproportional
- The recognized and proven product quality will remain
- Environment friendly packaging not only for so called bio products

2. Product safety

- Product- und Foodsafety
 - Protection against foreign substances, migration,
 - Protection against forgery or plagiarising
- Active Packages
 - Increase shelf life – anti-microbial film
 - Food waste reduction
 - Intelligent indicators/sensors



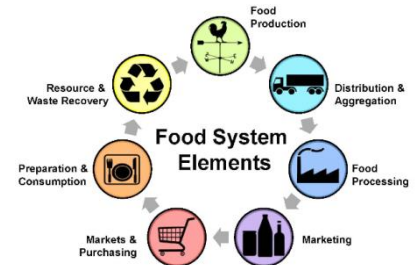
3. Flexibility

- Package diversity will increase as well as the package variety
- Smaller batches
- Smaller portions
- Different packages for identical products, depending on target groups, way of selling and promoting, POS
- Individual printing



4. Linked value chain

- Shorter production time
- Linked and fast automation from order intake until distribution



5. Digital Revolution

- Digital printing – offers new opportunities concerning design and individual packaging. Films need to fulfill the corresponding requirements
- Increased product
- Short product life cycles



6. Smart Packaging

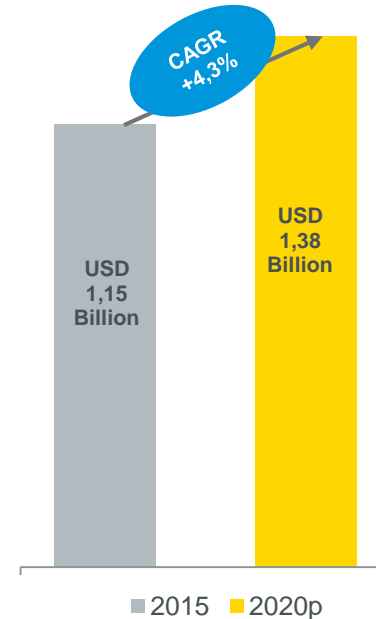
- Direct connection and dialog- f.e. between z.B. Smartphone und package
- QR Codes will be replaced by NFC (Near Field Communication) und BLW (Bluetooth Low Energy) Printed electronic (RFID) based on functional polymers
- Additional benefits for manufacturer, trade, and consumer
- RFID technology will make the entire product and package life cycle transparent and traceable
- Packaging will be more than only product protection and presentation
- Today's packaging is recyclable, modern designed and informative
- Zero defect production and error-free operation



Market Dynamics

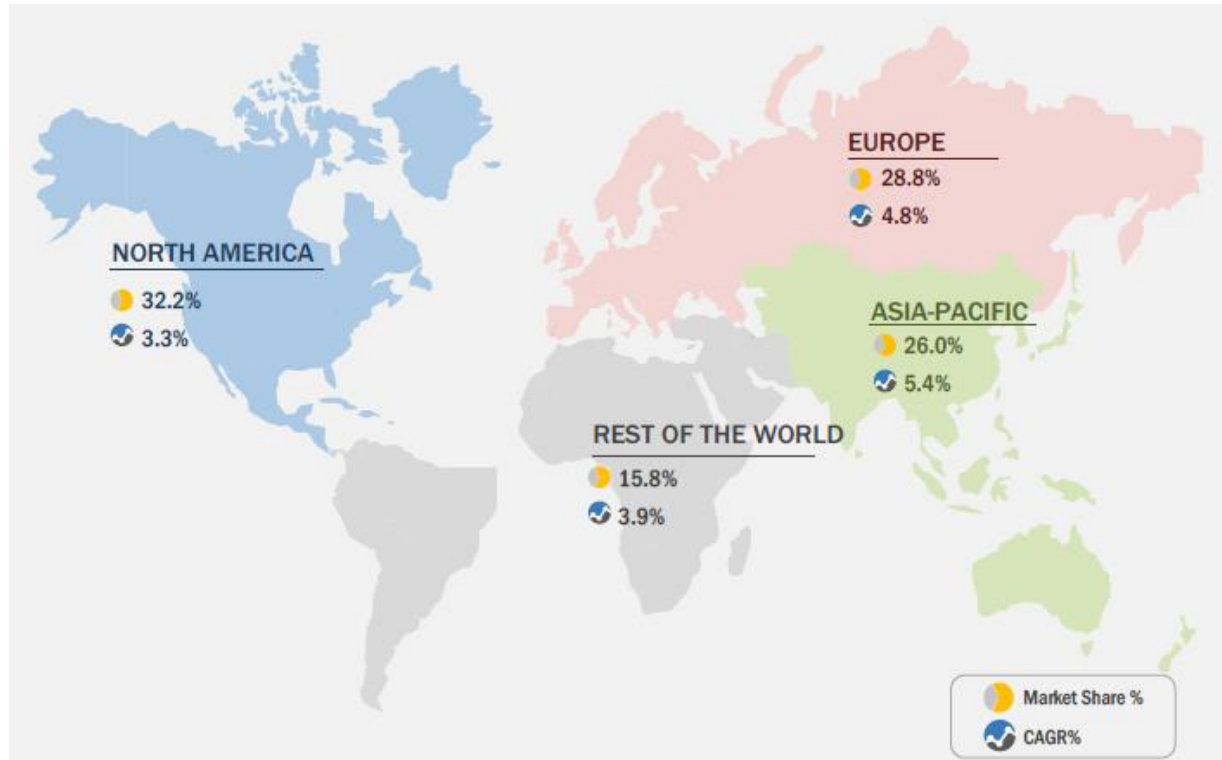
- Growing consumption of convenience foods, meat products, poultry and fish
- Hygienic packing of food – a critical driver
- Retailers expect that products stay fresh for as long as possible
- Food manufactures are extremely concerned about wastage and spoilage of food
- **54%** of the total market in advanced packaging technology is MAP
- Attractive market opportunities for MAP
CAGR: **4.3%**

Global Modified Atmosphere Packaging Market*



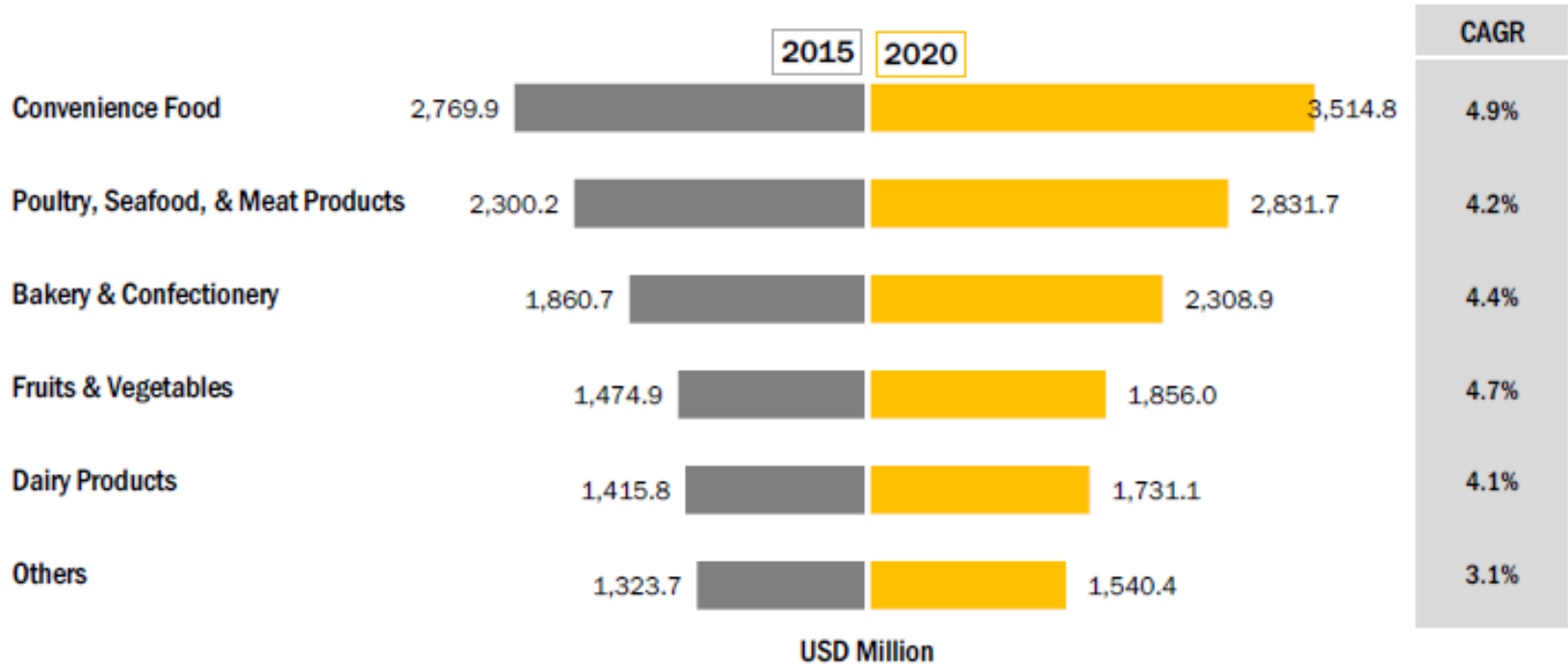
*Source: MarketsandMarkets

Modified Atmosphere Packaging – Market Share by Region 2015



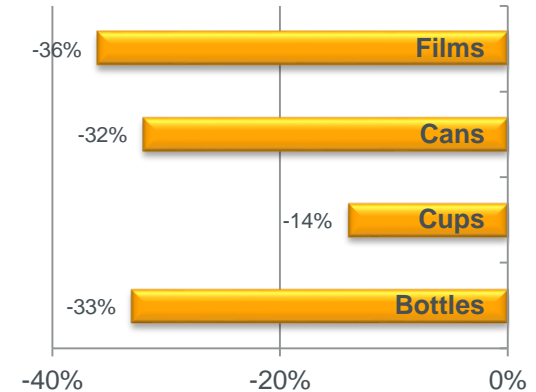
- ASIA-PACIFIC is projected to be the fastest growing market followed by EUROPE.

Modified Atmosphere Packaging – Market Application Snapshot



- **Improved material properties like**
 - Increased barrier functionality
 - Less weight and reduced film thickness
 - Raw material savings
 - Recloseability
 - Increase demands when it comes to food regularities
 - Microwaveable films
- Substitution of extruded trays and cups by thermoformed ones

Weight reduction of plastic packaging since 1991



Summary Food Packaging Trends (1)

- Strong growth of trays and MAP packaging
- Trays/MAP replaces flexible vacuum packages
- Tray Skin applications are growing significantly
- Increase of smaller portions/packages
- Similar products in different packages
- Thinner films – top as well as bottom
during the last 3 years approx 20 -25% f.e. topfilm 30 – 35 µm
- Improved look-and-feel of the product and package
- Improved and longer shelf life



MAP



Active package with
O₂- absorber



Package with RFID
transponder

Summary Food Packaging Trends (2)

- Special packages for elder people
- End consumer packages with RFID-Transponder
- Active and intelligent packages
- Traceability of the product and package
- Merge of packaging equipment and digital printing
- AND still in focus The Packaging Systems costs:
Equipment investment+running costs+ consumables (f.e. even 0,1 cent per meter film are been discussed)



MAP



Active package with
O₂- absorber



Package with RFID
transponder



engineering for
a better world