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Market & Business Development

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Market & Customer Insight

PLASTIC PACKAGING MARKET IN EUROPE

A presentation prepared for: Instituto Nacional do Plástico

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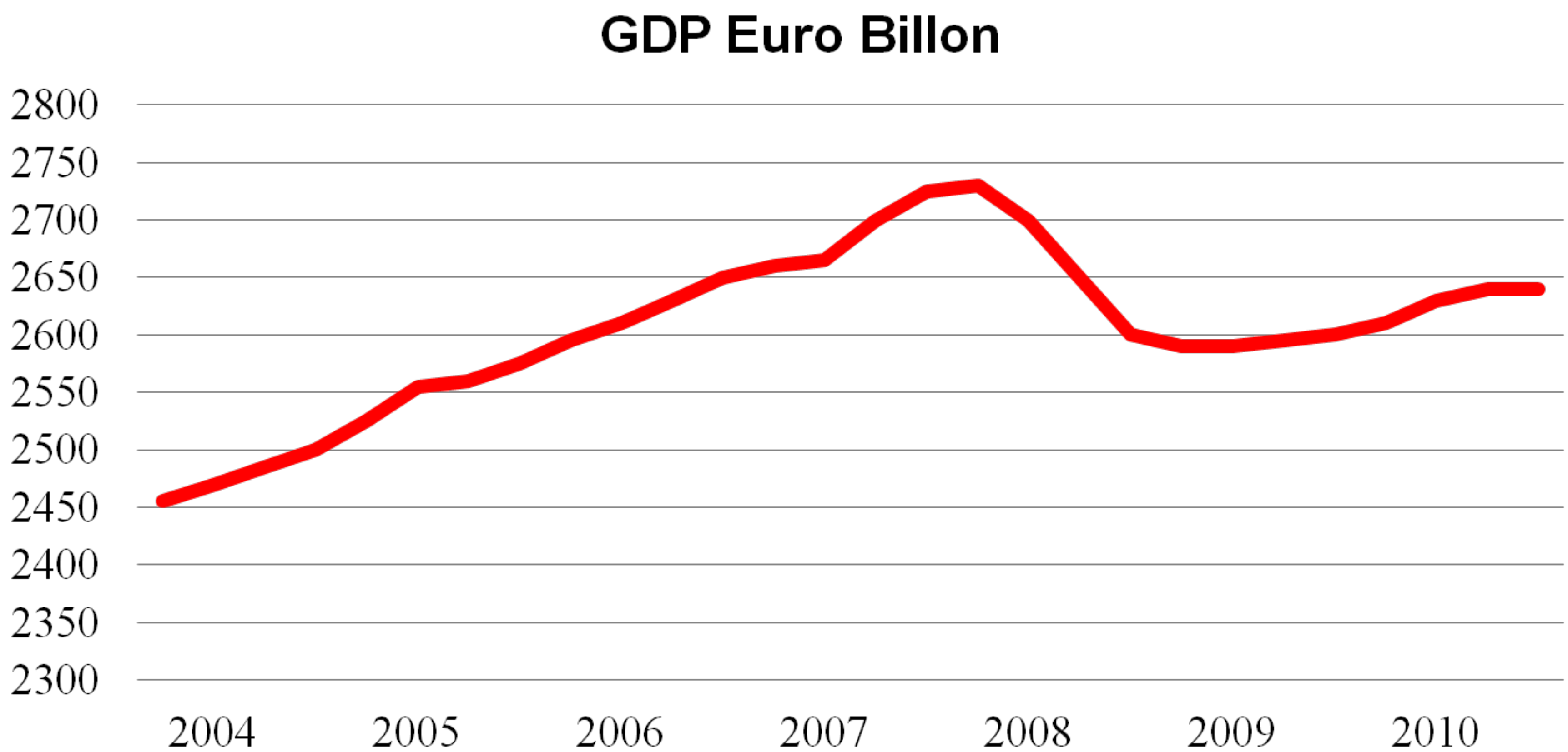
Structure

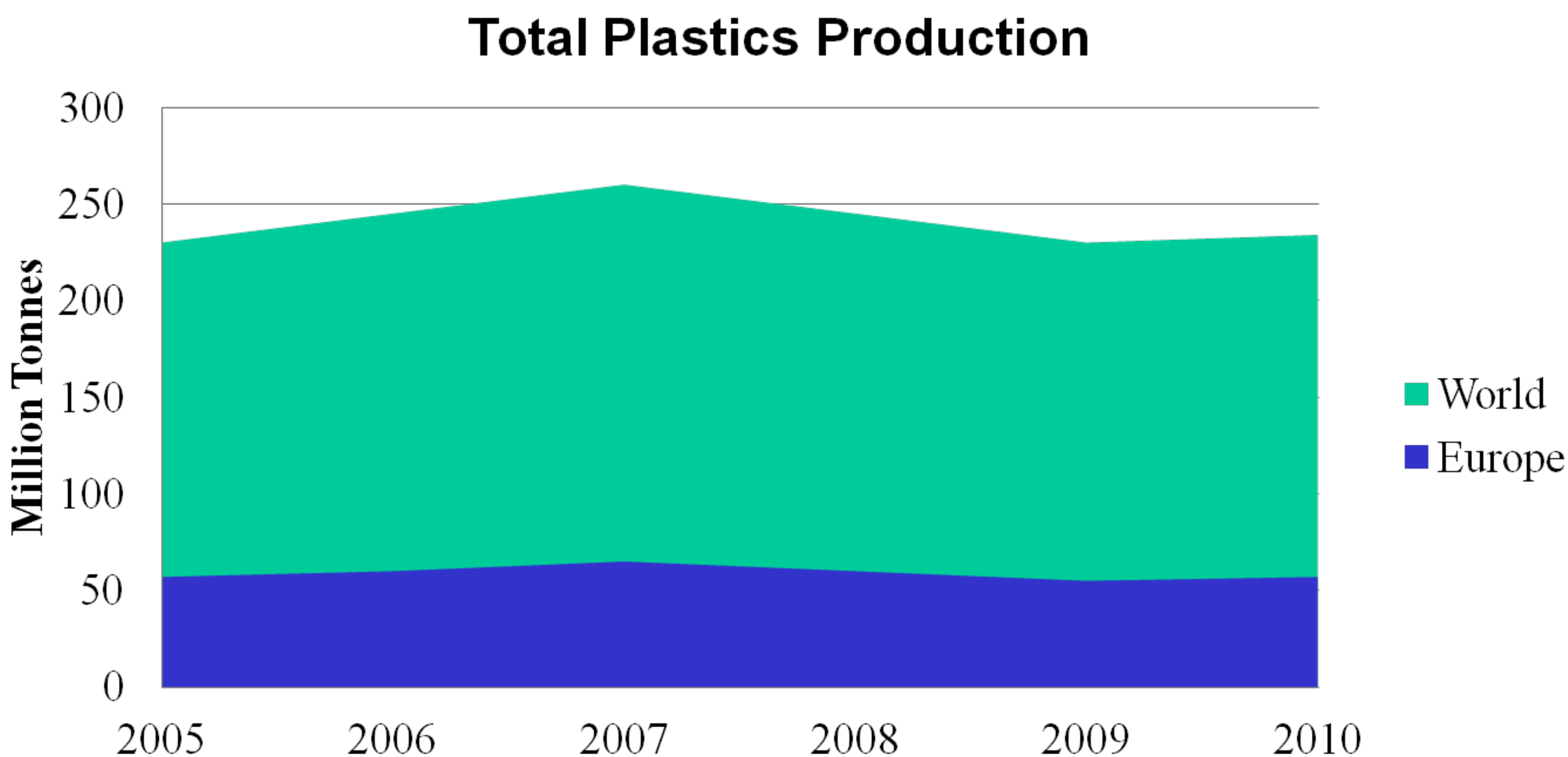
Market & Customer Insight

- Global Plastics Output
- EU Plastics Market
- EU Plastics Packaging Market
- Major EU Plastics Packaging Markets
- UK Plastics Packaging Market
- Case Study: Plastic Grocery Bags

The European Economy



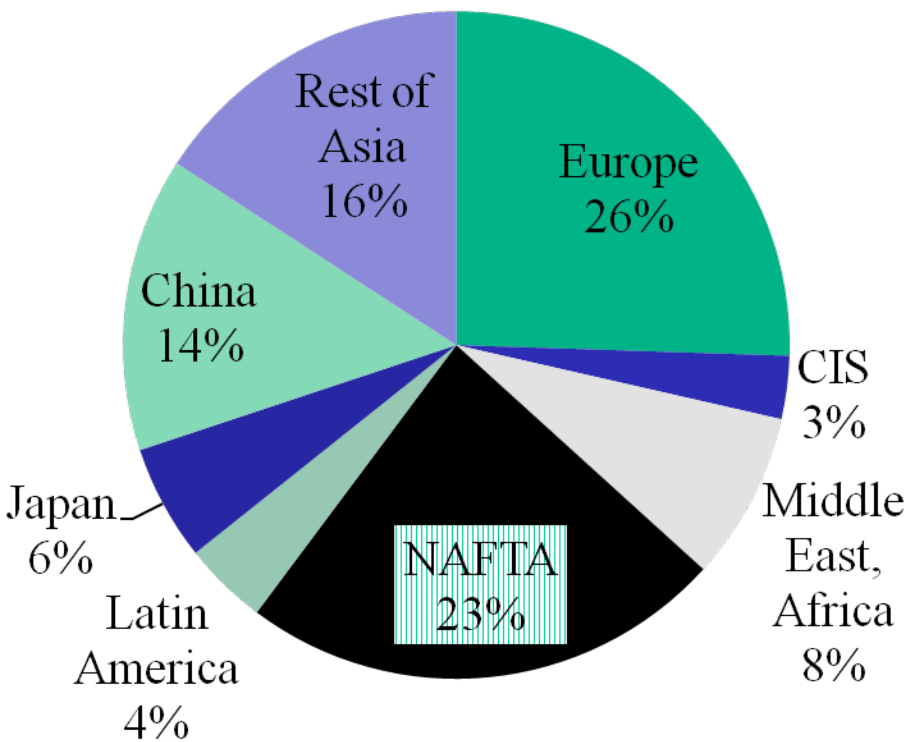
Global Plastics Production



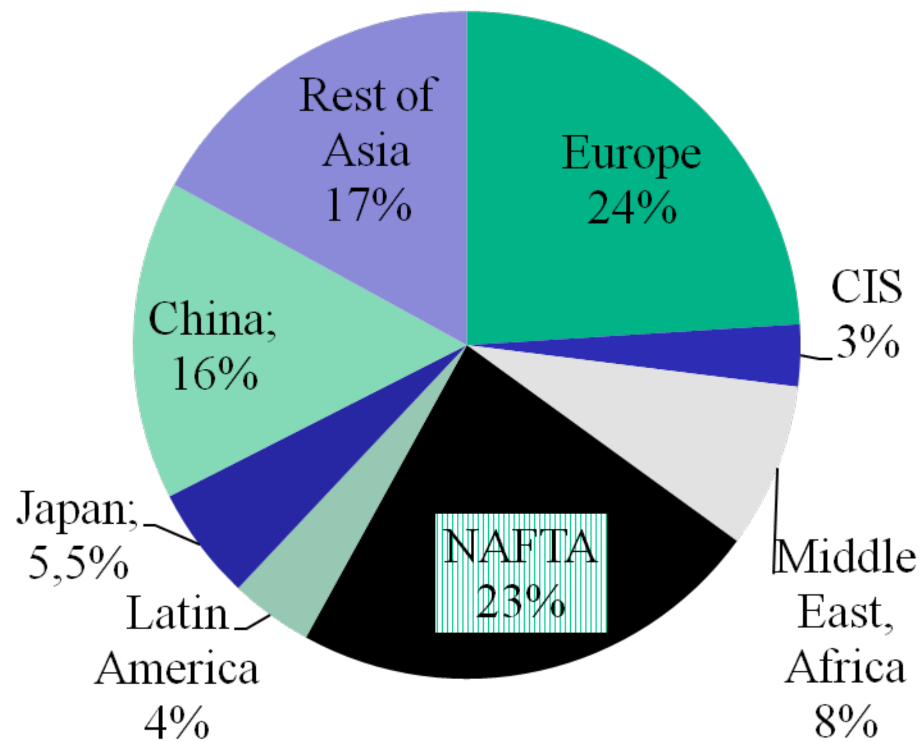
Share of Plastics Output

Market & Customer Insight

2007 Production



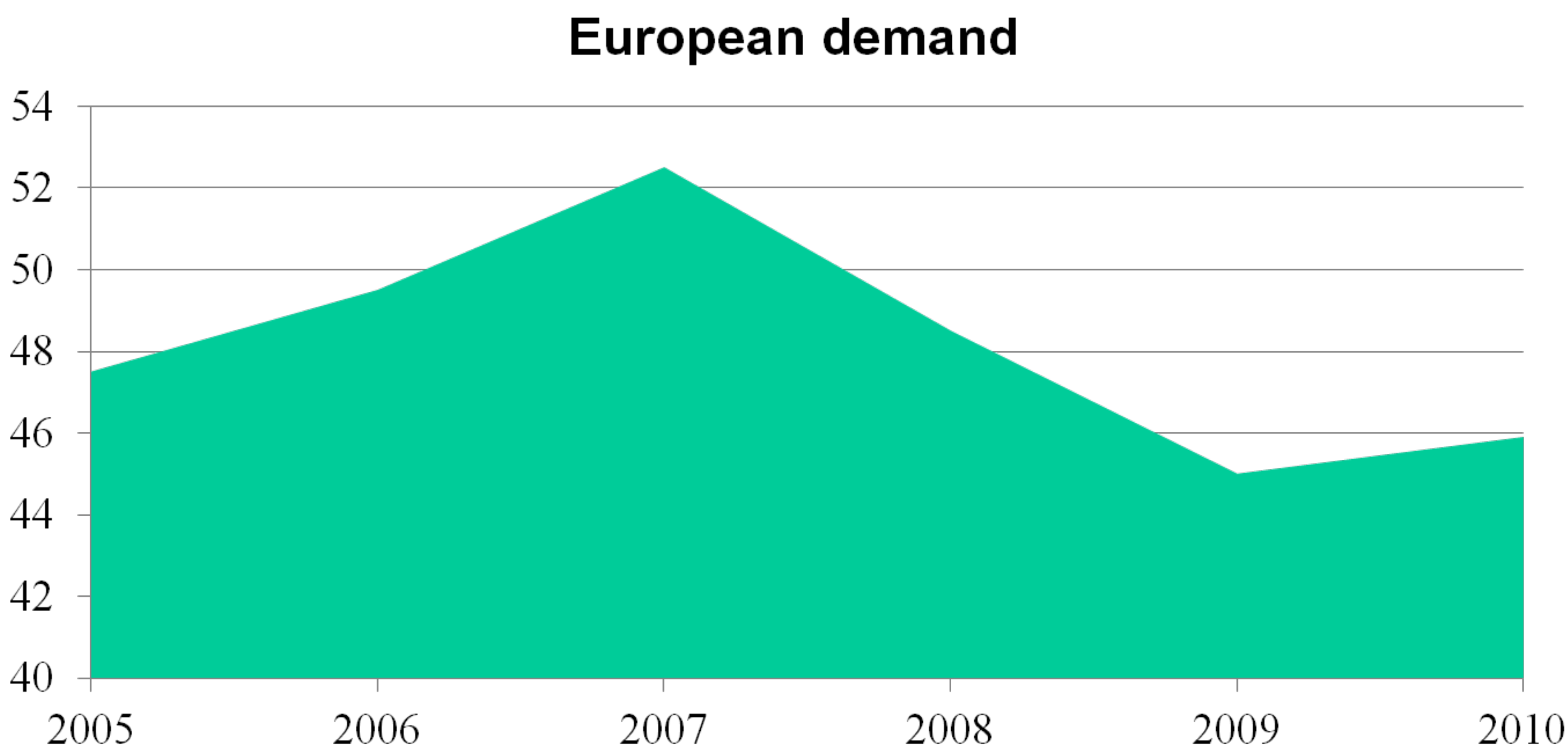
2010 Production



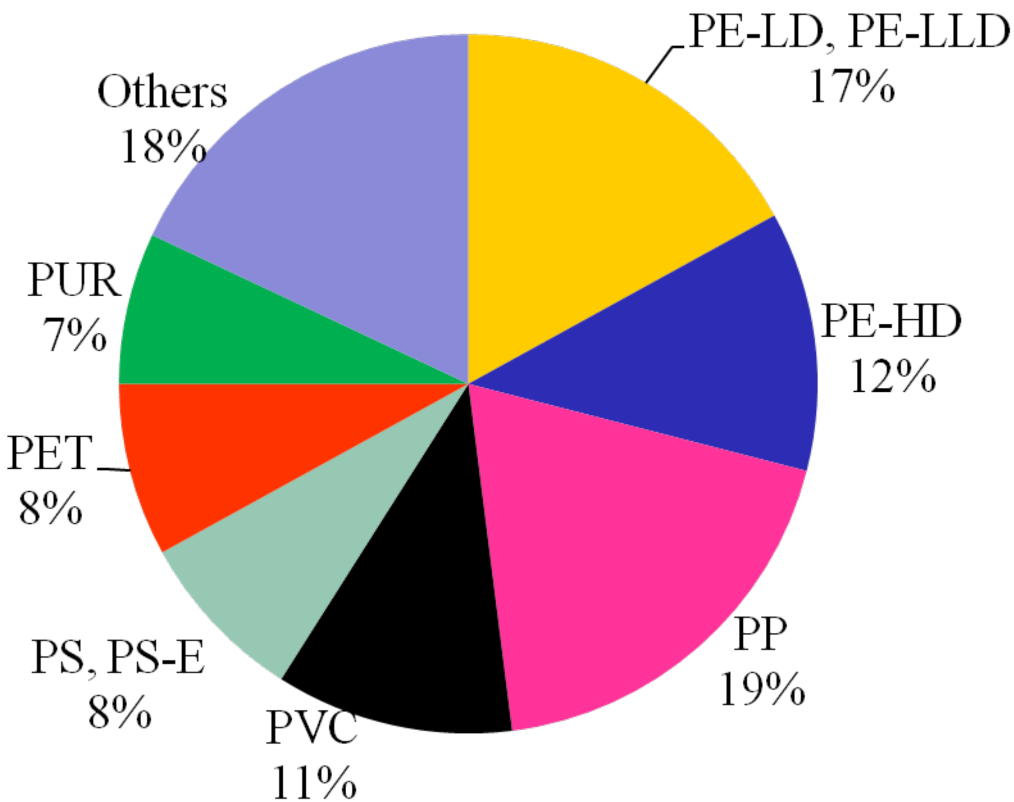
EU Centres of Production

- Germany – 7.5% of world production
- Benelux – 4.5%
- France – 2.0%
- Italy – 2.0%
- Spain – 1.5%
- UK – 1.5%
- Other – 4.0%

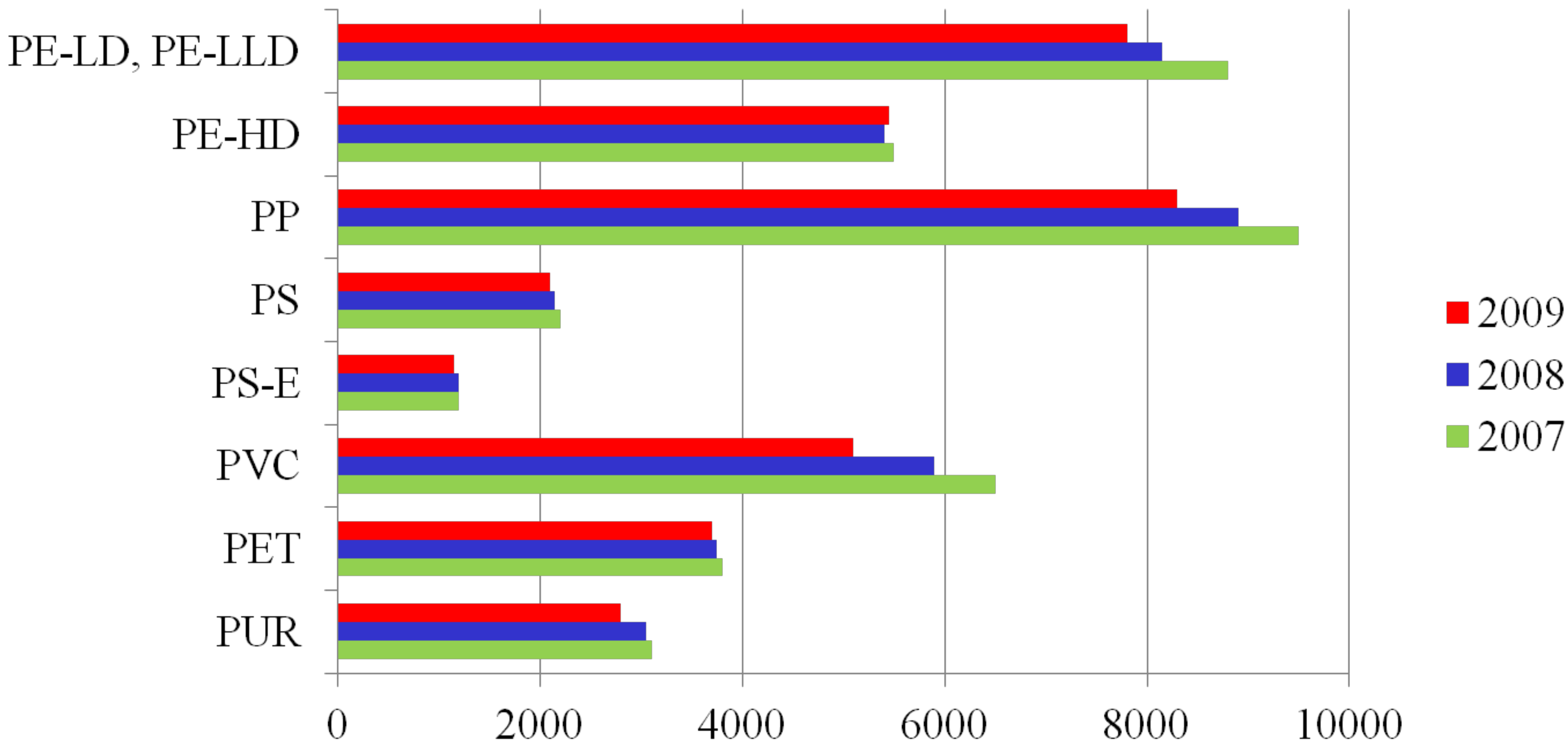
EU Plastics Consumption



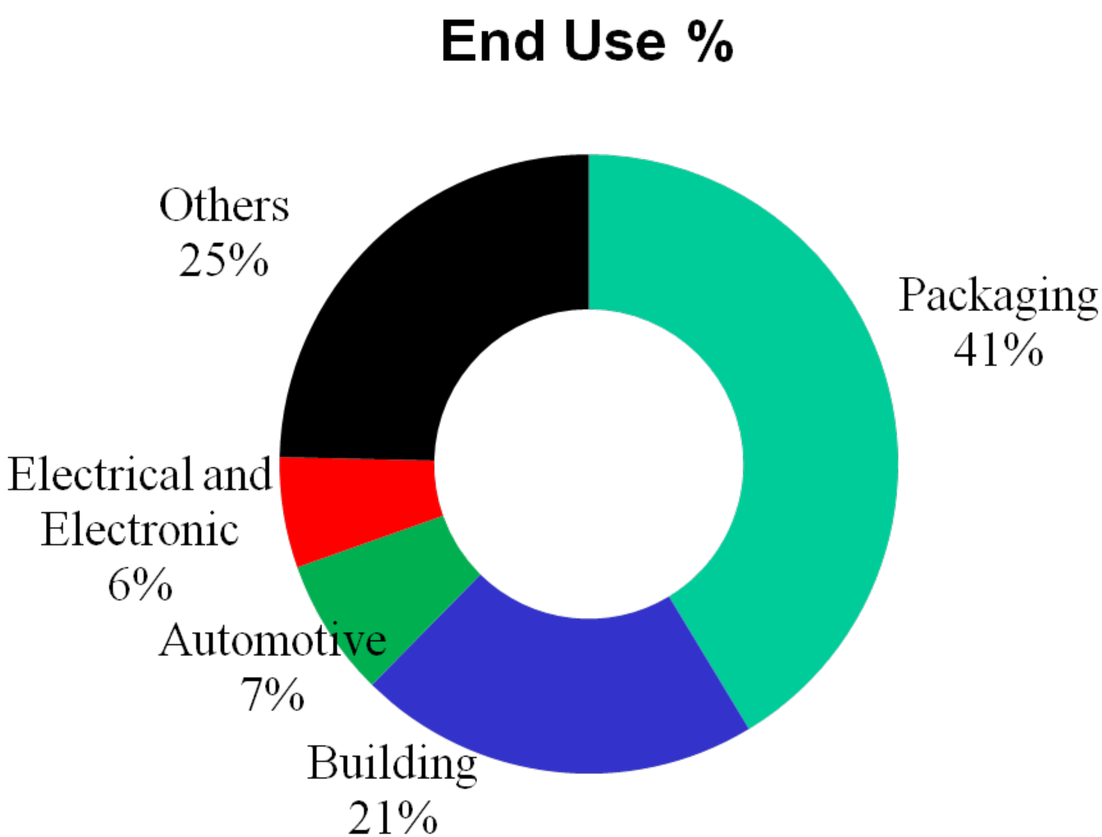
EU Demand, by Resin



Trends in Resin Demand



EU Demand by End Use



Main Resins by End Use

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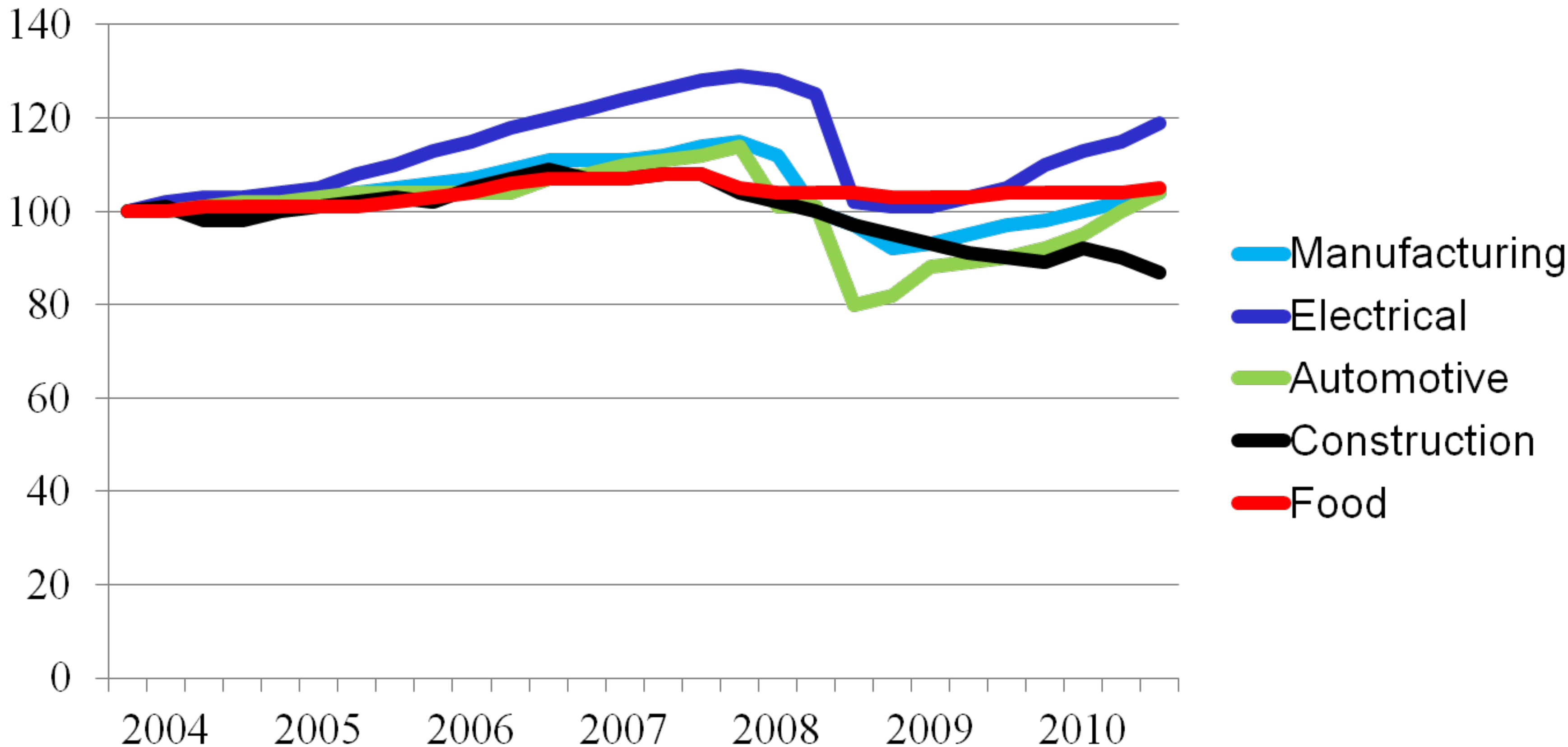
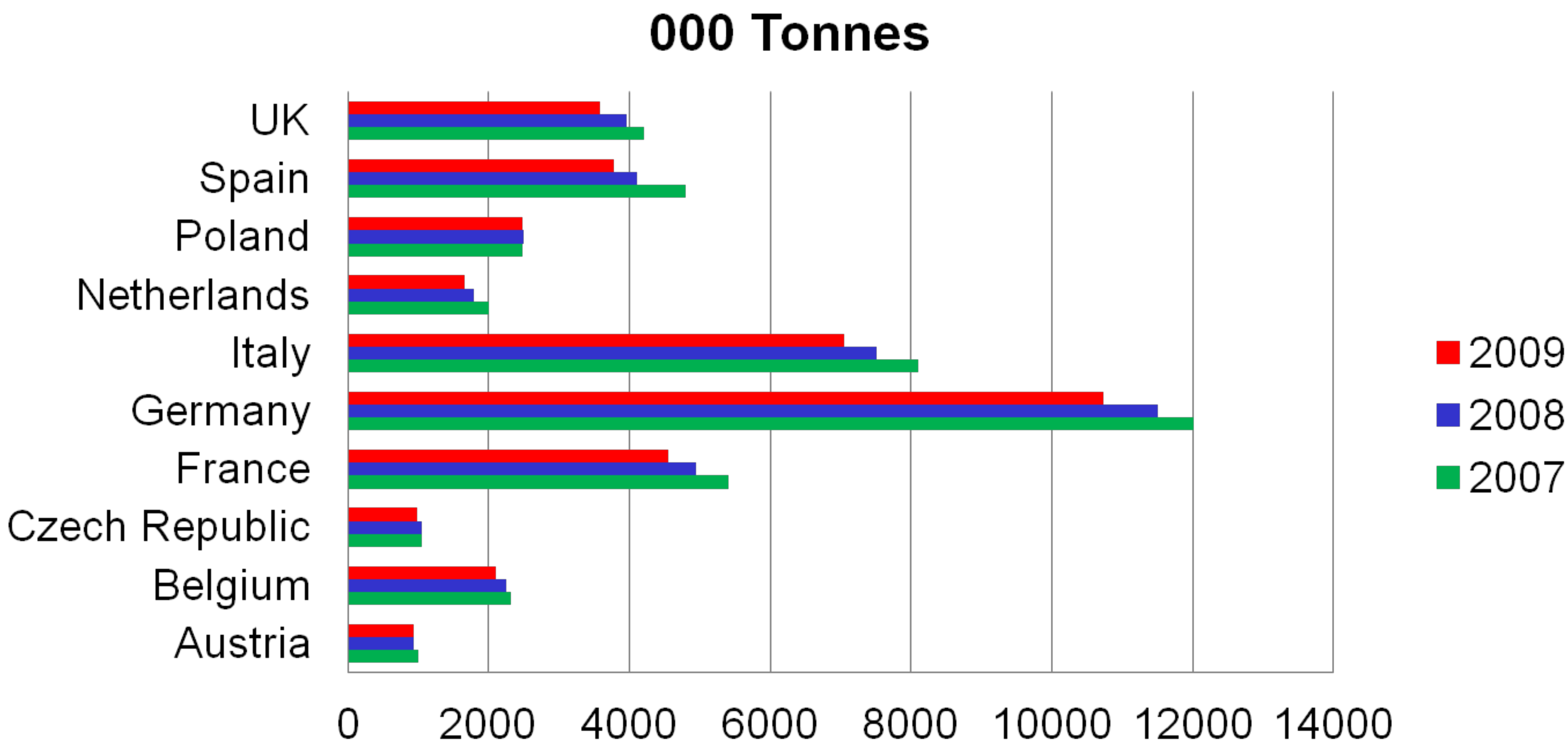
Packaging	Building	Auto	Electrical	Others
PE-LD, PE-LLD	PVC	PP	PP	PP
PP	PE-HD	PUR	PUR	PE-LD, PE-LLD
PET	PP	PA	ABS, SAN	PUR
PE-HD	PUR	PE-HD	PA	PVC
PS	PS-E	ABS, SAN	PS	PE-HD
PVC	PE-LD, PE-LLD	Other	PE-LD, PE-LLD	PS
PUR	PS	PVC	Other	ABS, SAN
PA	PPMA	PE-LD, PE-LLD	PE-HD	PA
PS-E	PA	PMMA	PVC	Other
ABS, SAN	Other		PMMA	PET
				PMMA

End User Trends



EU Demand, by Country



Market Conditions

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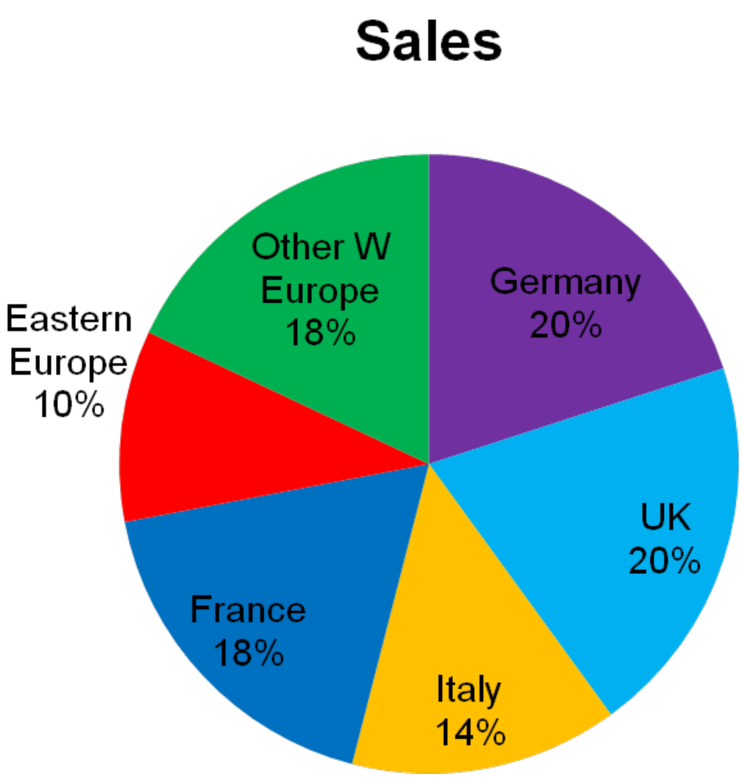
- Still weak consumer confidence, fiscal tightening and debt problems. Growth in Europe likely to be only 1.6% in 2011
- Consumer spend in Europe weak. Spending cuts of 1.8% expected in 2011
- Rising commodity prices for wheat due to poor weather conditions are seeing even more pressure on prices for packaging. Rising oil prices not helping.

EU Packaging Market

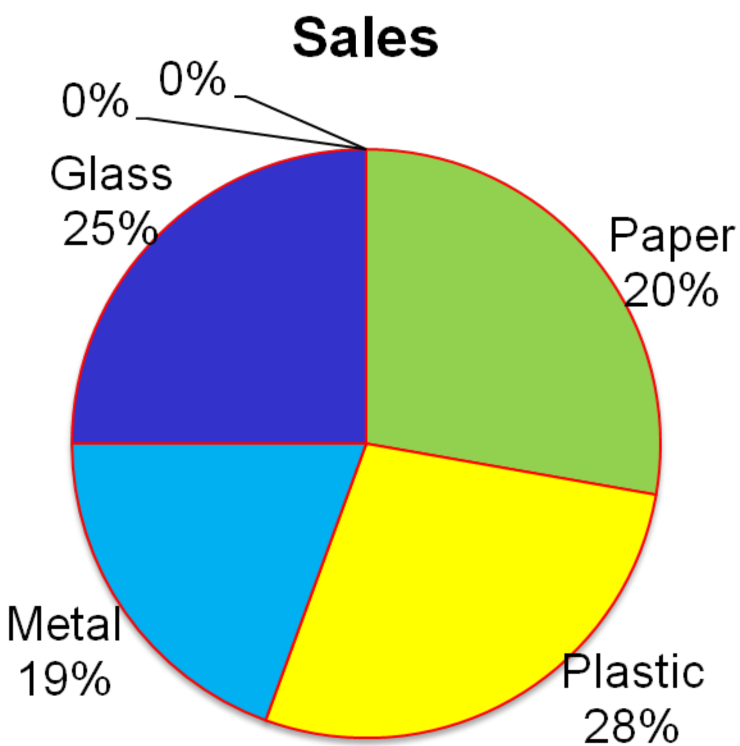


Year	% Change
2002	+1%
2003	+1%
2004	+2%
2005	+3%
2006	+3%
2007	+2%
2008	0%
2009	-2%
2010	+1%

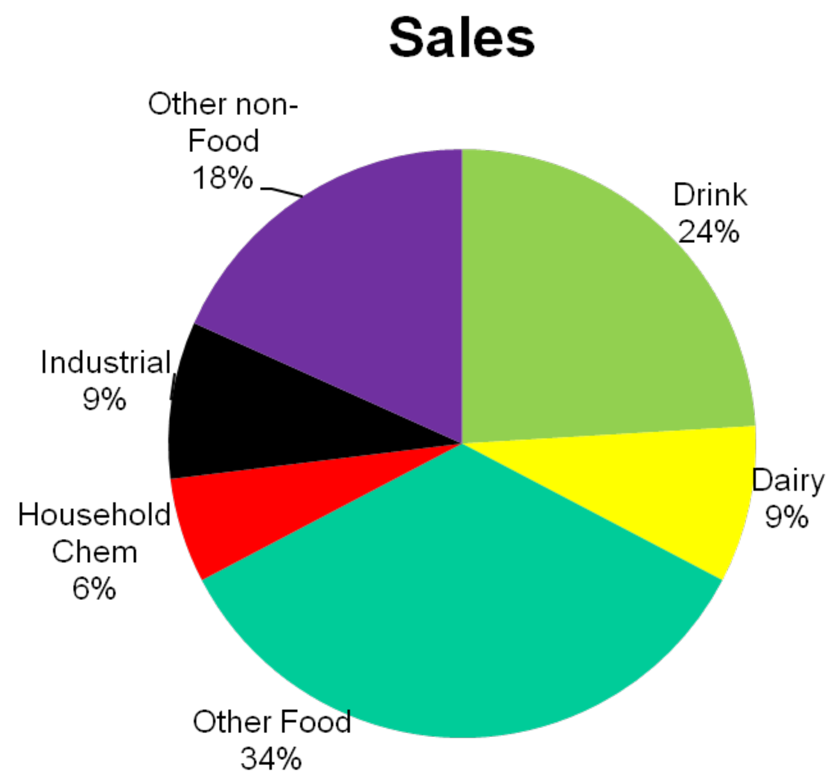
EU Packaging Market

Market & Customer Insight

European Packaging Market by Material



European Plastic Packaging Market by End Use



Specific Factors

Country	GDP growth	Inflation	Issues
Germany	1.1%	1.1%	Strong Green movement but economic growth
France	1.1%	1.3%	Economy still weak – high % public sector
Italy	0.6%	1.2%	Vulnerable to second dip. Low growth at best
Spain	0.6%	0.9%	Real threat of being next EU economy to need bail out from EU
UK	1.3%	3.1%	Deep cuts expected – fragile growth
Portugal	-1.0%	0.8%	Economy failed. EU bail out will mean slower growth, increased inflation and tax increases
Netherlands	1.1%	1.0%	Solid growth. Also very environmental in outlook

The 4 R's

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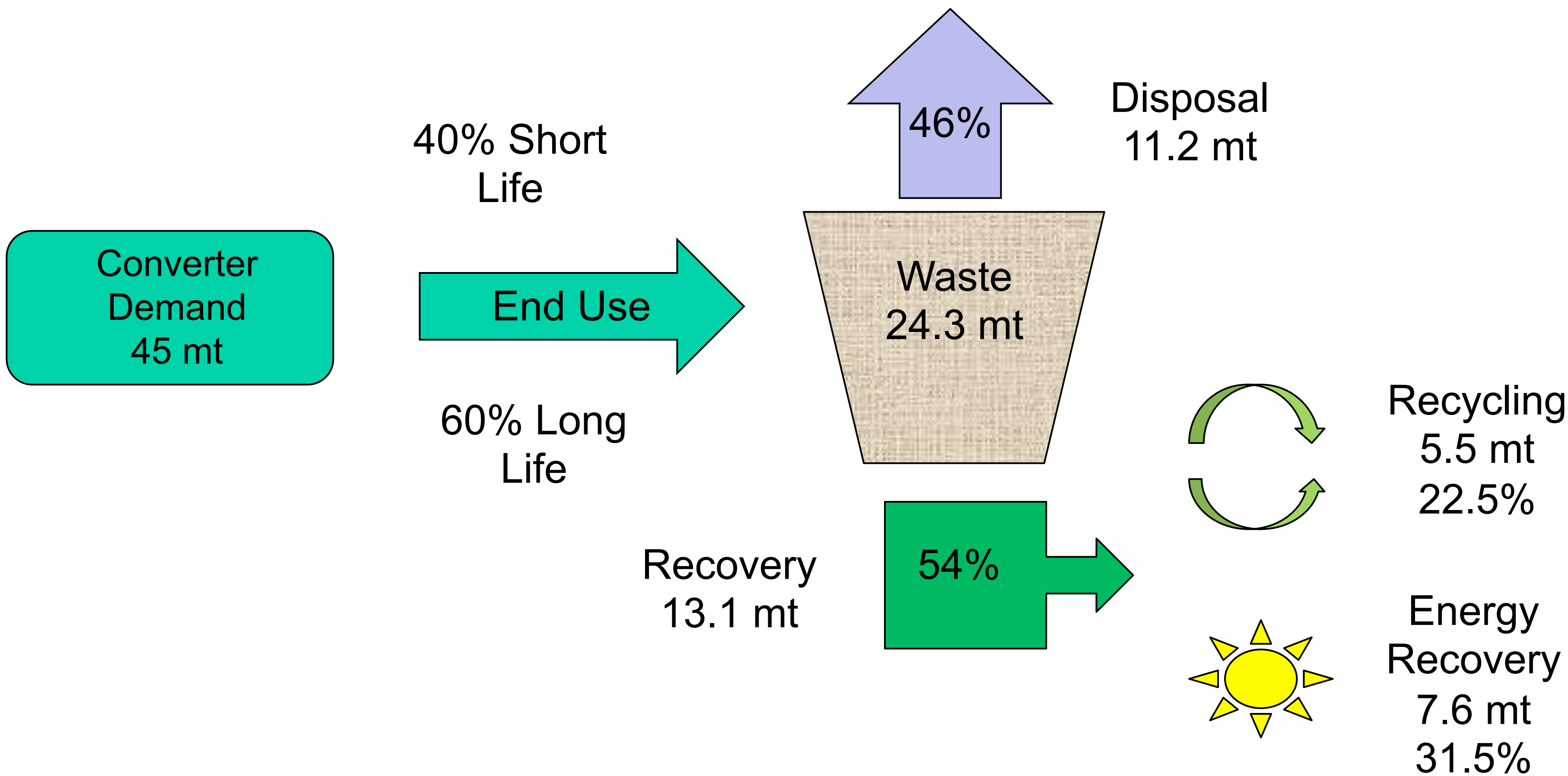
- Reduce
- Re-Use
- Recycle – plastics recycling tonnage increasing annually by 11% over last decade, but fell to 3.1% in downturn.
- Recover

Plastics Life Cycle



Bottles & Closures

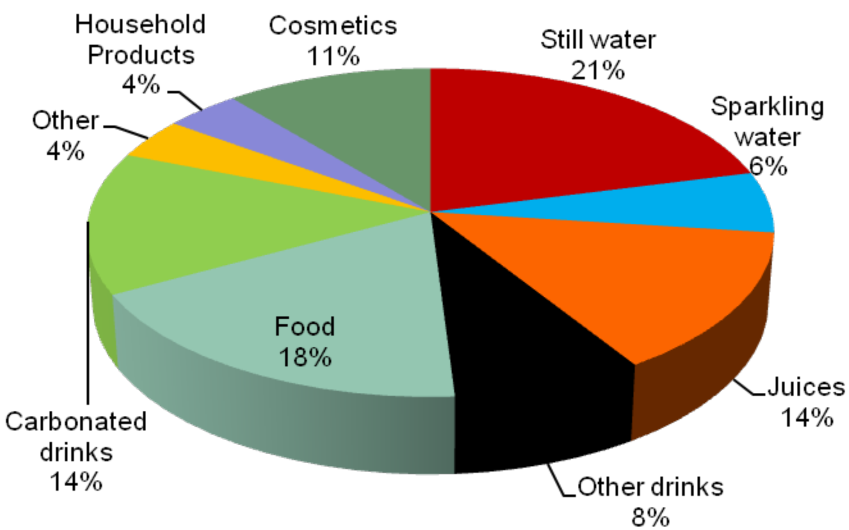
- Opportunities in PET barrier bottles for beer, wine and milk – could be as large as Carbonated soft drinks demand (1 million tonnes in 2009). Penetration at moment about 7%
- PET 1 litre bottles of beer widely used in Eastern Europe (45% penetration)
- Improving economics of PET through raw material cost reduction and production efficiencies and growing importance of light weighting.
- 10% growth per year – achievable in W Europe.

Blow Molded Plastic Bottle Use in Europe

• Still water	17% (93% penetration)
• Household Products	16% (95%)
• Industrial Chemicals	3% (95%)
• Cosmetics	6% (88%)
• Pharmaceutical	3% (28%)
• Carbonated Drinks	23% (79%)
• Juices etc	7% (32%)
• Beer/alcohol	3% (7%)
• Milk and Dairy	8% (34%)
• Sparkling Water	7% (65%)
• Other food	7% (10%)

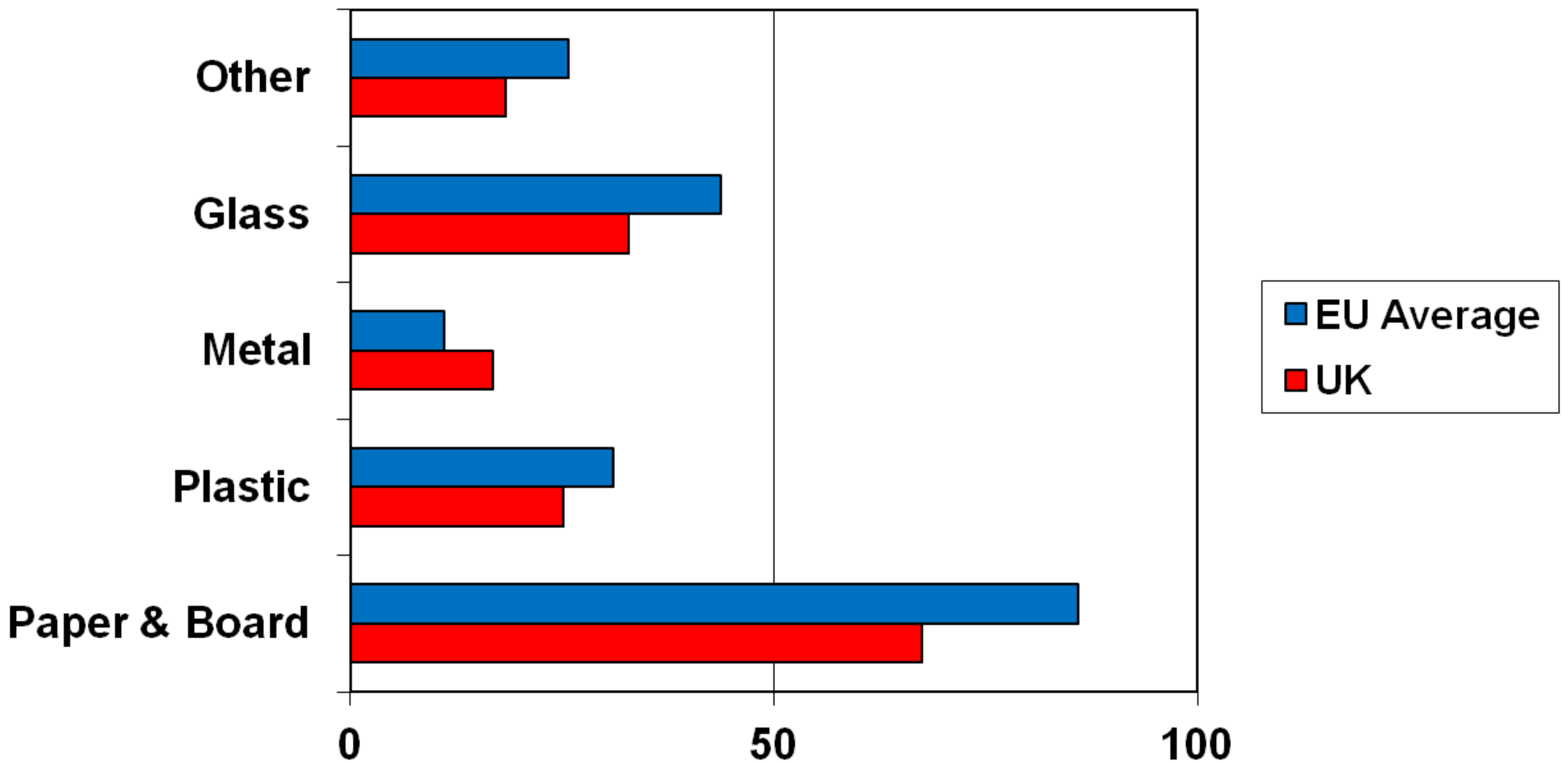
Closures

End use applications EU

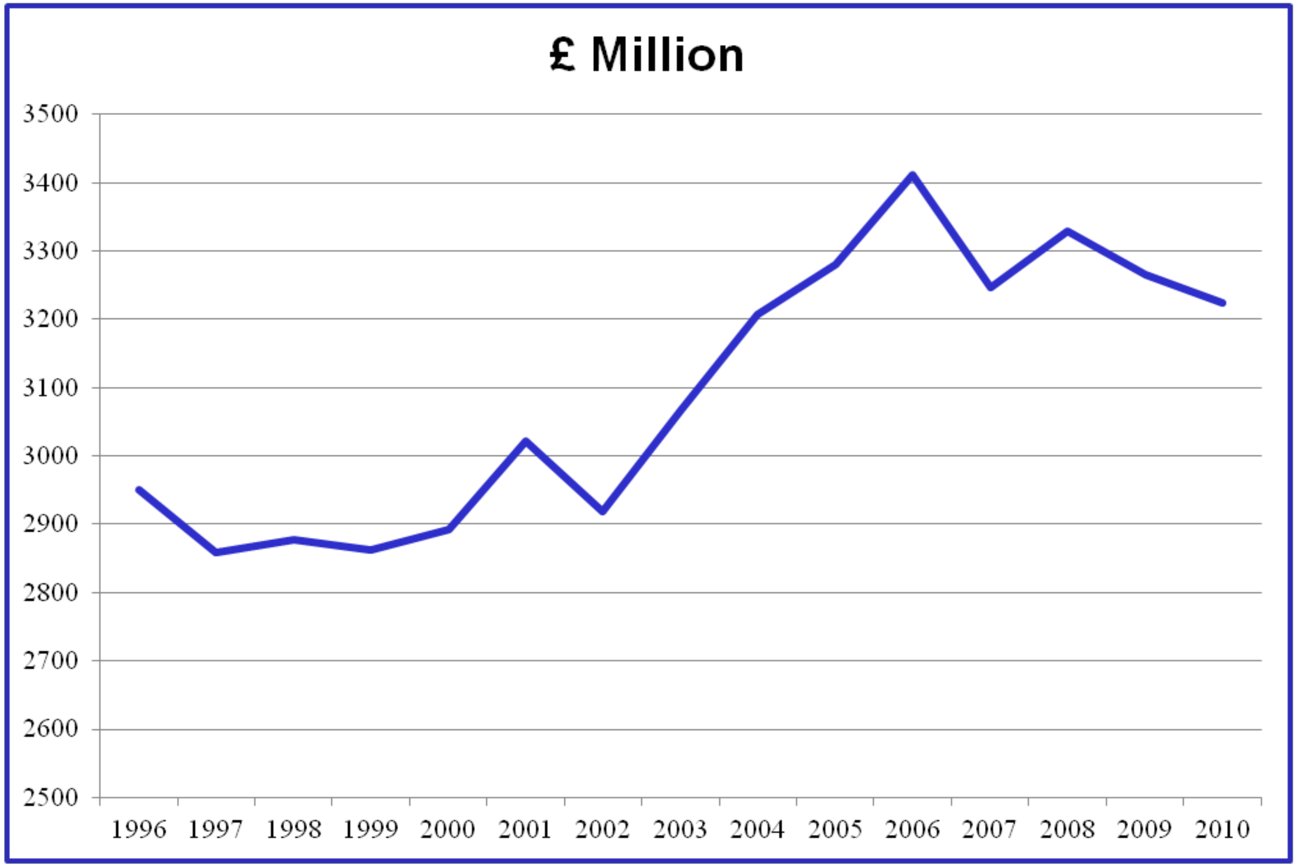


- Growth opportunity with blow-molded bottles
- Production 220 billion units/year and growing at 6% pre recsession and one piece HDPE growing faster at 9%.
- Exceeded metal now – just over 50% of EU closures
- Cost reduction, lighweighting and preference for one piece closures.
- Custom closures = big growth
- Heat stable PET barrier containers also lead to growth eg baby food

Packaging Consumption kg/Head



UK Plastics Market Development



UK Market for Plastics in 2010

£14.61 Billion

UK Market for Plastic Packaging in 2010

£3.22 Billion

Recovery & Recycling

- In 2009: 900 000 tonnes of plastics was collected for recycling. Of this, 590 000 was plastics packaging
- Over 700 000 tonnes of recovered plastics were exported for recycling, mainly to China. Around 66% of this was packaging
- Plastic bottle recycling around 40% - much investment in processing capacity
- Attention turned to collecting and recycling mixed plastics – only 5% of which is currently recycled
- 20% of local authorities operate kerbside plastic collections
- First mixed plastics reprocessing facility due on line in 2011
- Demand for food grade recovered polymers outstrips supply
- Prices for recovered plastics have been volatile.

Growth in UK Plastic Packaging Market

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Recent Growth in the UK Plastic Packaging Market:

- 2005 £3 208.6 Million @ MSP
- 2006 +4%
- 2007 +5%
- 2008 -1%
- 2009 -2%
- 2010 -1%
- 2010 £3 224.5 Million @ MSP

Material Share Development:

	2000	2010
Plastic	31.8%	33.9%
Paper & Board	46.5%	43.6%
Glass	6.5%	7.1%
Light Metal	15.1%	15.4%

- By weight plastic accounts for c.11%

Segmentation of UK Market

Market & Customer Insight

Sector:	2000 £ Million	% Share	2010 £ Million	% Share
PE Sacks	558.4	21%	786.9	24%
Other Sacks	198.2	8%	253.6	8%
Boxes, Crates & Cases	354.2	14%	561.6	17%
Bottles <2L	549.5	21%	773.4	23%
Bottles >2L	139.4	5%	183.7	6%
Closures	216.7	8%	145.3	5%
Netting	20.2	1%	16.8	1%
Other	566.8	22%	543.2	17%

Key Trends in UK Packaging

Key Trends in the sector include:

- Mature End Use Markets. Packaging choice is a key factor in driving sales.
- Innovations in Design. Plastic pouch packaging has gained share from metal. Re-sealable packaging is important consideration. Re-seal ability also helping to gain share from glass (eg instant coffee)
- Growing use of recyclable PET and biodegradable plastics.
- Power of the Retailers (65% by Top 5: Own Label 37% of sales)
- Image issues. Glass still perceived as premium.
- Continued Light Weighting of packaging.

UK Plastic Packaging Market by End Use

Value segmentation of the market by end use, 2010:

• Food	52%
• Drink	14%
• Health & Beauty	5%
• Chemicals	7%
• Other	22%

Segmentation by Polymer

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Volume development:

Polymer	2000 % Share	2010 % Share
LLDPE/LDPE	39%	38%
HDPE	22%	22%
PP	13%	14%
PS	7%	8%
PVC	4%	3%
PET	12%	14%
EPS	2%	2%

PE Flexible Film Market

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- High volume, low value sector
- Highly exposed to polymer prices
- Still over-capacity in industry, but reducing
- Growing use of recycled materials

• Refuse & waste sacks	10%
• Heavy duty sacks	4%
• Carrier bags	11%
• Retail counter bags	7%
• Bread bags	1%
• Freezer bags	2%
• Other bags	15%
• Collation shrink wrap	7%
• Pallet shrink wrap	4%
• Pallet stretch wrap	9%
• Frozen food	3%
• Mail film	2%
• Lamination film	2%
• Bubble film	1%
• Industrial liners	3%
• Dry cleaning covers	1%
• Co-extruded PE	4%
• Other	13%

Perceptions of Packaging Materials

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Material	Consumer view	Retailer view
Plastic	Low cost	Light, strong
	Low Quality	Innovative
	Poor “green” image	Convenient
Metal	Traditional	Heavy
	Low Quality	Poor marketing
Glass	High Quality	Fragile, heavy
Paper & Board	Green image	Neutral

Import Penetration

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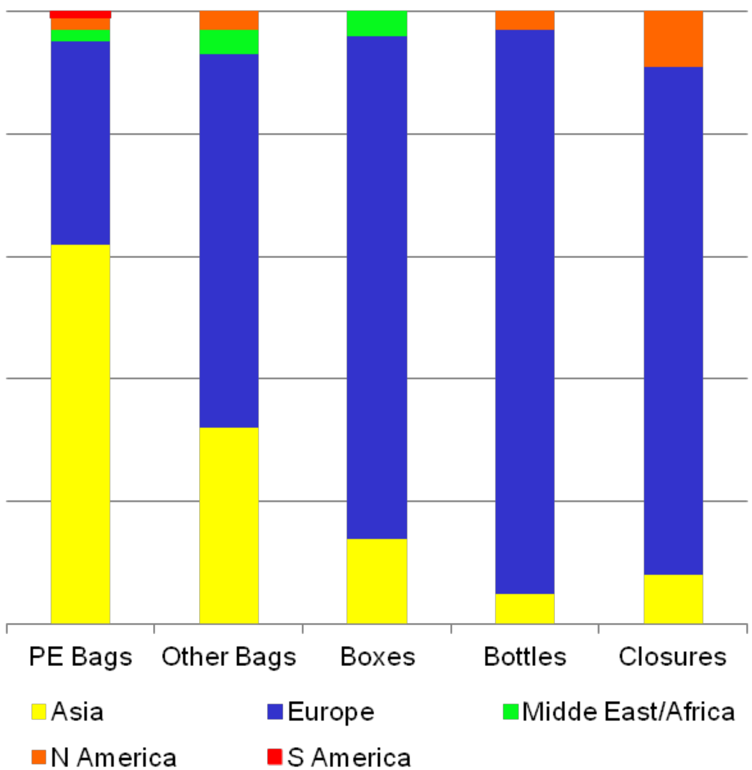
Import Value £ Million

	Value	Penetration
2004	927.3	28.9%
2005	1 071.9	31.2%
2006	1 157.6	33.9%
2007	1 160.2	35.7%
2008	1 121.8	33.7%
2009	1 115.4	35.5%
2010	1 240.6	38.5%

Penetration by Sector:

PE Sacks	39%
Other Sacks	49%
Boxes etc	31%
Bottles <2L	22%
Bottles >2L	11%
Closures	41%
Netting	60%
Other	14%

Leading Current Import Sources



Flexible Packaging:

China
Malaysia
Thailand
France
Netherlands
Germany

Rigid Packaging:

China
Belgium
Germany
France
Netherlands

Market Forecast

Forecast real growth in UK market:

2011	+1%
2012	+2%
2013	+2%
2014	+1%
2015	+1%

Forecast import growth:

2011	+2%
2012	+2%
2013	+2%
2014	+1%
2015	+1%

- Reduction of non-essential packaging
- Light weighting
- Reclamation issues

Key Opportunities

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- Innovation in flexibles such as flat and stand up pouches
- Transit packaging
- Shrink sleeves replacing labels in niche markets
- Microwaveable/ovenable CPET trays
- Thermoformed containers for fresh foods
- Hot fill PET bottle opportunities
- Alcohol & beer bottles ?
- Unmanned check outs have seen a return to use of T-shirt bags

Distribution

- Increasing use of contract packers/fillers.
- Retailers can get involved in packaging specification. But ASDA has out-sourced its packaging development department.
- Brand and design consultants influential.
- Converters are often “squeezed” between large suppliers and customers (packer/ fillers and retailers).

New Recycling Schemes

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- April 2011 an agreement between supermarkets and On Pack Recycling Label enabled public recycling of packaging such as bread bags and cereal liners.
- 4500 supermarkets have carrier bag recycling banks which will accept clean plastic film packaging
- Thin plastic accounts for 43 % of all plastic household packaging and represents 645 000 tonnes per year. (bottles = 32% @ 480 000 tonnes)

Carrier Bags

- Between 2006 and Spring 2009 – leading supermarkets had halved the weight of single use carrier bags
- In 2008 10 billion lightweight carrier bags given away by supermarkets (= 10 bags per week per household). By May 2010 – 6.1 billion
- Plans to introduce 5p plastic bag tax in Oct 2011

Supermarket Tactics

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- Hiding bags at checkout BUT growing use of unmanned check outs changing this policy
- Offering bonus “points” on Reward Cards
- Charging for all bags (Marks & Spencer 5p)
- Offering “Bags for Life” (10p and replaced free)
- Selling Non-woven PP bags (£1.50)
- Retailers like Primark switched to paper
- Supermarkets have never been opposed to them

Supermarket Use

Bag Type	Supermarkets
HDPE	Sainsbury's, Waitrose, Asda, Iceland, Morrisons
HDPE with Prodegradant	Tesco, Somerfield, Co-op
LDPE	Tesco, Sainsbury's, Waitrose, Asda, Iceland, Morrisons, Somerfield
Non Woven PP	Asda, Greengrocers
Cotton	Sainsbury's, Asda, Co-op, Marks & Spencer

Environment Agency Report – Feb 2011

- Commissioned in 2005 and scheduled for publication in 2007. Only recently been published. Supressed?
- Conclusion is that HDPE bags greener than supposedly “low impact” choices.
- HDPE bags, per use, 200 times less damaging than cotton hold-alls and have less than 33% of the CO2 emissions than paper.

Supermarket Share of Carrier Use

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Market Share HDPE

Supermarket	% Share
Sainsbury's	19.98%
Waitrose	4.22%
Asda	18.42%
Iceland	2.00%
Morrisons	12.43%
Tesco	33.74%
Somerfield	5.99%
Co-Op	5.22%

Market Share LDPE

Supermarket	% Share
Sainsbury's	18.97%
Waitrose	4.45%
Asda	19.44%
Iceland	2.11%
Morrisons	13.12%
Tesco	35.60%
Somerfield	6.32%
Co-Op	0.00%

Global Warming Impact Assessment

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- The number of times each heavy duty bag would have to be used to reduce its GWP below a conventional HDPE bag:
- Paper 4 times
- LDPE 5 times
- Non-woven PP 14 times
- Cotton bag 173 times

EA Study

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- HDPE (single use)
- HDPE with Prodegradant
- LDPE (Bag for Life)
- Non-woven PP (spunbonded with rigid base)
- Cotton
- Paper
- Biopolymer (PLA or starch Polyester)

- Raw Materials
- Primary Packaging
- Production Processes
- Transport
- End of Life
- Recycling & Reuse

Reuse of Lightweight Bags

Re Use Applications	% respondents that re-use
Bin liner – kitchen	53%
Bin liner – other	26%
Put rubbish in	43%
Pet waste	11%
Garden refuse	1%
Reuse for supermarket shop	8%
Reuse other shop	10%
Storage	14%
Packed lunches	8%
Carry other things when out	4%
Dirty shoes / outdoor clothing storage	1%
Charity shops	1%
Bottle / can storage for recycling	1%
Other	2%
Do not reuse / discard	11%

Amount of Primary Use Needed to take Reusable bags below GWP of HDPE Bags

	HDPE – no secondary use	HDPE – 40% use as bin liner	HDPE – 100% use as bin liner	HDPE used 3 times
Paper	3	4	7	9
LDPE	4	5	9	12
Non-woven PP	11	14	26	33
Cotton	131	173	327	393

French study

- A French study in 2004 for Carrefour looked at HDPE v LDPE v Paper v Biodegradable bags.
- This found that when an LDPE bag is reused four times it offered the best environmental performance but HDPE was found to be better than paper and biodegradable for most indicators.
- Based on results, Carrefour concluded the best options for improving the performance of carrier bags was to minimise weight while maintaining technical properties and to reuse bags.

French Results: >1 = worse than HDPE and <1 = better than HDPE

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Categories	HDPE	LDPE – 2 use	LDPE – 4 use	LDPE – 20 use	Paper	Bio-degradable
Non-renewable energy	1	1.4	0.7	0.1	1.1	0.9
Water	1	1.3	0.6	0.1	4	1
Greenhouse gas emission	1	1.3	0.6	0.1	3.3	1.5
Atmospheric acidification	1	1.5	0.7	0.1	1.9	1.8
Photochemical oxidants	1	0.7	0.3	0.1	1.3	0.5
Water eutrophication	1	1.4	0.7	0.1	14	12
Pollution of solid waste	1	1.4	0.7	0.1	2.7	1.1
Risk of littering	High	Average – low	Average – low	Average – low	Low	Average - low

What impact will it have?

- Retailers have been telling Wrap (a publicly-funded Waste & Resources Action Programme) and Defra (Dept for the Environment, Food and Rural Affairs) for a long time that they have been missing the point.
- There is some precedent. The EA report into disposable nappies suggested re-usable nappies consumed more carbon because of washing. Government advice was changed.
- May prevent the 5p Tax being implemented but not necessarily. Government may fear impact on overall recycling message and pressure on landfill. Plus it’s a potential revenue stream.
- BUT issue is perception as much as reality.

Directory of UK Packaging Industry

- There is a FREE on-line directory of the UK packaging industry, including contract packers on:

- www.packagingmagazine.co.uk