



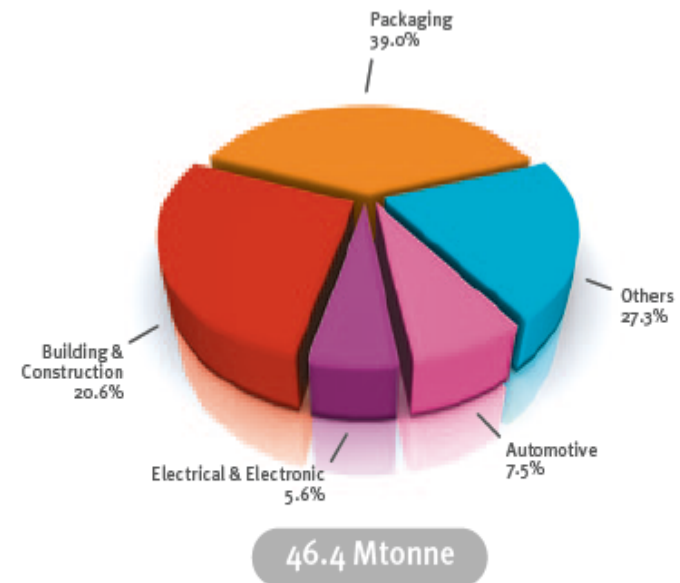
Analysis of recovery of plastic waste in the building and construction sector (2010)

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PlasticsEurope
Association of Plastics Manufacturers

Background

- Building and construction (B&C) is responsible for over 20% of demand for plastics in Europe
- It is the second largest market segment for plastics after packaging
- A wealth of data exists for the recovery of plastic packaging waste across Europe
- However, to date there has little or no analysis of plastics waste management in the B&C sector
- To address this gap PlasticsEurope commissioned an independent study by Consultic into plastics waste in the B&C sector in the 27 EU Member States (EU27) plus Norway and Switzerland



European Plastics Demand* by Segment 2010

Source: PlasticsEurope Market Research Group (PEMRG)

* EU27+N/CH incl. Other Plastics (~5.6 Mtonne)

Total Plastic Waste vs. Plastics Waste in B&C in EU-27+2 in 2010

- **Polyethylene (PE)**, all types combined, accounts the largest share of plastic waste across all sectors.
- **Polyvinylchloride (PVC)** accounts for the largest share of plastics waste in B&C
- Although responsible for over 20% of demand for plastics, the B&C sector only accounts for **5.5% of total plastics waste**

Total Plastics Waste by Polymer

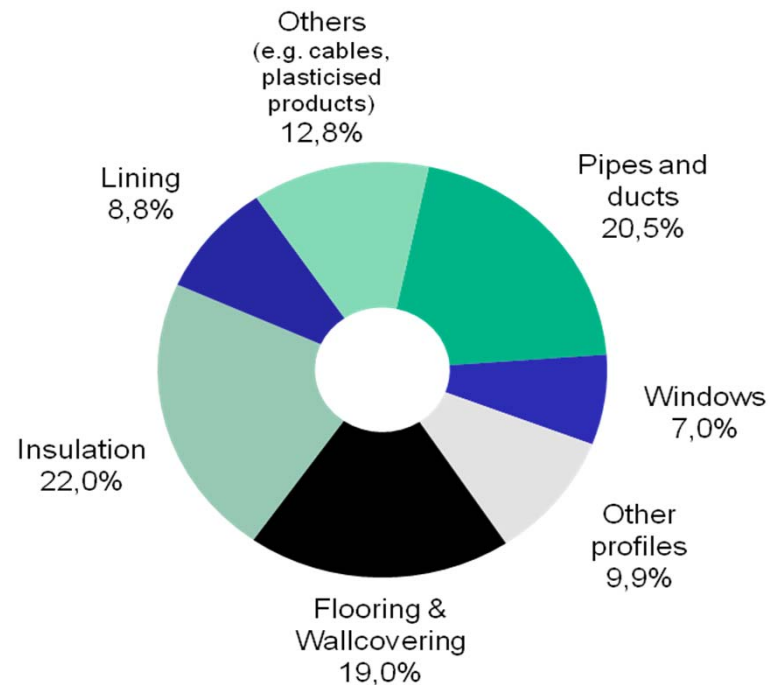
Polymer Type	Quantity (kt)	Share (%)
PE-LD, -LLD	6.897 kt	27,9%
PE-HD, -MD	3.461 kt	14,0%
PP	4.317 kt	17,5%
PS, EPS	1.880 kt	7,6%
PVC	1.973 kt	8,0%
PET	2.947 kt	11,9%
ABS, ASA, SAN	458 kt	1,9%
PMMA	180 kt	0,7%
PA	335 kt	1,4%
Other Eng.	506 kt	2,0%
PUR	709 kt	2,9%
Other Plastics	1.050 kt	4,3%
Total	24.713 kt	100,0%

Total Plastics B&C Waste by Polymer

Polymer Type	Quantity (kt)	Share (%)
PE-LD, -LLD	40 kt	2,9%
PE-HD, -MD	140 kt	10,3%
PP	70 kt	5,1%
PS, EPS	175 kt	12,9%
PVC	610 kt	44,7%
PET	- - -	0,0%
ABS, ASA, SAN	10 kt	0,7%
PMMA	25 kt	1,8%
PA	15 kt	1,1%
PCS	18 kt	1,3%
Other Eng.	10 kt	0,7%
PUR	120 kt	8,8%
Other Plastics	132 kt	9,7%
Total	1.365 kt	100,0%

Plastic B&C Waste by application

B&C Plastic Waste by Building & Construction applications in EU27+2 (2010)



- **Insulation** accounts for the largest share of plastic waste in the Building & Construction sector
- Followed closely by **pipes and ducts** and by **flooring and wall coverings**.

Application	Quantity (kt)	Share (%)
Pipes and ducts	280 kt	20,5%
Windows	95 kt	7,0%
Other profiles	135 kt	9,9%
Flooring and Wallcovering	260 kt	19,0%
Insulation	310 kt	22,0%
Lining	120 kt	8,8%
Others (e.g. Cables, Plasti-cised Products)	165 kt	12,8%
Total	1.365 kt	100,0%

Treatment of plastic B&C waste in EU27 plus Norway and Switzerland

Rate of mechanical recycling of building/construction plastic waste increased significantly from 2009 to 2010

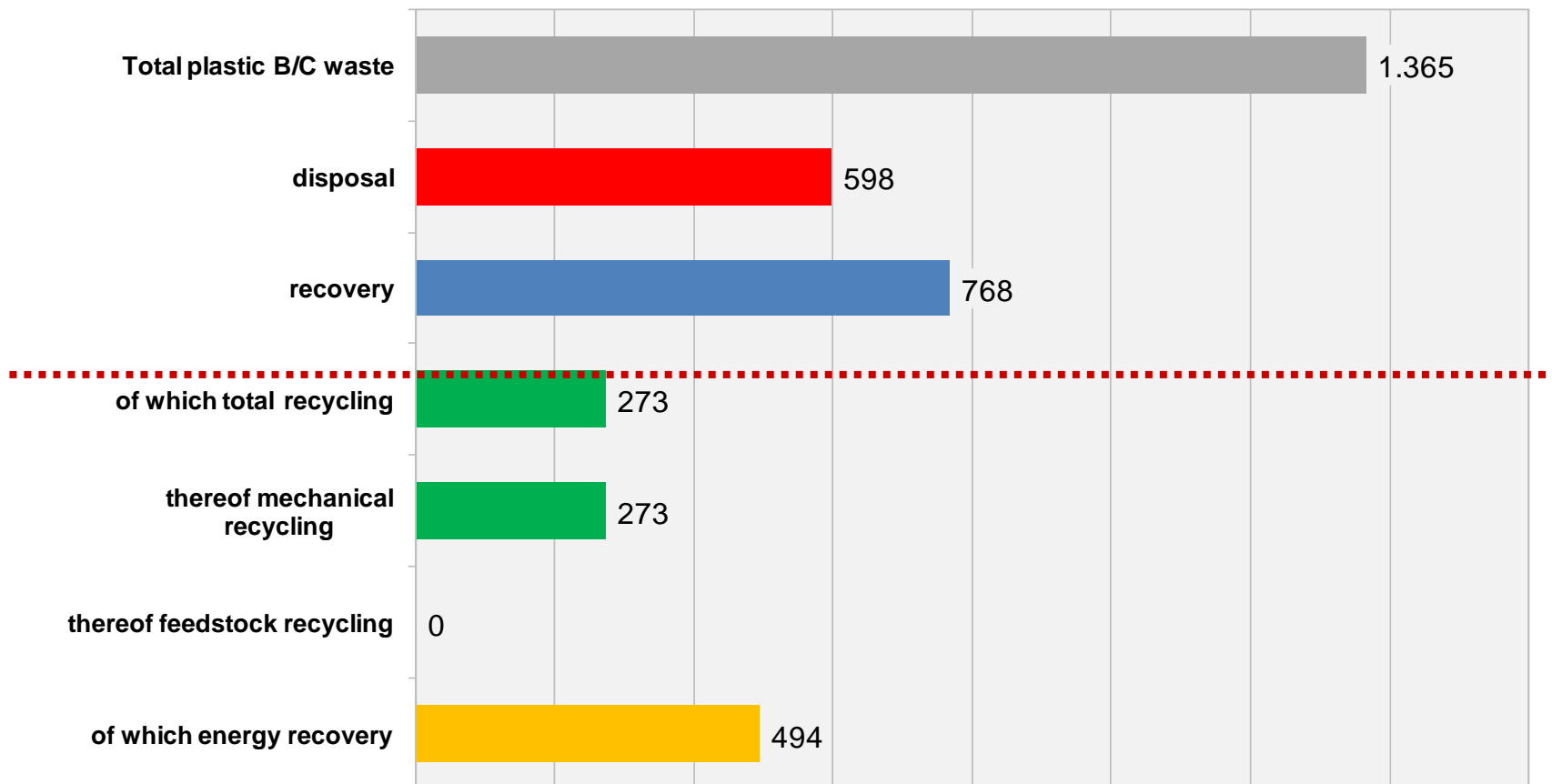
- In 2010 20,0% (in 2009: 15,8%) of the total building/construction plastic waste in the EU 27 + 2 countries were mechanically recycled. 36,2% were energetically recovered mainly in waste incineration plants and as RDF.
- This results in an overall recovery rate of building/construction plastic waste of **56,2% in 2010 compared to 51,9% in 2009.**



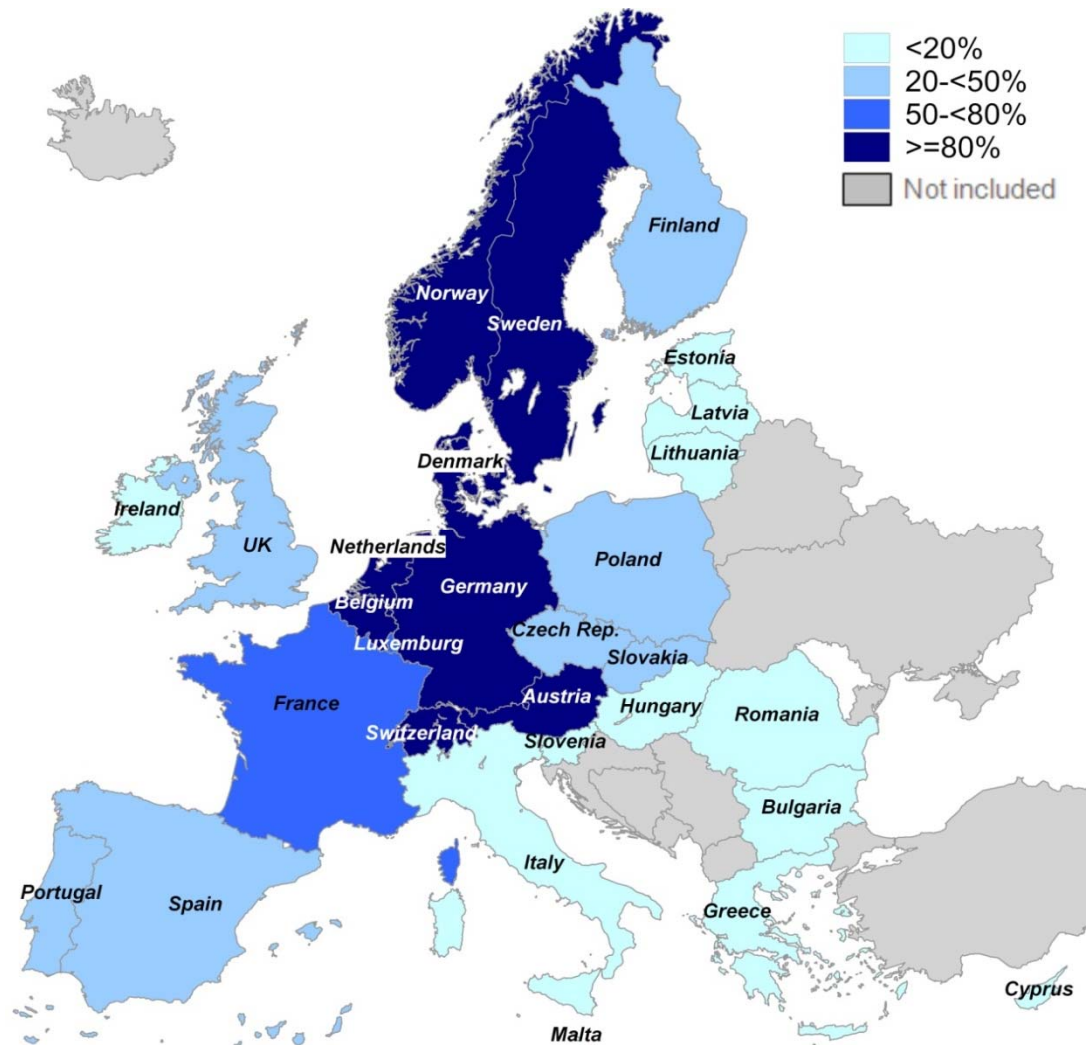
Recovery Rate:	56,2%
• Recycling Rate	20,0%
- Mechanical Recycling	20,0%
- Feedstock Recycling	0,0%
• Energy Recovery	36,2%
Disposal Rate:	43,8%

Treatment of plastic B&C waste in EU27 plus Norway and Switzerland

Treatment of total plastic waste from Building/Construction 2010 in EU 27 + 2 (kt)

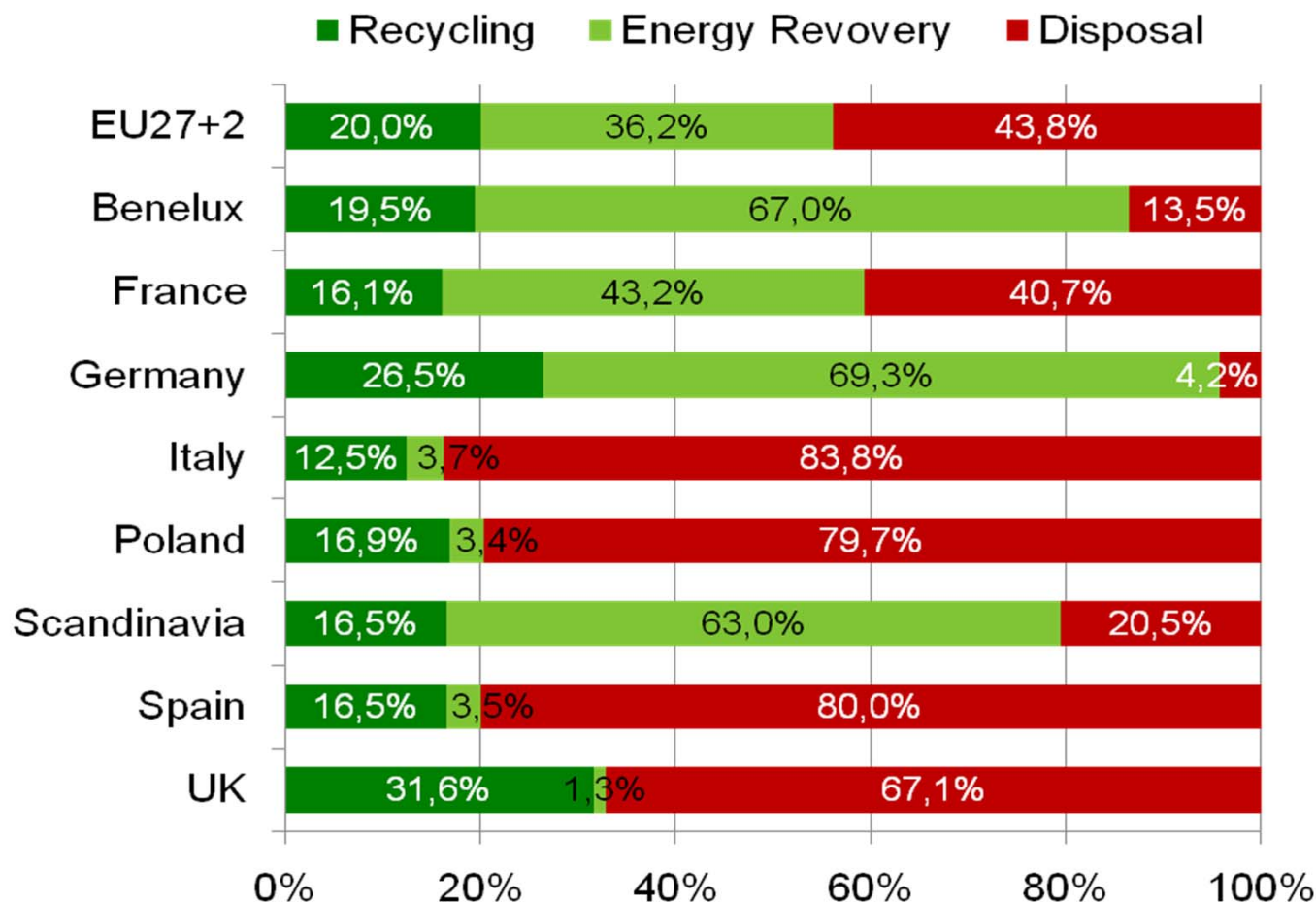


Recovery of plastic B&C waste in building and construction



- As in the packaging sector, trends in recovery of building and construction plastic waste demonstrate large disparities across the EU 27+2.
- 8 countries have recovery rates >80% (Austria, Belgium, Denmark, Germany, Netherlands, Norway, Sweden and Switzerland)
- 6 countries with no recovery of building/construction plastic waste and a further 3 with less than 5%

Recovery and disposal of plastic B&C waste in EU27+2 and by country (2010)



Recovery and disposal of plastic B&C waste in EU27+2 and by country (2010)

- A total of 56.2% of plastics B&C waste was diverted from landfill in 2010 through a combination of recycling (20%) and energy recovery (36.2%).
- **Germany** provides an example of what can be achieved with the right infrastructure in place, recovering over 96% of plastics B&C waste in 2010.
- Meanwhile, in **Italy** and **Spain** over 80% still ended up in landfill.
- While the **UK** leads the way in terms of recycling rates (31.5%) it still sent roughly two thirds of its waste to landfill in 2010 due to minimal use of energy recovery.
- **Scandinavian countries** have overall recovery rates of almost 80% due to a strong use of energy recovery.

Recycling	Energy Recovery	Disposal
273 kt	494 kt	598 kt
21 kt	73 kt	14 kt
25 kt	67 kt	63 kt
94 kt	246 kt	15 kt
17 kt	5 kt	114 kt
15 kt	3 kt	71 kt
9 kt	35 kt	12 kt
14 kt	3 kt	68 kt
50 kt	2 kt	106 kt

Recovery and disposal of plastic B&C waste in EU27+2 and by country (2010)

B/C 2010 EU 27+2	Total Waste Generation in kt	Recovery in kt					Disposal in kt			
		Total	%	Mechanical Recycling	Feed stock Recycling	Energy Recovery	Total	%	Landfill	Incineration without EfW
Austria	35	33	94%	5	0	28	2	6%	2	0
Belgium	39	32	82%	4	0	28	7	18%	7	0
Bulgaria	9	0	2%	0	0	0	8	98%	8	0
Cyprus	2	0	0%	0	0	0	2	100%	2	0
Czechia	28	9	31%	8	0	1	19	69%	19	0
Denmark	17	15	88%	3	0	13	2	12%	2	0
Estonia	4	0	0%	0	0	0	4	100%	4	0
Finland	12	5	37%	2	0	3	8	63%	8	0
France	155	92	59%	25	0	67	63	41%	62	1
Germany	355	340	96%	94	0	246	15	4%	15	0
Greece	16	0	0%	0	0	0	16	100%	16	0
Hungary	18	2	12%	1	0	1	15	88%	15	0
Ireland	4	1	19%	0	0	1	3	81%	3	0
Italy	136	22	16%	17	0	5	114	84%	114	0
Latvia	6	0	0%	0	0	0	6	100%	6	0
Lithuania	7	0	1%	0	0	0	7	99%	7	0
Luxembourg	2	1	65%	0	0	1	1	35%	1	0
Malta	1	0	0%	0	0	0	1	100%	1	0
Netherlands	68	61	90%	17	0	44	7	10%	7	0
Norway	12	11	88%	3	0	8	1	12%	1	0
Poland	89	18	20%	15	0	3	71	80%	71	0
Portugal	19	6	31%	2	0	4	13	69%	13	0
Romania	27	1	4%	1	0	0	26	96%	26	0
Slovakia	11	5	40%	2	0	2	7	60%	7	0
Slovenia	4	0	0%	0	0	0	4	100%	4	0
Spain	85	17	20%	14	0	3	68	80%	68	0
Sweden	15	14	96%	2	0	12	1	4%	1	0
Switzerland	31	31	100%	8	0	23	0	0%	0	0
UK	158	52	33%	50	0	2	106	67%	106	0
Total	1.365	768	56%	273	0	494	598	44%	597	1
				20,0%	0,0%	36,2%			44%	0,1%

Recovery and disposal of plastic B&C waste in EU27+2 and by country (2010)

- Significant mechanical recycling activities in Germany, UK, France, Italy, Netherlands and Poland and Spain. These countries cover more than 80% of the recycling activities.
- Strong energy recovery activities could be identified in Germany, France, Netherlands, Belgium, Austria, Switzerland, Denmark and Sweden.
- The total recycling quantity increased from 211 kt in 2009 to 273 kt in 2010.



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