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Research article

Plastics value chain – Abatement of greenhouse gas emissions

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Figure S1. Supplementary information on additional recycling potential of plastics and plastic fibres.

Plastics consumption and waste generation in economic sectors in % and Mt/a												TOTAL
Market sector	Consumption Mt/a	Waste Mt/a	Waste %	Consumption of different plastics in %								Total
				LDPE & LLDPE	HDPE	PP	PS	PVC	PET	PUR	Other	
Transportation	27	17	63	0.1%	0.8%	2.6%	0.0%	0.3%	0.0%	1.6%	1.4%	6.7%
Packaging	146	141	97	13.5%	9.3%	8.2%	2.3%	0.9%	10.1%	0.2%	0.1%	44.8%
Building & Construction	65	13	20	1.1%	3.3%	1.2%	2.2%	8.1%	0.0%	2.4%	0.5%	18.8%
Electric & Electronics	18	13	72	0.5%	0.2%	0.9%	0.6%	0.4%	0.0%	0.4%	1.0%	3.8%
Consumer & Institutional	42	37	88	2.9%	1.7%	3.8%	1.8%	0.6%	0.0%	1.0%	0.2%	11.9%
Industry & Machinery	3	1	33	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.3%	0.0%	0.8%
Other	47	38	81	1.7%	0.9%	4.2%	0.7%	1.4%	0.0%	2.5%	1.7%	13.2%
TOTAL Mt/a	348	260	75 %									
TOTAL%				20 %	16.3%	21.0%	7.6%	11.8%	10.2%	8.2%	4.9%	100.0%
TOTAL Mt/a	348	260		69,6	56,7	73,1	26,4	41,1	35,5	28,5	17,1	348
Without additives Mt/a	323	243		64	52	68	25	38	33	27	16	323
Additives Mt/a	25	17										
Waste Mt/a				57	40	55	17	15	32	16	11	243
Waste not recycled or incinerated Mt/a				29	22	28	13	15	16	12	0	135
*Potential to increase recycling in %				76 %	64 %	61 %	61.5%	47 %	75 %	50 %		
Additional near term recyclable in Mt/a				22	14	17	8	7	12	6	0	86
	Consumption Mt/a	Waste Mt/	Waste%	Recycled Mt/a	Incinerated Mt/a	Not recyc Mt/a	Additional near term recyclable in Mt/a					
Plastic Fibres	59	42	71 %	0	5	37	8					
Potential to increase recycling in %		Estimation principles										
Key waste sectors	Waste %	Waste Mt/a	Use %	LL/LLDPE	HDPE	PP	PS	PVC	PET	PUR		
Packaging	97 %	141		13.5%	9.3%	8.2%	2.3%	0.9%	10.1%	0.2%		
Electric & Electronics	72 %	13		0.5%	0.2%	0.9%	0.6%	0.4%		0.4%		
Consumer & Institutional	88 %	37		2.9%	1.7%	3.8%	1.8%	0.6%		1.0%		
Average %	87 %		Total	16.9%	11.2%	12.9%	4.7%	1.9%	10.1%	1.6%		
			Total all%	20.0%	16.3%	21.0%	7.6%	11.8%	10.2%	8.2%		
Key sectors share of all total use of plastics				0,85	0,69	0,61	0,61	0,16	0,99	0,2		
Corrected to average waste percent of 87%				0,74	0,6	0,53	0,53	0,14	86 %	0,17		
Correction from nature of products				0,02	0,04	0,11	0,115	0,33	-0,11	0,33		
Potential increase in recycling %				76 %	64 %	61 %	61.5%	47 %	75 %	50 %		
NOTES.												
PET	Reduced potential because of single use nature											
PP	Increased potential in building & construction (improved waste management at building sites) and in transportation (dismantling from car pieces)											
PVC	Increased potential in building & construction (improved waste management at building sites)											
PUR	Increased potential in building & construction (improved waste management at building sites)											

Figure S2. Enlarged Figure 1.

