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**WITH 151.000 TONS OF “END-OF-LIFE PV PANELS EXPECTED
BEFORE 2030, RECYCLING IS NOT AN OPTION**

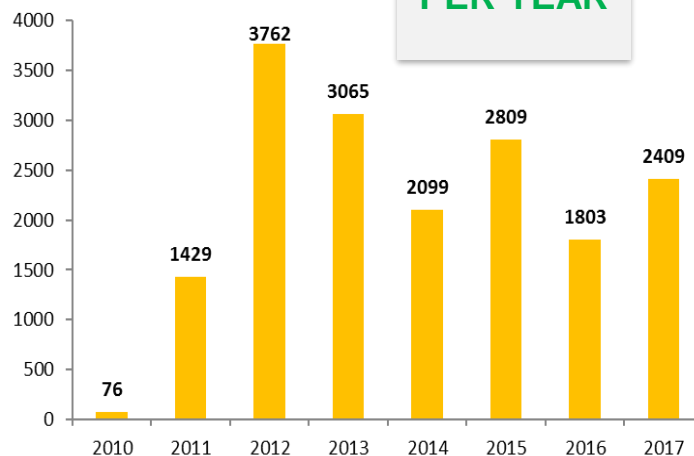
RESULTS



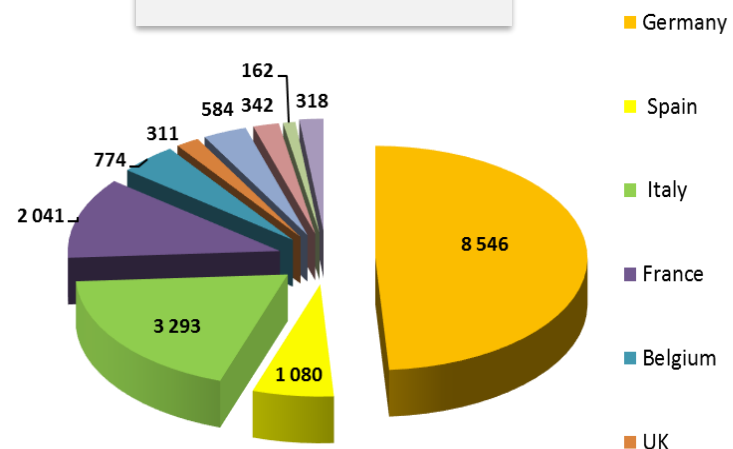
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TOTAL COLLECTED and TREATED from 2010 to 2017 : **17.450 T**

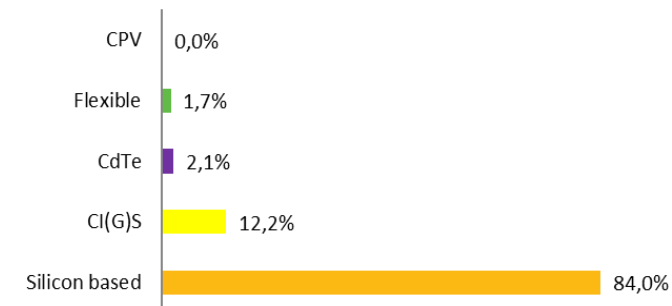
PER YEAR



PER COUNTRY



PER TECHNOLOGY



We are currently collecting numbers for 2018 but more than 5000 tons will be expected for this years and probably be doubled each year

Waste Management



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For all types of PV Panels there are suitable treatment solutions.

Only PV Panels containing all original components are suitable for recycling

Also broken glass PV Panels can be recycled

PV Panels coming from fire cases can only be recycled if all components are available in their original form

Already today, between **90% - 97% of a PV module's weight can be recycled.**

Average for all PV technologies

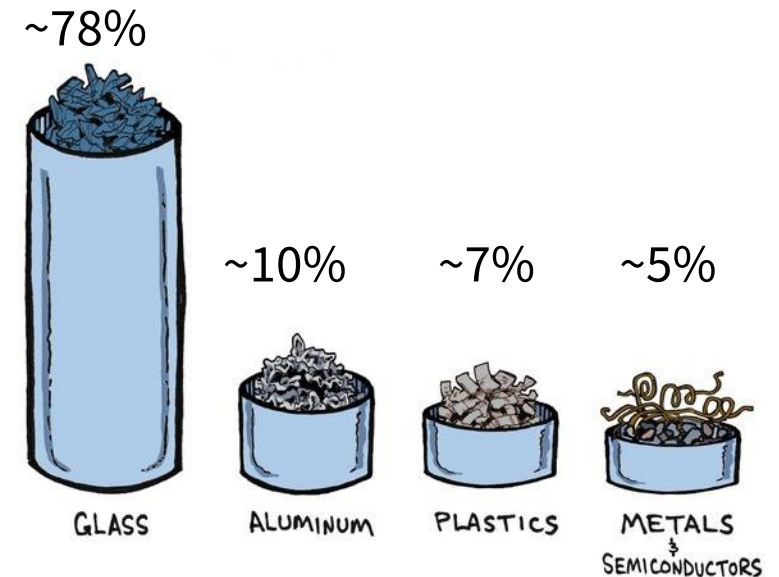
Average for all PV CYCLE treatment partners: max. 5% goes into energy recovery

If applicable, max. 5% is landfilled. Very small amounts of residues (glass or EVA foil) are the perfect material for the coating of landfill sites, helping to prepare these sites for later construction projects

PV CYCLE only applies so-called BATNEEC .

¹Best Available Techniques Not Exceeding Excessive Costs)

On average, a PV module¹ consists of:



TREATMENT



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SILICON BASED PV : On average, more than 90% (up to 96%) of a silicon based PV module can be recycled. In a mainly mechanical process the individual materials are separated and refined.

Mechanical treatment :

Removal of the frame, junction box, cable – Shredding – Sorting – Refining

Recovered for recycling : Glass, Aluminium, Copper, Silver, Plastics
(cables, junction box), Silicon flakes and dioxide

Recovered for energy recovery : EVA foil, Silicon

Recovered for landfilling (if applicable) : Residues from glass recovery, Residues from EVA foils



NON-SILICON BASED PV : On average, about 97% of a non-silicon based PV module can be recycled. In a chemical process the individual materials are separated. In a second step, they can be further refined, using both mechanical and chemical process

Chemical treatment :

Recovered for recycling : Glass, Metals and Plastics from junction box, Aluminium (if applicable), semi-conductors

Recovered for energy recovery : Plastics from EVA foil

The closed-loop advantage



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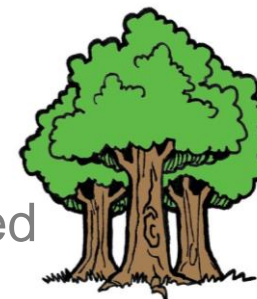
- LCA: Impact of recycling on CO₂ savings
 - Recycling 1 ton of silicon PV modules helps to save approximately 1.2 tons of CO₂ emissions.

1.2t

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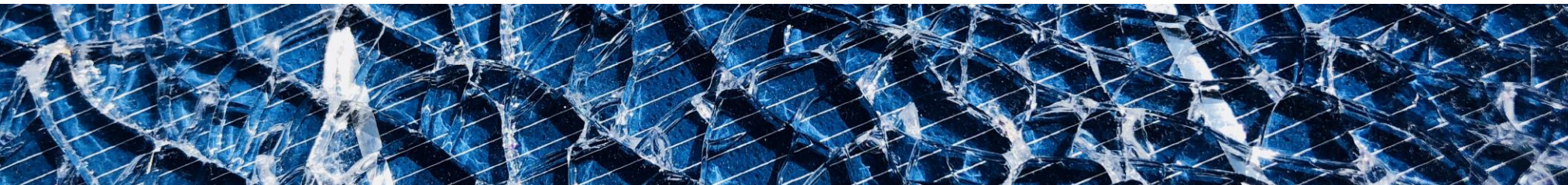
350 small cars less per year



6 trees planted

4,600 km not driven by an average car





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