LCA | Synthetic Blanket

Description of Item

Plastic Floor Mat

- Mass: 2 kg
- Material: Virgin Polyester from PET granulate
- Plastic packaging material: LDPE film

Functional unit

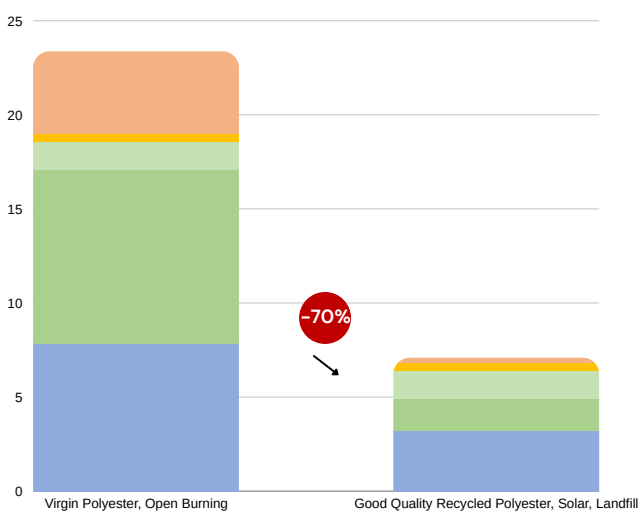
Use of 1 mattress for 10 years

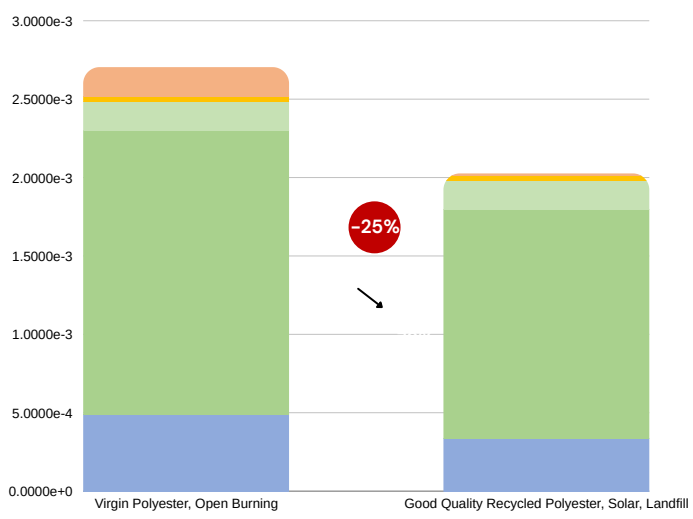
Item	Use life	Reference Flows
Virgin Polyester	5	1
Good Quality, Recycled	5	1
Poor Quality, Recycled	3	1.67

Assumptions

Baseline product produced in India, sent to port by freight train, and shipped to warehousing and distribution locations. Assumed o be hand washed once a year. Open burning assumed for end-of-life.

Results of the computation





Stage	kgCO₂e	
	Scenario 1	Scenario 2
Raw Material	7.87	3.20
Production	9.22	1.74
Transportation	1.48	1.48
Use	0.44	0.44
End-of-Life	4.37	0.23

Stage	Human Health	
	Scenario 1	Scenario 2
Raw Material	4.89E-04	3.37E-04
Production	1.81E-03	1.46E-03
Transportation	1.85E-04	1.85E-04
Use	3.23E-05	3.23E-05
End-of-Life		
	1.88E-04	1.20E-05

Variations (% from baseline figures presented above)

To use recycled material

Computation made by considering recycled polyester – of good quality (5 yrs) & bad quality (3 yrs)

kgCO2e

Good Quality	Bad Quality
-20%	+33%

Human Health

Good Quality	Bad Quality
-6%	+57%

To use renewable energy for production

Computation made by considering 100% solar energy for electricity & heat

kgCO2e

Renewable Energy

-32%

Human Health

Renewable Energy

-13%

To switch to sanitary landfills

Computation made by considering sanitary landfill (moist infiltration class) at end-of-life

kgCO2e

Sanitary Landfill

-18%

Human Health

Sanitary Landfill

-7%

To transport by air

Computation made by considering air freight for international transportation instead of maritime shipping (emergencies)

kgCO2e

Air Freight

+34%

Human Health

Air Freight

+13%

Best Possible Scenario

Computation made by considering recycled polyester produced with solar energy, disposed in a sanitary landfill

kgCO2e

Best Case

-70%

Human Health

Best Case

-25%

Analyses

combining **recycled polyester, renewable energy for electricity and heat at production phase**, and landfill instead of open burning account for the impact reduction of the synthetic blanket.

The highest singular impact reduction point is **energy for production, providing 32% reduction in GHG emissions and 13% in impact on human health.**

Emission factors

The values displayed here are not per functional unit but per item. These values can be used to compute a carbon footprint of an organisation and can be adapted to a specific case using the tool

Name	GHG Protocol Categories	kgCO2e/unit
Cradle-to-grave	**N/A**	**23.38**
Cradle-to-gate	3.1 Purchased Goods	17.08
Distribution freight	3.4 and/or 3.9 Transportation	1.48
Use phase	3.11 Use of distributed product	0.44
End-of life	3.12 End of life of distributed product	4.37

References

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About this project

Designing methodologies and performing life cycle analyses of high-impact items to build a GHG emission factor and environmental impact database adapted to the humanitarian sector with the goal of identifying key strategies to reduce environmental impacts.

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