

The logo icon consists of two overlapping, rounded shapes that form a stylized 'g' or a similar symbol. The top shape is slightly offset to the left and overlaps the bottom shape, which is slightly offset to the right. Both shapes have a white-to-light-blue gradient.

medmix

Legal notice

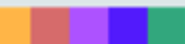
This document is a general presentation. The information contained in this publication is believed to be accurate and reliable but is not to be construed as implying any warranty or guarantee of performance. We waive any liability and indemnity for effects resulting from its application. Please, contact us for a description of the warranties and guarantees offered with our products. Directions for use and safety will be given separately. All information herein is subject to change without notice. medmix owned photography and imagery from this document, our website and other sources may be used only with written consent. Contact medmix for permission.

Copyright © 2021 medmix Ltd. All rights reserved.



Sustainability in product development

Tobias Bodenmüller, Technology Expert



Agenda

- Introduction medmix and sustainability targets
- Challenges in product development and simulation landscape
- More sustainable products solutions
 - Material selection and evaluation
 - Performance & global warming potential
- Outlook and conclusion

Business snapshot

CHF
~450m
revenue
(expected 2021)

2,000
employees

Global
footprint

13
production
sites

900+
active patents

8
brands

>2.5bn
Products per year

We help millions of people live a healthier and more confident life

Healthcare

Consumer and Industrial



Dental



Drug Delivery



Surgery



Industry



Beauty



For your perfect smile



For your health



For your active lifestyle



For your precision work




















For your beautiful face



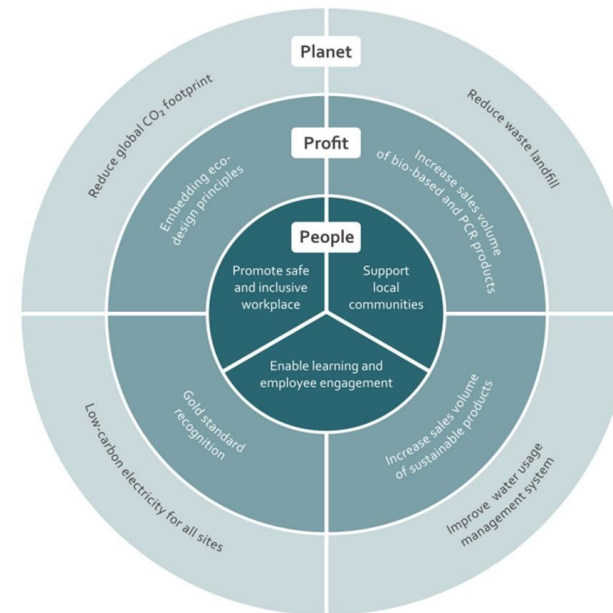
Environmental sustainability commitments

medmix approach to environmental sustainability brings innovation to life...

...and drives our future commitments until 2025

	Eco design principles embedded in innovation and R&D	  
	Member of UN Global Compact	
	Committed to Science Based Targets initiative	
	Low carbon electricity used by 69% of all medmix sites	
	CDP Climate Change "Awareness" rating	
	EcoVadis assessments to drive improvement	
	ISCC audit to enable responsible sourcing	
 Achieved  Targeted	    	

- Achieve SBTi Near Term CO₂(eq.) reduction (Net Zero by 2050)
- Increase availability of sustainable products
- Zero waste to landfill
- Low carbon electricity for all sites
- ...

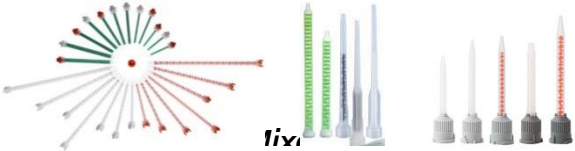


Industry – overview

Selected products

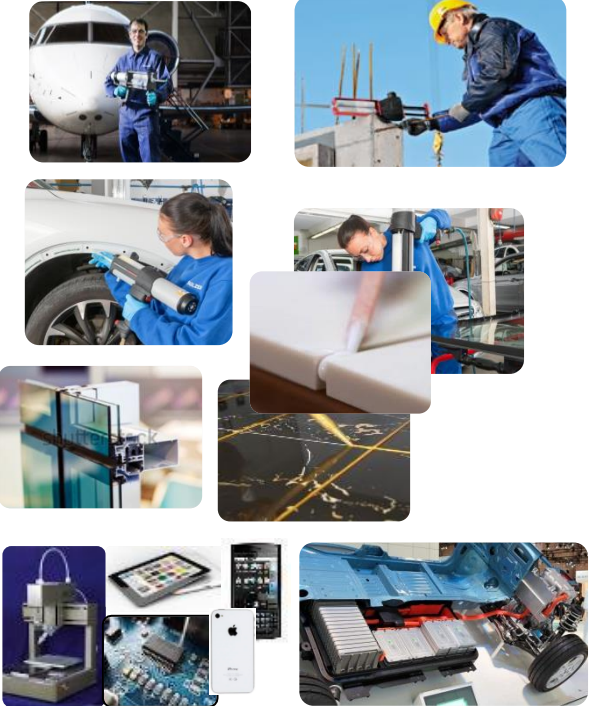


2-K Cartridges
(from 10ml to 1,500ml filling volumes)



1- and 2-K Dispensers
(manual, pneumatic, battery-driven for one- or two-component)

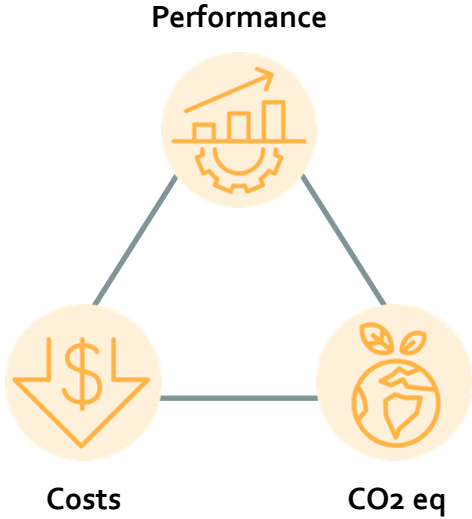
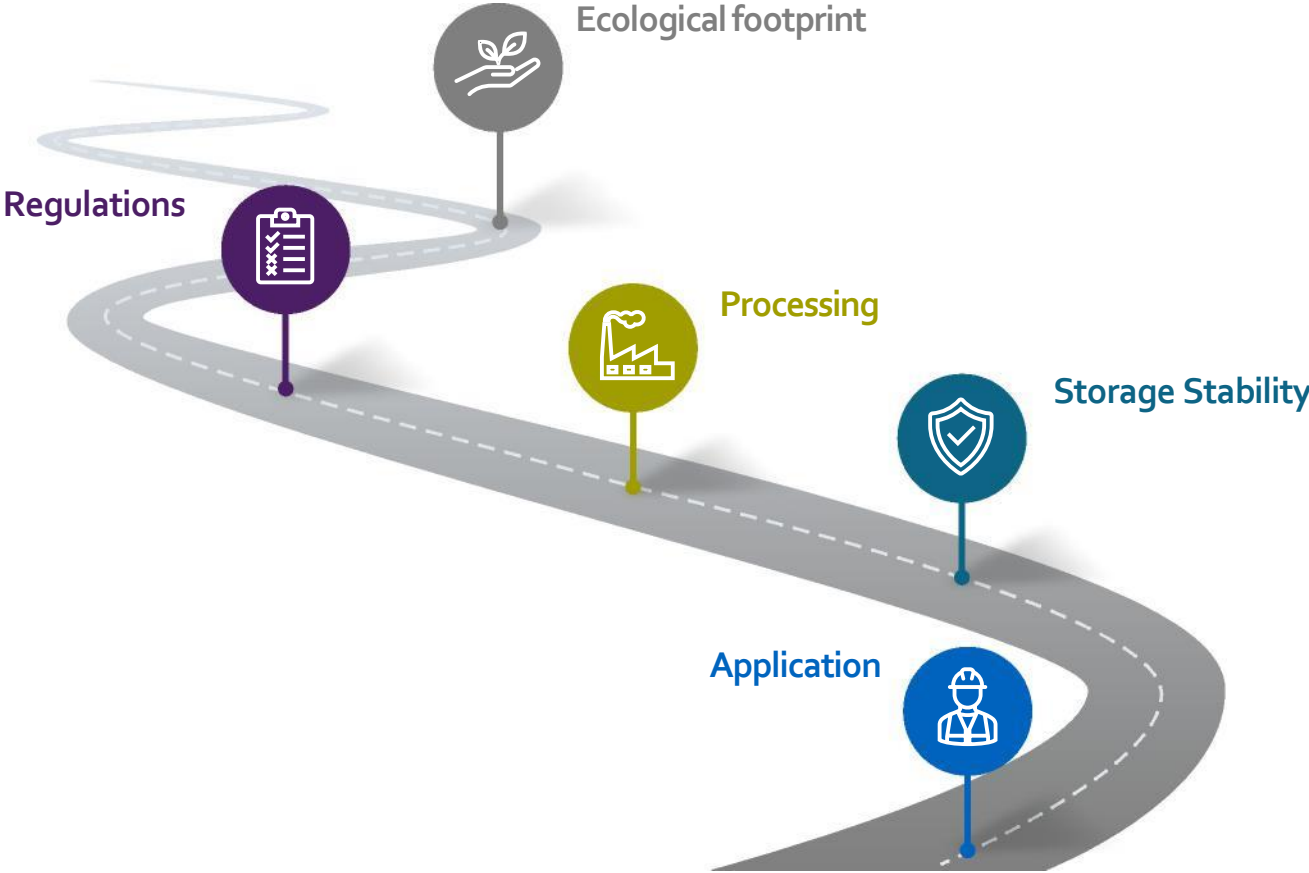
Selected applications



Construction, transportation (e.g.: aerospace, automotive), electronics (e.g.: smart phones), infrastructure



Product development



Digital development process



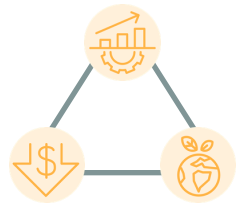


Simulation Landscape

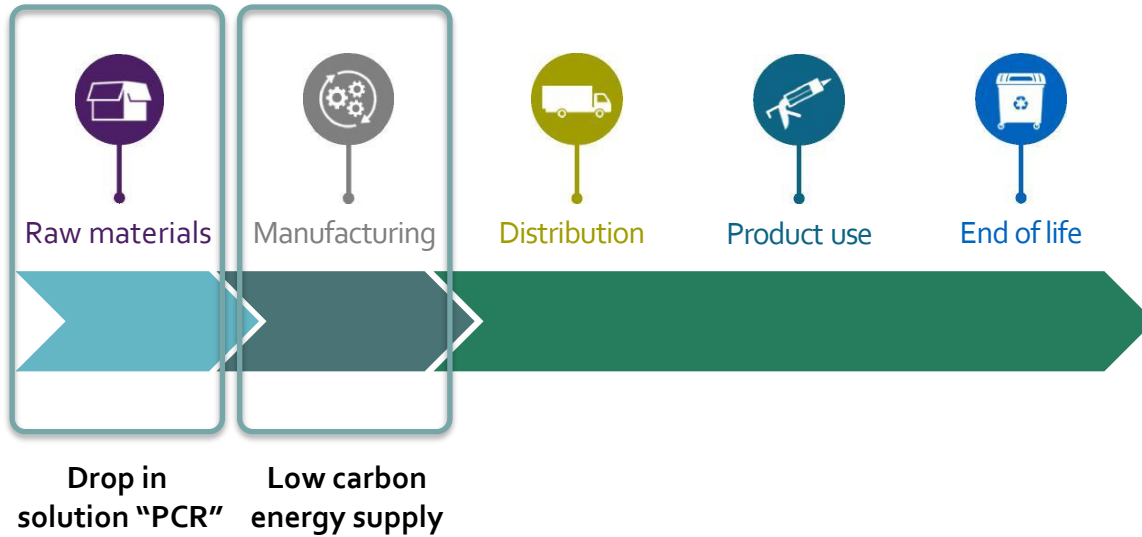
- Injection molding simulation
- Structural simulation
- Fatigue analysis
- CFD analysis
- Life Cycle Assessment

FEA interface





Drop in solution



Drop-ins are plastics whose chemical structure is identical to that of fossil-based plastics. The same machines and processes can be used for further processing into end products as for their fossil-based counterparts.



Material selection



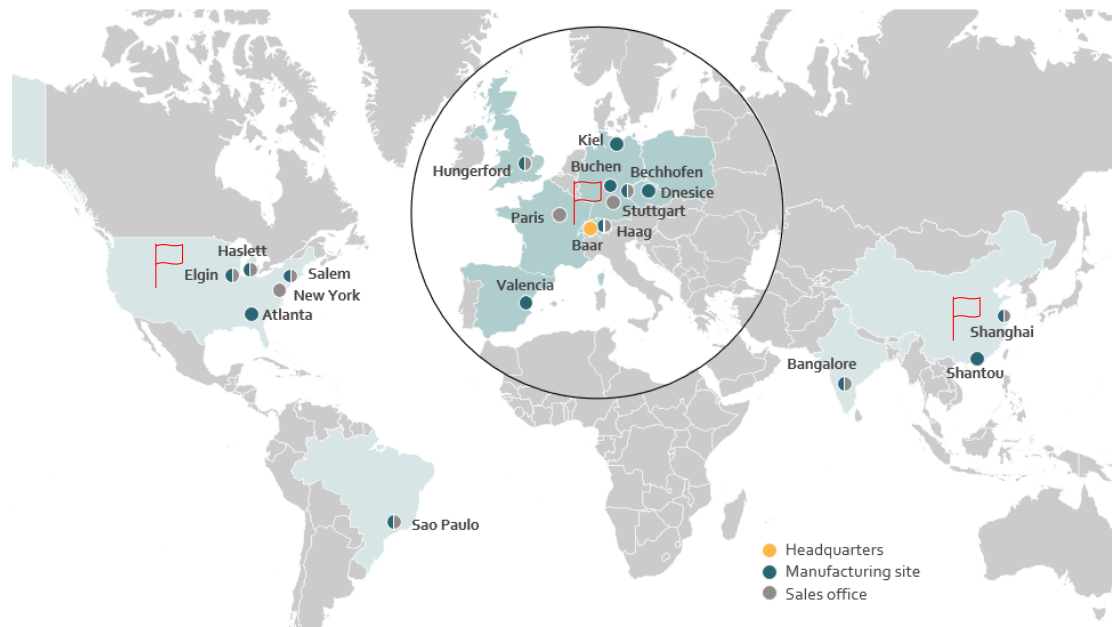
Performance and costs

Requirements	Benchmark "fossil-based"	Bio-based "Drop-ins"	Bio-based "Chemical novel"	PCR "Drop-Ins"
Mechanical properties	reference	=	check	=
Barrier properties	reference	=	check	=
Chemical stability	reference	=	check	=
Regulations	reference	=	check	limited
Processable with existing equipment	reference	=	check	=
Costs	reference	higher	higher	= / higher



Material evaluation

Global footprint of medmix



- No global grade available like for virgin material
- Sustainable materials
 - Local for local approach
 - Different suppliers in the regions
 - Different properties -> fulfillment of requirements (material specification)
 - No compromise on performance
 - Deviation in optics (color + black spots)
 - Availability
 - PP, PE (PCR) / PA, PBT,...(mostly PIR)



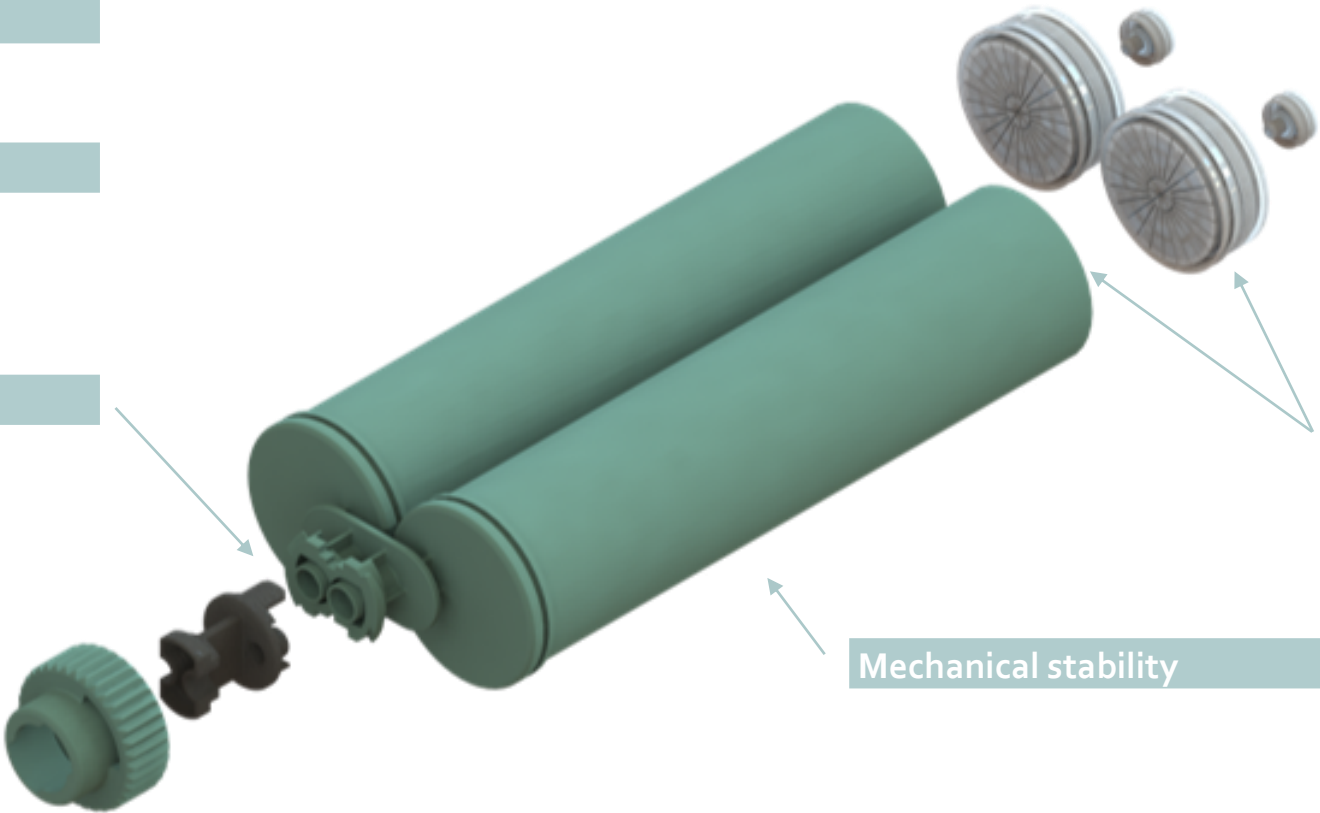
Performance

Fulfillment of the same requirements as standard product - selection from tests procedure (> 20)

Dimensions

Climatic conditions

Tightness



Tribology

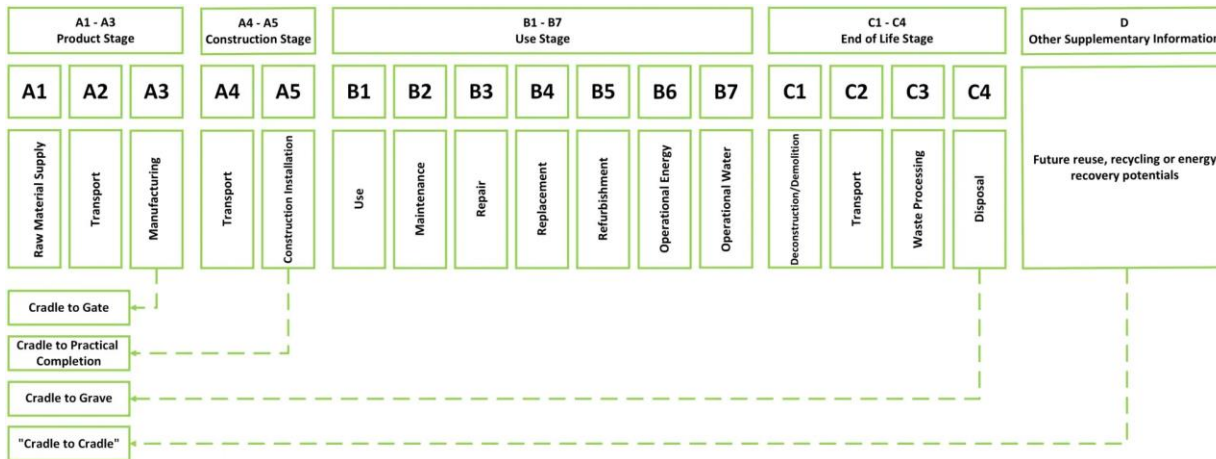
Mechanical stability



Environmental impact of products

Life cycle assessment is a standardized method for determining the potential environmental impact

Aim: Mapping the reality

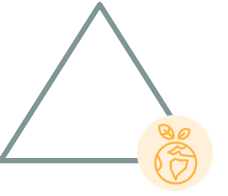


Source: EN15804 Modules Explained

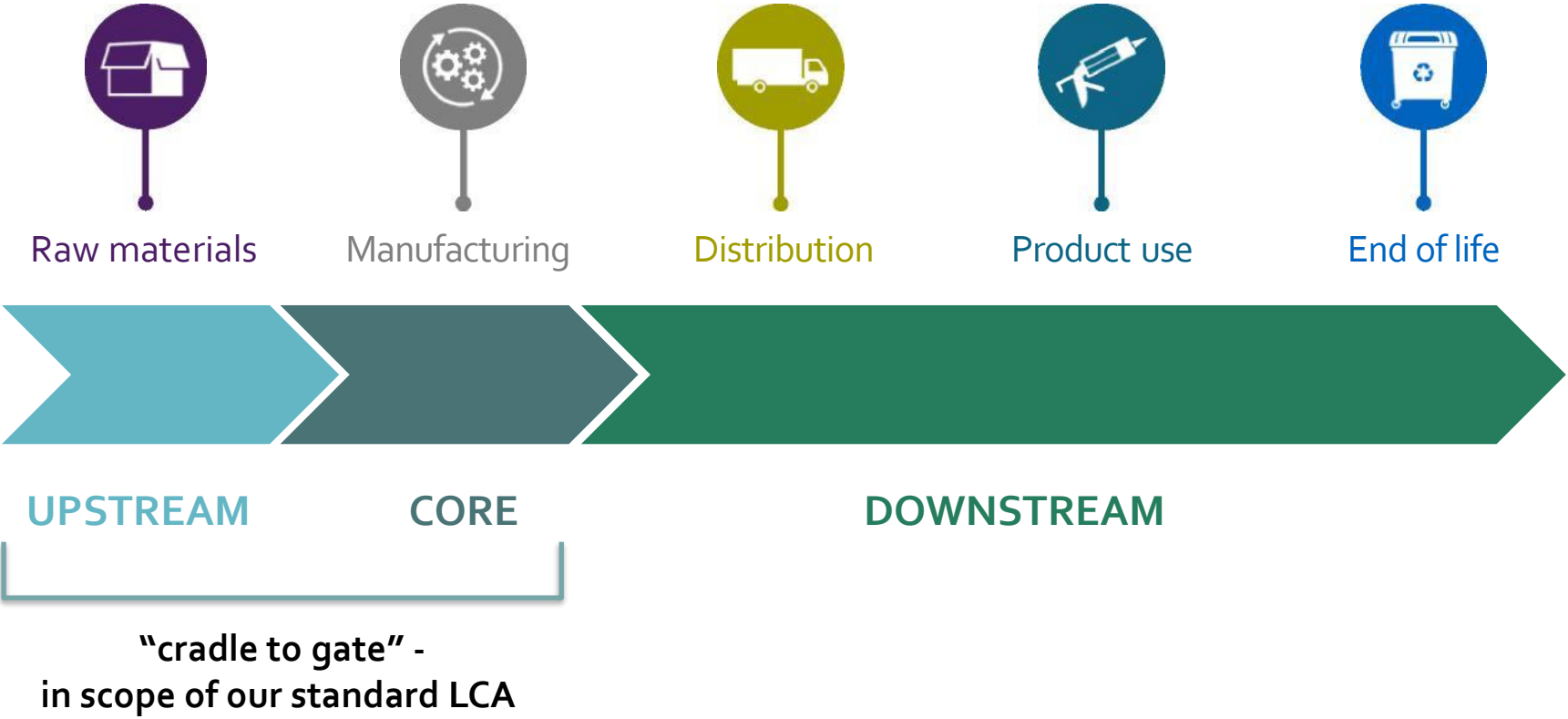
Key questions:

- Which environmental impacts do we evaluate?
medmix focus on global warming potential
- Quantification of potential savings effects?
- Detection of problem shifts? (e.g., land use)
- For which application is which plastic most ecological?



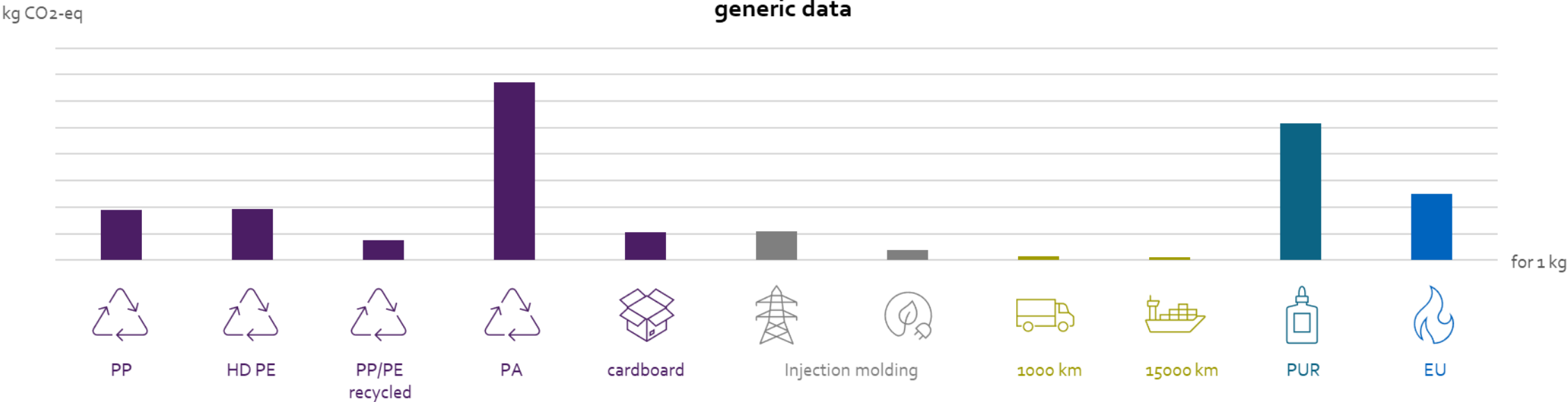


Life Cycle Assessment



Life Cycle Assessment

Values for materials and processes



Focus for improvement:

- materials/processes with high CO₂ eq
- components with high part weight





Drop in solution

greenLine™



Raw materials



Manufacturing



Distribution



Product use

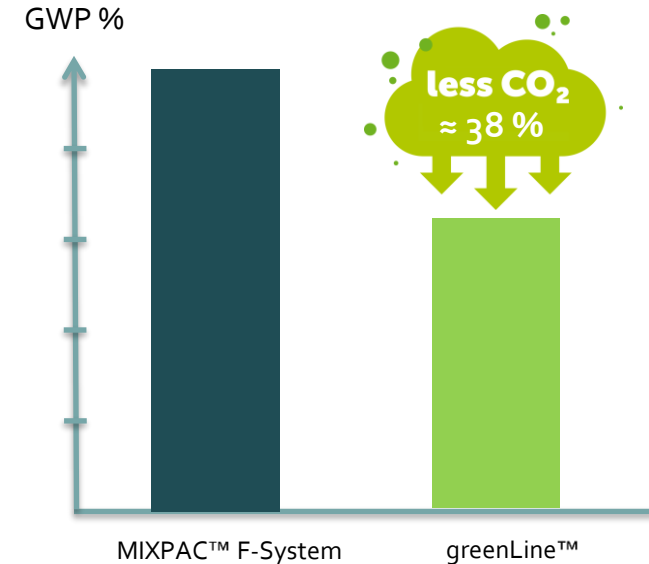


End of life



“cradle to gate” -
in scope of our standard LCA

medmix has decided to calculate the carbon footprint of some of its products and share this information with its business customers. You may use this information for calculating the carbon footprint of those of your products which have been manufactured using medmix products. Any further sharing of medmix' carbon footprint data is not permitted, unless explicitly approved by medmix in writing. This data is provided without any guarantee and any and all liability in connection with the use of this data is herewith explicitly excluded.

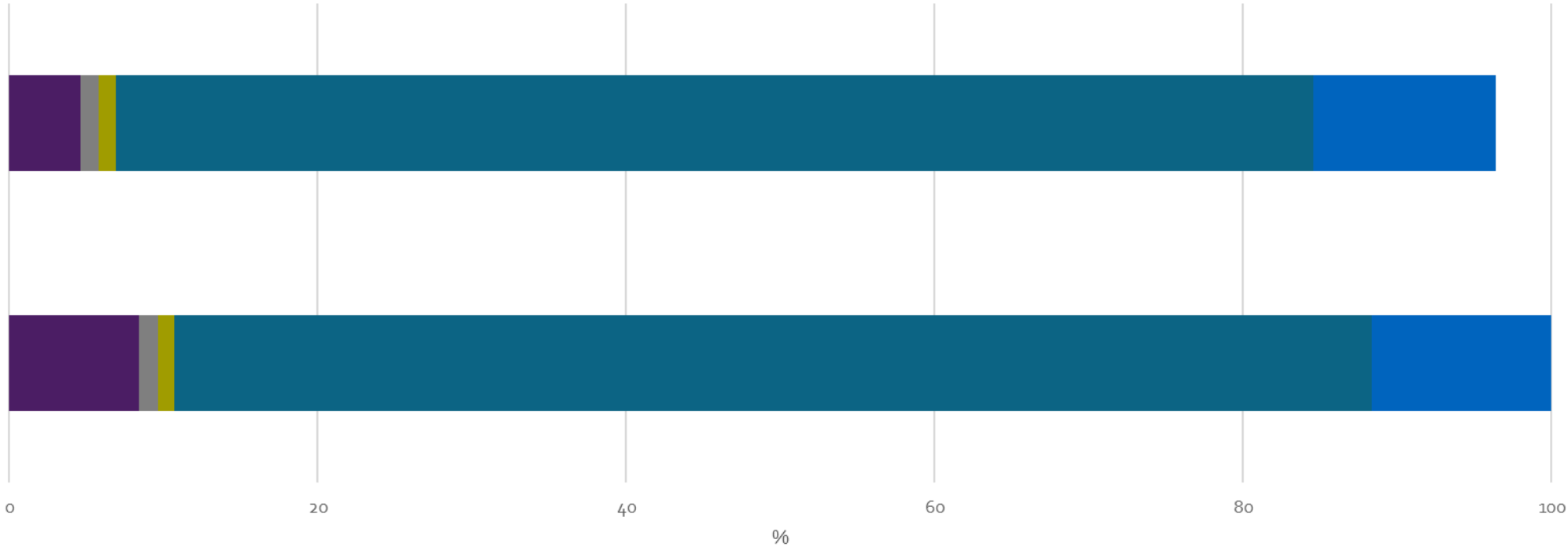
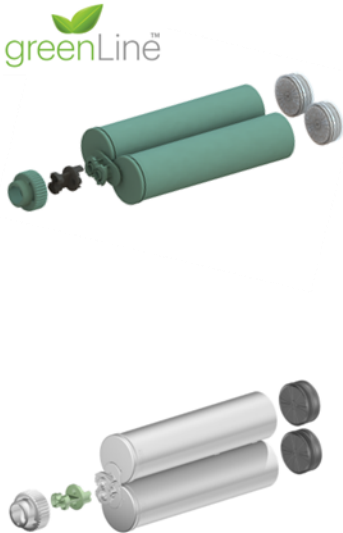


Internal LCA, Methode: IPCC 2021 GWP100



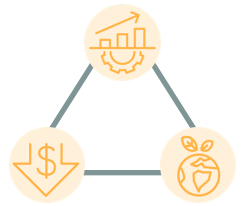
Global Warming Potential

medmix has decided to calculate the carbon footprint of some of its products and share this information with its business customers. You may use this information for calculating the carbon footprint of those of your products which have been manufactured using medmix products. Any further sharing of medmix' carbon footprint data is not permitted, unless explicitly approved by medmix in writing. This data is provided without any guarantee and any and all liability in connection with the use of this data is herewith explicitly excluded.

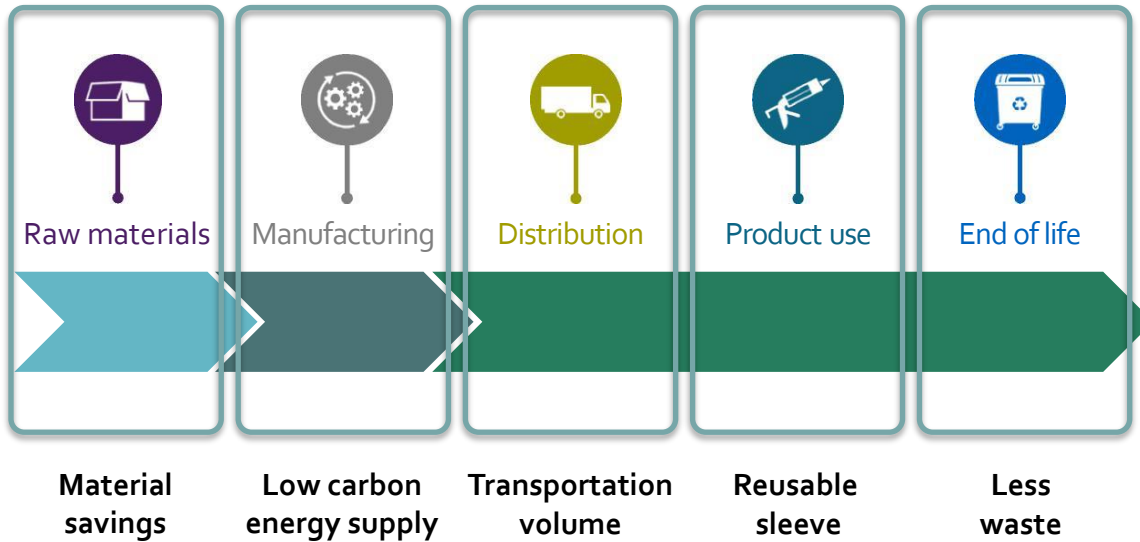


- 
 Raw materials
- 
 Manufacturing
- 
 Distribution
- 
 PUR adhesive
- 
 Incineration

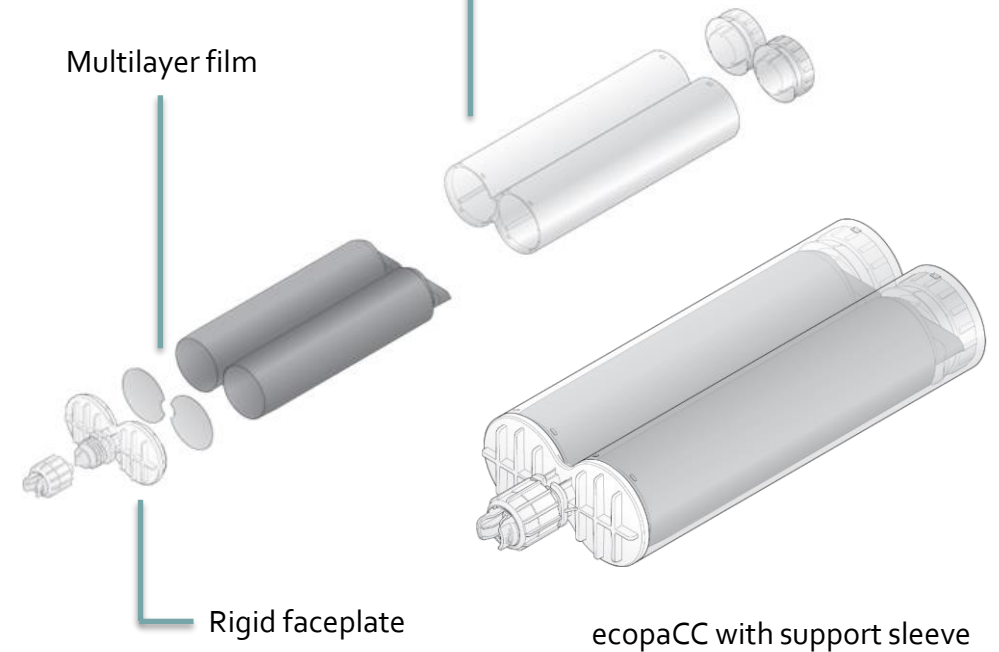




More sustainable solution



Support sleeve with integrated pistons (reusable)

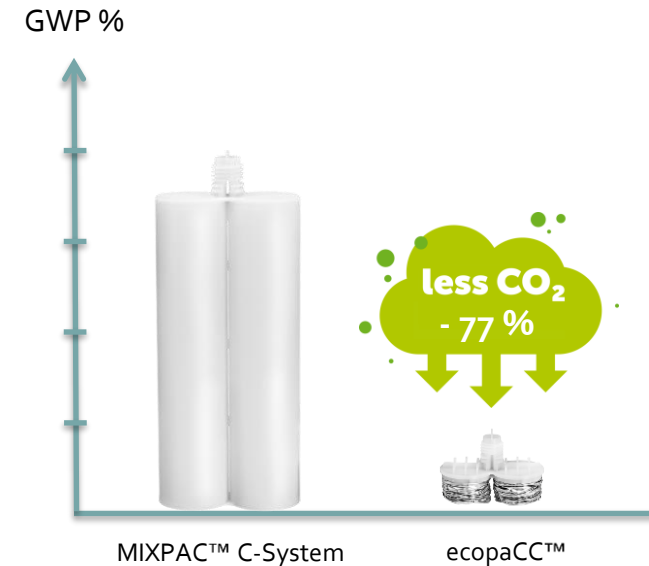
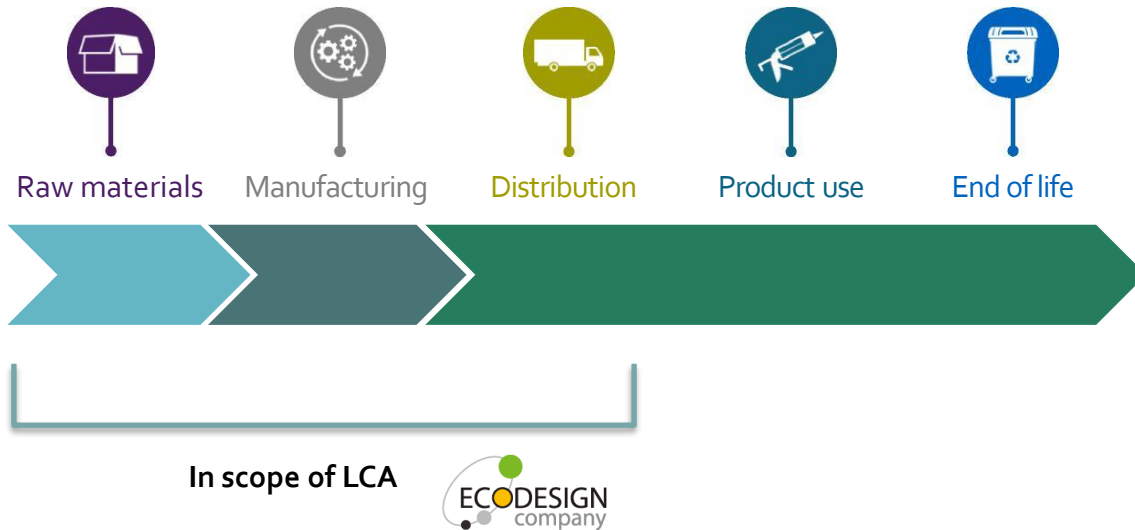


Fully compressed
Minimal waste





More sustainable solution



Internal LCA, Methode: IPCC 2013 GWP100
Support sleeve calculated for 1000 uses

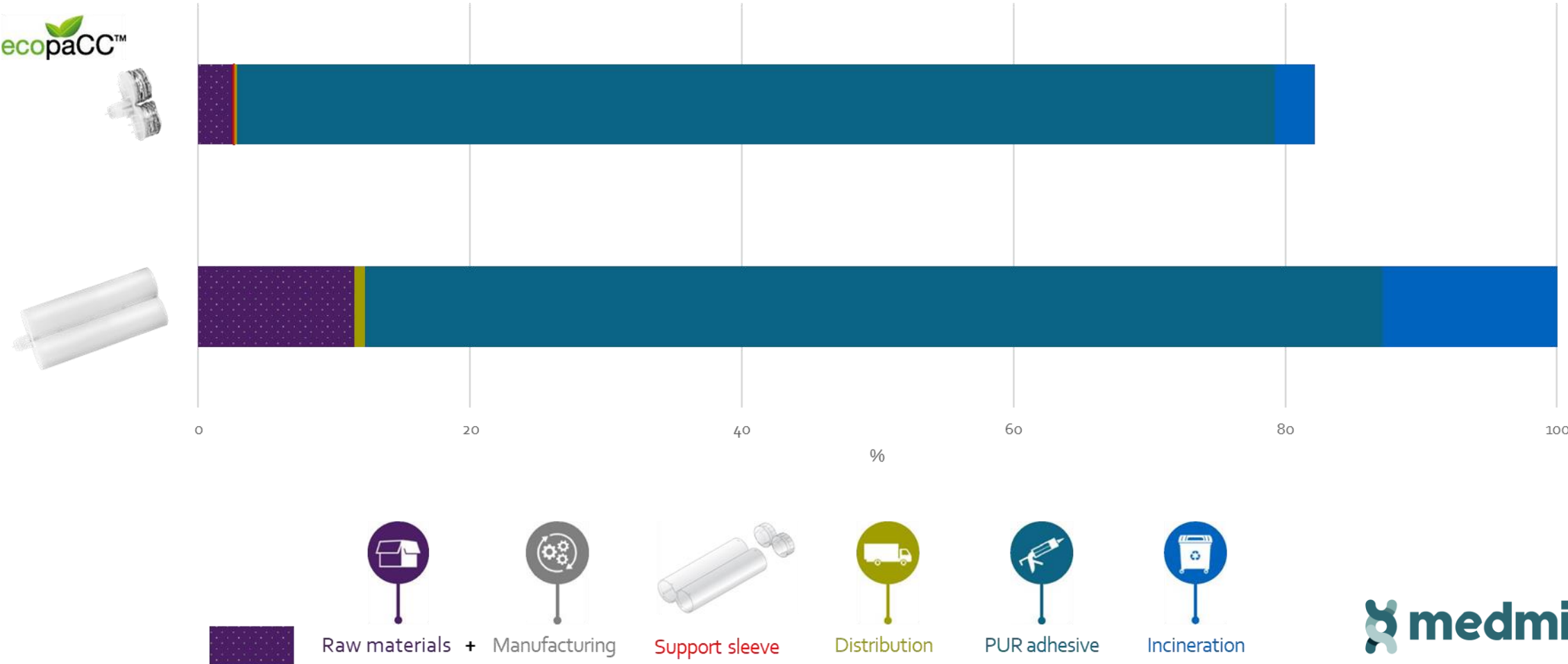


medmix has decided to calculate the carbon footprint of some of its products and share this information with its business customers. You may use this information for calculating the carbon footprint of those of your products which have been manufactured using medmix products. Any further sharing of medmix' carbon footprint data is not permitted, unless explicitly approved by medmix in writing. This data is provided without any guarantee and any and all liability in connection with the use of this data is herewith explicitly excluded.



Global Warming Potential

medmix has decided to calculate the carbon footprint of some of its products and share this information with its business customers. You may use this information for calculating the carbon footprint of those of your products which have been manufactured using medmix products. Any further sharing of medmix' carbon footprint data is not permitted, unless explicitly approved by medmix in writing. This data is provided without any guarantee and any and all liability in connection with the use of this data is herewith explicitly excluded.



Raw materials + Manufacturing



Single use plastic



Support sleeve



Distribution



PUR adhesive

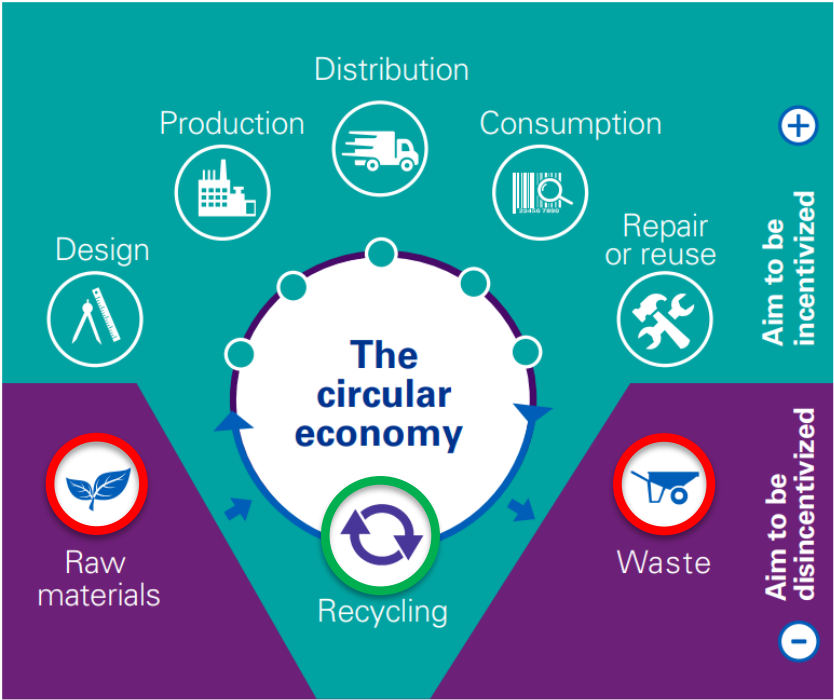


Incineration





Outlook – Circular economy



Source: KPMG 2021

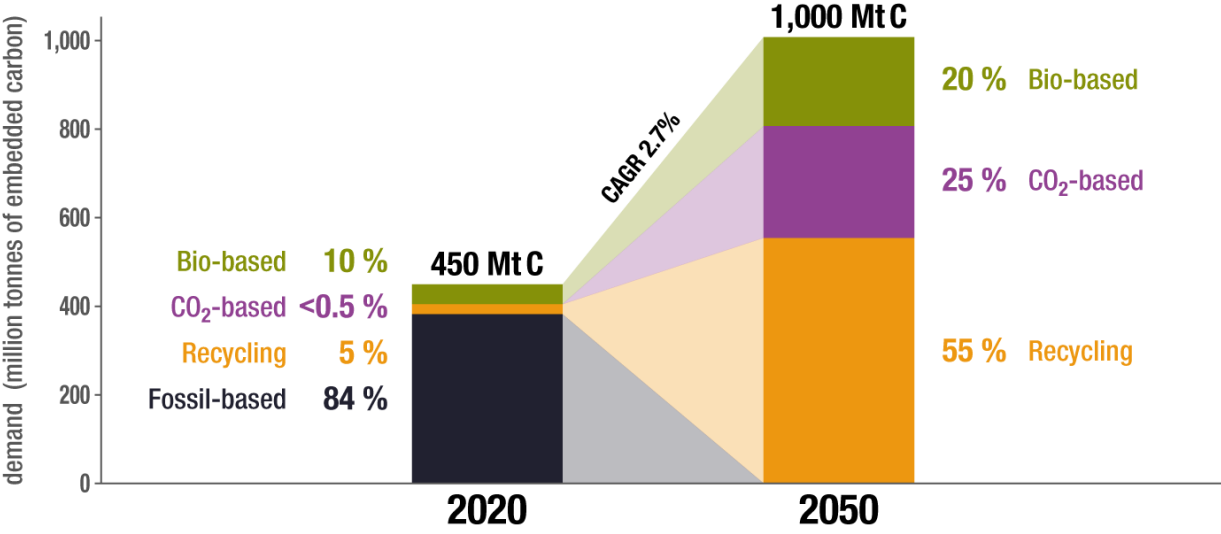


e.g., weight of non-recycled plastic packaging



Outlook – Materials

Global Carbon Demand for Chemicals and Derived Materials
in 2020 and Scenario for 2050 (in million tonnes of embedded carbon)



available at www.renewable-carbon.eu/graphics



Source: Nova-institute.eu



Summary

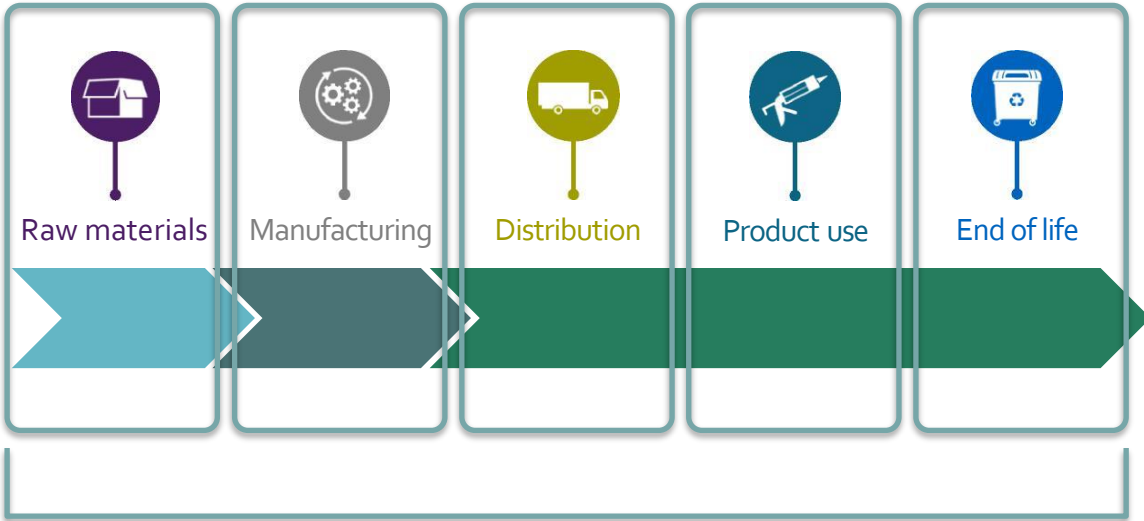
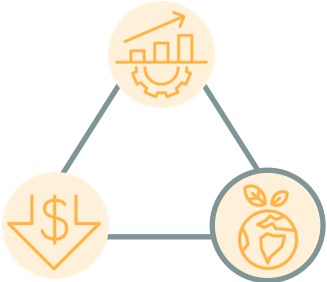
Integration of LCA in simulations landscape enables us to find the best solution

Focus material selection on sustainability

Expansion of medmix portfolio

- Drop in solutions
- New packaging concepts

Extend scope of LCA to “Life Cycle”



 Scope of LCA



Any questions

medmix Switzerland AG

Ruetistrasse 7

9469 Haag, Switzerland

Phone +41 81 414 70 00

Sales.industry@medmix.com

www.medmix.swiss

