

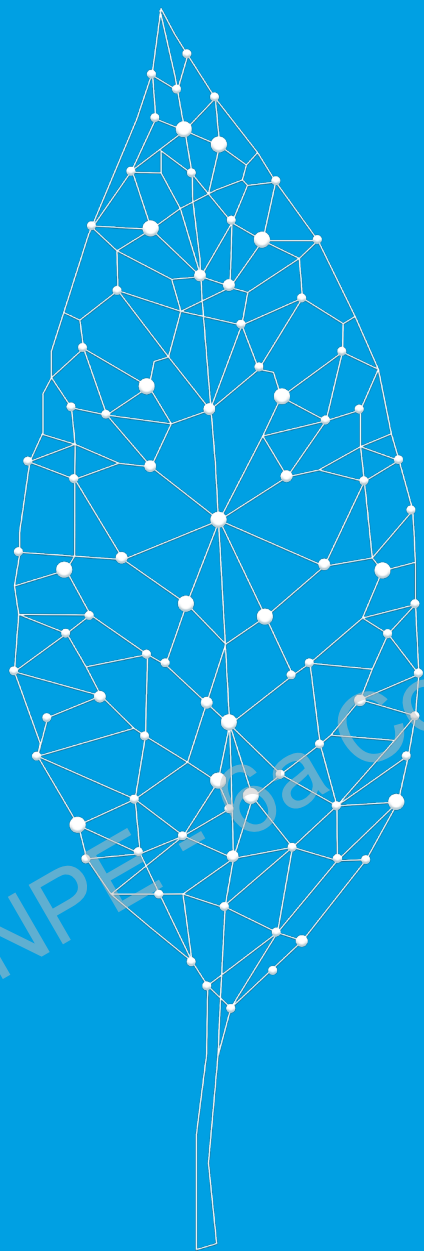
From Recycled to Bio-based:

Low-Embodied Carbon  
Polyols for Rigid PU Foams

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## SUSTAINABILITY

At Coim, our top priority is ensuring that all new development projects are aligned with our values.

ANPE 2024 Conferenza Nazionale

ESG Area	MATERIAL TOPICS	IMPACTS GENERATED BY COIM GROUP
Environment	Emission and fight against climate change	<ul style="list-style-type: none"> <li>• Generation of direct and indirect GHG emissions</li> <li>• Generation of other significant emissions into the air</li> </ul>
	Energy	<ul style="list-style-type: none"> <li>• Energy consumption</li> <li>• Promotion of energy efficiency initiatives</li> </ul>
	Waste and circularity	<ul style="list-style-type: none"> <li>• Waste production</li> <li>• Recycling and reuse of waste and industrial symbiosis activities</li> </ul>
	Responsible use of materials	<ul style="list-style-type: none"> <li>• Use of renewable and recycled raw materials</li> </ul>
	Responsible use of water resources	<ul style="list-style-type: none"> <li>• Water resource consumption</li> </ul>
Governance	Creating shared value	<ul style="list-style-type: none"> <li>• Generation and distribution of economic value</li> </ul>
	Responsible supply chain management	<ul style="list-style-type: none"> <li>• Creating a traceable supply chain</li> <li>• Contribution to improving suppliers' ESG performance</li> </ul>
	Privacy and data protection	<ul style="list-style-type: none"> <li>• Customer data breach and loss and poor cybersecurity management</li> </ul>
Social	Protection of human and labor rights	<ul style="list-style-type: none"> <li>• Respect for workers' rights</li> </ul>
	Responsible management and employee well-being	<ul style="list-style-type: none"> <li>• Employee satisfaction and well-being</li> </ul>
	Workers' health and safety	<ul style="list-style-type: none"> <li>• Workplace accidents</li> <li>• Occupational diseases</li> </ul>
	Involvement and support to local communities	<ul style="list-style-type: none"> <li>• Positive social impact on local communities</li> <li>• Positive economic impacts generated on local communities</li> </ul>
	Equal opportunities and non-discrimination	<ul style="list-style-type: none"> <li>• Creating an inclusive work environment</li> <li>• Discrimination in terms of liability, compensation and career advancement</li> </ul>
	Development and training	<ul style="list-style-type: none"> <li>• Development and enhancement of workers' skills through training activities</li> </ul>
	Talent attraction and retention	<ul style="list-style-type: none"> <li>• Job creation</li> </ul>
Product	Product safety and quality	<ul style="list-style-type: none"> <li>• Offering products of high quality and durability</li> <li>• Non-compliance in the field of product health and safety</li> </ul>
	Sustainable innovation and product research	<ul style="list-style-type: none"> <li>• Sustainable product development</li> </ul>
	Customer satisfaction	<ul style="list-style-type: none"> <li>• Satisfaction of customers and their expectations</li> </ul>

# COIM Sustainability Report

- More and **more resources will be required** from companies to comply with the directives deriving from sustainability but also to support customers downstream to fulfil their targets.
- **In COIM, sustainability is an important topic** that, every year, the company communicates all the actions undertaken in the various relevant areas through the sustainability report.
- A dossier that covers all areas of Company's activity, therefore not only environmental issues relating to production plants but also **governance, social issues** and **development activities** of increasingly sustainable products for downstream.

# COIM has been endorsed to following certifications:

## CARBON DISCLOSURE PROJECT



The **CDP** (formerly **Carbon Disclosure Project**) is an international non-profit organization with the aim of helping companies, cities, states, regions and public authorities **disclose their environmental impact**.

Last year **COIM SpA** disclosed their environmental impact through CDP.



## ECOVADIS

EcoVadis is a **globally recognized assessment platform** that rates businesses' sustainability

Last year **COIM SpA** obtained the **gold medal**, with a score of **75 points**.



OK COMPOST

Obtained by COIM S.p.A. relating to several of its products (Adhesives, coatings and ink modifiers for flexible packaging materials)



CERTIFIED MANAGEMENT SYSTEMS  
UNI EN ISO 9001:2015  
UNI EN ISO 14001:2015  
UNI ISO 45001:2018



REMADE IN ITALY®

Obtained by COIM S.p.A. in January 2022 for the ISOEXTER 40072 product



ECOVADIS RATING

COIM S.p.A. obtained a gold medal in 2022



Obtained by COIM S.p.A. in 2021 for sensitive data security



UL Verification

Obtained by COIM US in 2022 for 18 ISOEXTER products

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THE DRIVER

EUROPEAN  
GREEN DEAL

# European Green Deal Roadmap

- The European Union has set itself the priority target of achieving **climate neutrality by 2050**, thus becoming the first zero-impact continent. Achieving this objective requires a complete energy, economic and social transformation of the continent.
- With the regulation on European climate legislation, the political ambition of achieving climate neutrality by 2050 becomes a **legal obligation** for the EU.
- With its adoption, the EU and its Member States committed to **reducing** net greenhouse gas emissions in the EU by at least **55% by 2030**, compared to 1990 levels. This is a legally binding target , based on an impact assessment carried out by the Commission.



# How to reach the target

The shift to a greener economy to a net-zero emissions society requires action on all fronts:



- **Mobility:** the ways we travel must become drastically more environmentally friendly



- **Nutrition:** our food production must become more environmentally friendly



- **Reforestation:** our carbon sinks, such as forests, are declining and the trend should be reversed, including by managing forests more sustainably (emitting less but also **absorbing more**)



- **Finance:** investments should increasingly contribute to the development of sustainable and climate-friendly projects



- **Industry:** the way we produce goods must adapt to a circular economy model to reduce the use of primary RM

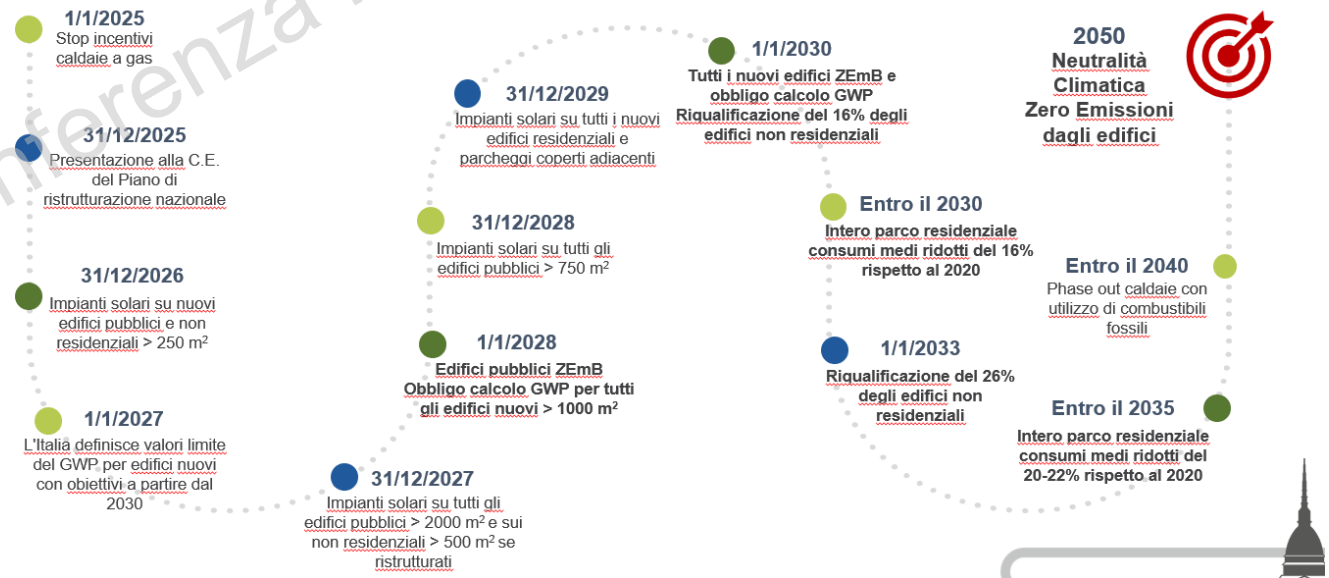


- **Construction:** EU Member **States must prepare a national plan to ensure the decarbonisation** and high energy efficiency of residential and non-residential buildings by 2050

# Towards zero-emission buildings by 2050

## Energy Performance of Building Directive (EPBD 4)

- **for residential buildings**, a reduction in the use of average primary energy of at least 16% by 2030, and of at least 20-22% by 2035, must be guaranteed compared to 2020;
- **for non-residential buildings**, Member States will have to set minimum energy performance requirements that must be respected by at least 16% of buildings by 2030, and by at least 26% by 2033.
- Newly constructed buildings will have to be **zero-emission as early as 2030**, with the deadline brought forward to 2028 if owned by public bodies.
- All buildings will progressively be characterized by materials and processes with zero environmental and climate impact throughout the entire cycle of life → **all construction materials will have to evolve in terms of carbon footprint to allow the entire building to achieve its sustainability target.**





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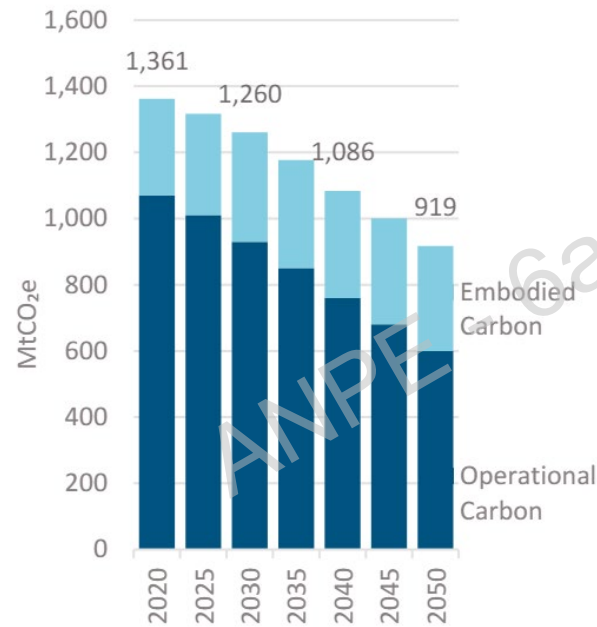
CHEMICAL PRODUCTS

Embodied CO<sub>2</sub>

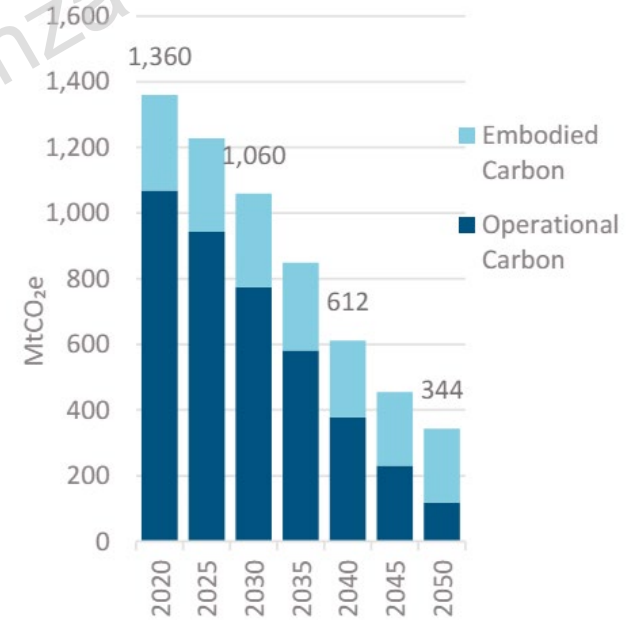
# WHOLE LIFE CARBON ROADMAP

regulatory measures and tools needed to achieve a decarbonized environment by 2050

"**Embodied carbon**" refers to the amount of greenhouse gases emitted throughout the entire life cycle of a product + "**Operational carbon**" is the greenhouse gases emissions associated with **energy** used to operate the building



current policies and expected market developments



implementing material efficiencies and technological solutions, avoiding new construction

WHAT WE DO

# HOW CAN EMBODIED CARBON BE INFLUENCED and MEASURED?

1. Raw Material Selection



2. Renewable Energy



3. Forestation



4. Waste Reduction



5. Efficient Manufacturing



6. Transport Optimization



7. Life Cycle Assessment (LCA)  
Environmental Product Declaration (EPD)




Quantification

8. Policy & Regulation



WHAT WE DO

## ECO-DESIGN

 ecoinvent



**2021**

**COIM SpA** has purchased the SimaPro software license, through which it is possible to conduct **Life Cycle Assessment** and/or **Product Carbon Footprint** studies.

The reference database used to extrapolate the data is **Ecoinvent**, one of the **most used LCA databases** in the world.

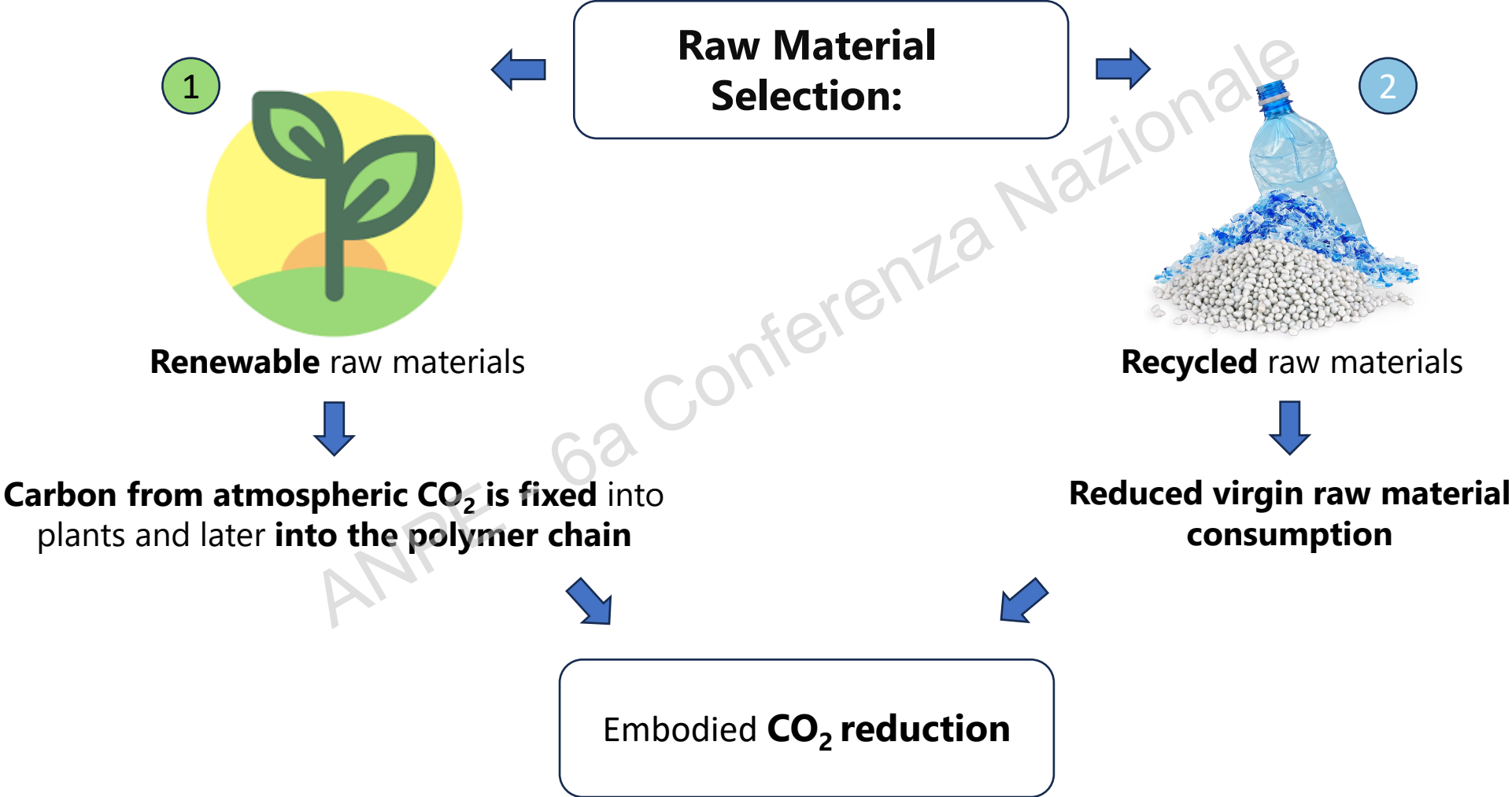


**2023/2024**

**COIM SpA** carries out internal **Cradle-to-Gate assessment** of different products according to ISO 14040 & 14044

WHAT WE DO

# HOW CAN EMBODIED CARBON BE INFLUENCED and MEASURED?



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CHEMICAL PRODUCTS

# Polyols from renewable raw materials: Isoexter E

WHAT WE DO

# Isoexter E: polyols from renewable sources



**Traceable and measurable bio-content**



**Sustainable content up to 100%**






**ISCC+ certified**



**Outstanding mechanical properties**



**Excellent resistance to fire**

Product name	OH value [mgKOH/g]	Viscosity @ 25°C [mPa·s]	Renewable based	Recycled based	Certifications	
					Renewable	Recycled
Isoexter E 40113	250	3500	yes	-		-
Isoexter E 40145	250	3500	yes	yes		

## WHAT WE DO

# Isoexter E: embodied CO<sub>2</sub>

third-party verified external LCA

Polyol	Bio-content	Recycled content	GWP (kg CO <sub>2</sub> eq/kg)	GWP saving
APP PU Europe average	-	-	1,63**	-
Isoexter E 40113	yes	-	0,49*	<b>-70%*</b>
Isoexter E 40145	yes	yes	0,11*	<b>-93%*</b>

- Impact indicators according to EN 15804 available upon request
- Data integrable into EPD

\*with a carbon sequestration approach

\*\* [https://www.pu-europe.eu/wp-content/uploads/2023/06/Eco\\_profile\\_full\\_report\\_for\\_Aromatic\\_Polyester\\_Polyols\\_APP.pdf](https://www.pu-europe.eu/wp-content/uploads/2023/06/Eco_profile_full_report_for_Aromatic_Polyester_Polyols_APP.pdf)



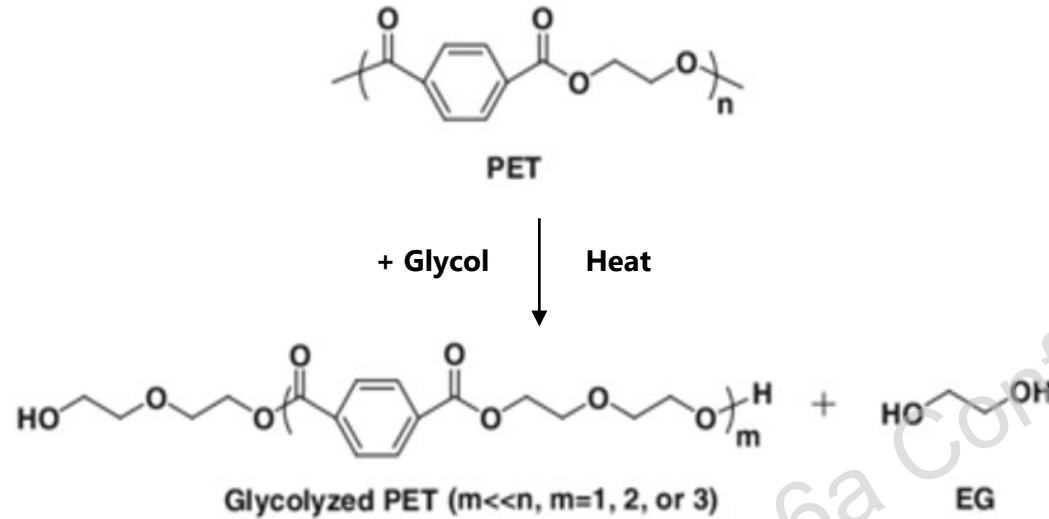
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CHEMICAL PRODUCTS

Polyols from  
recycled raw materials

WHAT WE DO

## Circular Economy: synthesis of polyols from Recycled PET



**Chemical recycling** is any process by which a polymer is chemically reduced to its original monomer form so that it can eventually be processed and remade into new plastic materials.

WHAT WE DO

# Polyols from recycled raw materials



Product name	Fn	OH value [mgKOH/g]	Viscosity @ 25°C [mPa·s]	Application	Recycled content	ΔGWP * (kgCO <sub>2</sub> eq/kg)	Note
Virgin RM Polyol	-	-	-	-	-	Reference	Reference
I40072	2,0	190	4000	IB	30%	-17 %	Excellent processing
Polyol A	2,0	240	2000	SF	30%	+37 %	Low viscosity
Polyol B	2,0	240	4000	ALL	42%	+29 %	Excellent fire properties
<b>NEW</b> I40089	2,0	240	4000	ALL	HIGH	-37 %	Lowest embodied CO <sub>2</sub>



Eco-designed product

→ ECO-DESIGN MAKES THE DIFFERENCE!

\*internal COIM studies performed with Ecoinvent v.3.10 Database, according to ISO 14040/14044  
 → full portfolio available upon request

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UPCOMING

PU RECYCLING

UPCOMING

# Circular Economy: synthesis of polyols from Recycled PU



UPCOMING

## Circular Economy: synthesis of polyols from Recycled PU

Acidity [mgKOH/g]	OH value [mgKOH/g]	Viscosity @ 25°C [mPa·s]	PU content [%]	ΔGWP vs Ref (kgCO <sub>2</sub> eq/kg)
< 3,0	Standard	Standard	Up to 50%	-35%*

Excellent thermal  
insulation

Similar or better than «standard»  
reference

Good mechanical  
properties

Comparable to «standard» polyol

High recycling  
rate

PU scraps content up to 50% by  
weight

Good  
replaceability

Can be used as main polyol

MDA Free

Free from aromatic amines

• internal studies performed with Ecoinvent v.3.10 Database, according to ISO 14040/14044



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