



Use renewable carbon to vehicle interiors, seating, and more

Now high load bearing foams can be made from renewable CO₂ instead of fossil-based resources. By licensing Econic’s patented process and using our unique catalyst, polyol producers can supply more sustainable, higher-performing foam products made with renewable carbon. Our process enables polycarbonate ether (PCE) polyols that retain key design advantages of polyether polyols while adding CO₂ in a tuneable way. PCE polyols are compatible with polymer polyols, and their carbonate units increase foam hardness, reducing reliance on SAN polyol. Adjusting CO₂ content allows manufacturers to tune hardness or create high-viscosity polyols for fine-cell foams similar to polyester structures, and polymeric polyols can also be blended with recycled and bio-based polyols.

KEY BENEFITS

Reduce carbon footprint by up to 30%

Transform CO₂ into valuable raw material

Better performance vs. existing polyether polyols

Fully compatible with existing foam equipment

Can be used in formulation up to 100 pphp

Clear and colorless with no odor

REPLACE FOSSIL FEEDSTOCKS

Our catalyst transforms inert carbon dioxide into a reactive feedstock; replacing propylene oxide or ethylene oxide in the polyether production process.

Conventional process with fossil-based raw materials



Econic’s process for polymers with captured CO₂

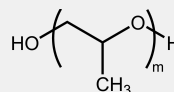


Econic’s renewable carbon + bio + recycled products

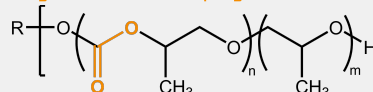


FINETUNE PROPERTIES

Polyether polyols



Polycarbonate ether polyols

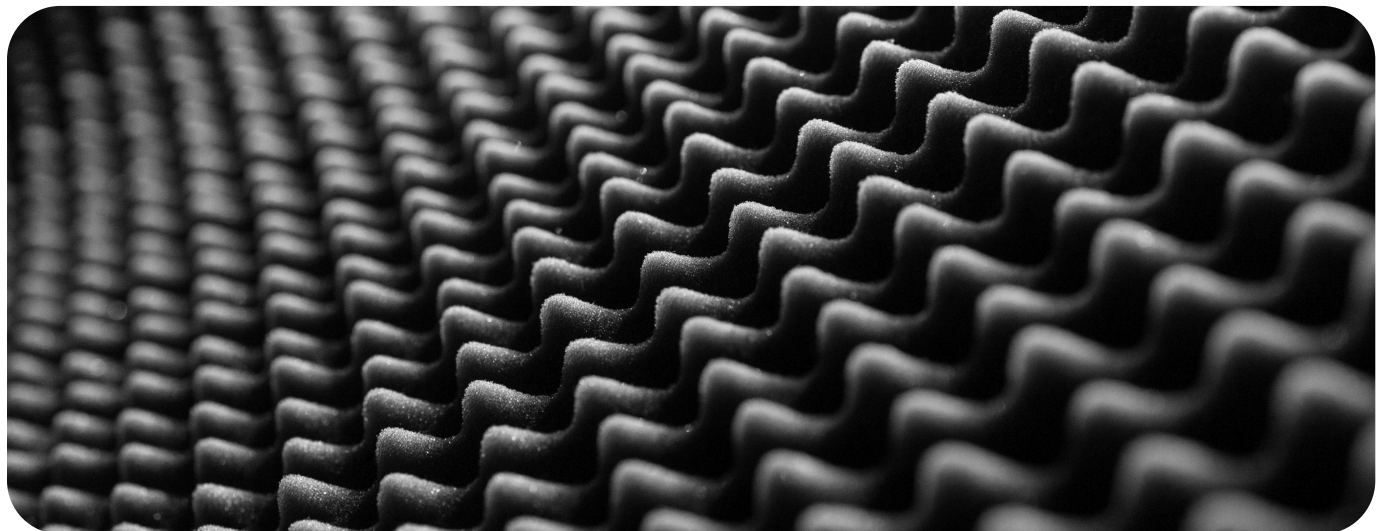


Carbonate linkages can change the properties of polyurethanes.

Our Proof-of-Concept Polyols

	2002-A	2002-B	3003-A	3003-B
CO ₂ Content	17 wt%	20 wt%	10 wt%	16 wt%
Molecular Wt, g/mol	2000	2000	3000	3000
Hydroxyl Number, mg KOH/g	52-58	52-58	50-56	50-56
Viscosity, cPs @ 25°C	~10,000	~20,000	~3,000	~10,000
Acid Value, mg KOH/g	<0.5	<0.5	<0.5	<0.5
Water Content, ppm	<500	<500	<500	<500

Cyclic carbonate content: <0.1 wt%, polydispersity: ~1.3



We’ve treated CO₂ as waste for too long. When we add it into new polyols, high load bearing foams gain both performance and purpose—showing that sustainability can strengthen the materials we use every day.



RICHARD STEVENSON
ECONIC SENIOR SCIENTIST

Concept Formulations for High Load Bearing Foams

Choose from a range of CO₂ content and performance characteristics

FORMULATIONS

CO ₂ POLYOL %	75	50	0	0	75	50	0	0
PCE 3003-A	75	50	-	-	75	50	-	-
PE3500*	-	-	75	50	-	-	75	50
SAN44**	25	50	25	50	25	50	25	50
WATER	4.50	4.50	4.50	4.50	2.50	2.50	2.50	2.50
SURFACTANT	1.10	1.10	1.10	1.10	0.80	0.80	0.80	0.80
AMINE CATALYST 1	0.05	0.05	0.05	0.05	0.08	0.08	0.08	0.08
AMINE CATALYST 2	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16
TIN CATALYST	0.15	0.15	0.19	0.19	0.16	0.14	0.18	0.18
ISOCYANATE INDEX	105	105	105	105	105	105	105	105

PERFORMANCE DATA

DENSITY (kg/m ³)	28	28	28	28	40	40	40	40
BALL REBOUND (%)	21	20	32	27	23	25	43	38
TENSILE STRENGTH (kPa)	123	135	118	133	130	161	123	150
ULTIMATE ELONGATION (%)	180	150	220	160	280	240	300	240
CLD, 40% (kPa)	5.4	7.1	4.6	6.4	5.9	7.7	5.2	7.2

*PE3500 Polyether, 3500 MW, EO-PO copolymer

**SAN44 SAN polyol, OHV 28, 44% solids

Let's Work Together

Whether you're producing polyols for conventional foams or developing foam products that demand sustainable innovation, we want to partner with you.

Contact us

To learn more about Econic's technology or order polyol samples, email our team at contactus@econic-technologies.com or call us at +44 (0) 1625 238 645.

