



TURNING CO₂ INTO ENDLESS POTENTIAL

APPLICATION OF CO₂ CONTAINING POLYOLS

As the world drives to reduce its carbon footprint and mitigate global warming, consumption of essential products increases. Consumers are demanding products that are kinder to our planet. Producers are required to find truly sustainable solutions, necessitating that industrial manufacture and supply chains move away from their dependence on virgin fossil-based feedstocks. Future manufacturing industry will reconfigure and focus on abundant renewable sources of carbon raw materials

The economic conversion of CO₂ into usable renewable carbon is a future sustainable raw material technology, available now. Capture and storage of emission CO₂ is imperative to slow global warming. Captured and stored CO₂ is an expensive waste, the cost of which needs to be borne by taxpayers, consumers, and investors. By using abundant CO₂ as a cheap raw material, the cost turns into a source of operating value to the producer. At the same time the overall environmental impact and carbon footprint of the product is reduced, recognized through ESG reporting. Econic's proven technology enables polyol producers to do just this, today.

Econic's innovative catalyst technology allows captured waste CO₂ to be used as a raw material for a range of polyols, replacing up to 50% of traditional oil-based feedstocks, in a low-energy, low-cost process. Here we present the particular properties of these CO₂ containing polyols and their use in a range of polyurethane products, from slabstock and foam applications (such as mattresses, automotive seating and interior trims, furnishings, and insulation boards), and CASE applications (such as adhesives and coatings in the textiles arena).

Econic's technology offering three pillars of added value to the product and the industry:

1. **Economic:** CO₂ is an order of magnitude cheaper, and less volatile in price, than traditional oil-based feedstocks. Furthermore, Econic's technology operates at low pressures and temperatures, so can be retrofitted onto existing manufacture assets, and means it has low-cost entry to market.
2. **Environmental:** Our LCA concluded that for every ton of CO₂ that is used as a raw material in polyol manufacture, a minimum of three additional tons of CO₂ emissions are avoided.
3. **Performance:** The CO₂ content in the polyol can be selected to enhance the performance of polyurethane articles.

In contrast to many 'green' chemical technologies, Econic's offers a unique combination of economic, technical, and environmental performance benefits to industry and consumer.