

Pathway to Zero Emissions Craft Brewing



Cooler By Design. ®

Using Cryogenics for emissions reductions

Third in the Hero to Net Zero Series

Rare intersection of what's good for the environment is also good for craft brewing and the bottom line of small breweries. Carbon dioxide (CO₂) emitted by the brewing processes in the form of bubbles is not at the volumes that concern climate scientists, such as those emitted from fossil fuels. But small-scale carbon capture is applying recycling and re-use to the CO₂ produced naturally during fermentation, making it possible to capture, process into a liquid, then repurpose around the brewhouse and ship excess volumes to other industries in the community.

Beer Serves America study concluded that the industry supports more than 2 million American jobs and contributes more than \$330 billion to the U.S. economy.

Generally, craft brewers embrace sustainability and reducing waste among their common goals. The small-scale carbon capture technology from Earthy Labs (acquired by Chart Industries in 2021) is finding success in the brewing process. Just like it sounds, capturing CO₂ gases that normally are handled as a controlled release to atmosphere, can now be directed to a plug and play system purpose built for small breweries. Basically, containers are hooked into a refrigerator-sized machine located at the back of the brewery that strips out the moisture, filters to remove impurities and chills the gas to -34.7 degrees C using cryogenics. Stripping out the moisture that comes from the fermenters is just one of the keys to making the process work.

Carbon capture has long been reserved for large-scale brewers with large budgets to invest. Earthy Labs is changing the way people think about CO₂ capture in craft brewing by taking a different approach, miniaturizing the technology to make it affordable and achievable for small craft brewing. The CiCi® system is the proven solution to convert the CO₂ to beverage grade quality (99.9% pure), that offers storage tank(s), vaporizers, and a cloud-based software solution with real-time CO₂ capture insights.



Appreciating the bubbles in our beer. Those bubbles have a critical mission – to draw the aromas and flavors of the beer to our noses and taste buds. Most people know that bubbles in alcoholic beverages are created by dissolved carbon dioxide. CO₂ happens naturally through fermentation and can also be boosted through forced carbonation. A typical craft beer from a tap, bottle or can will have a mixture of both, though forced carbonation generally plays the bigger role to improve the taste and visual appeal.

CO₂ recovery can save brewers money by reducing deliveries and control costs on one of the top 5 ingredients in craft beer. Retro fit technology, high purity CO₂ production on-site, and reducing CO₂ costs per barrel (bbl) through re-use/recycling. Never too small to capture and re-use CO₂.

Using the power of cryogenics to reach Net Zero.

For more information: <https://www.chartindustries.com/Products/Small-Scale-Carbon-Capture>