# Divea
## Reducing human impact on the climate by capturing $CO_2$ emissions at their source.

### In a nutshell
Industries like cement, steel, aluminum, and chemicals form the backbone of our modern economy however they are also responsible for around 34% of the world's $CO_2$ emissions. These emissions are notoriously difficult to abate. Emissions come from both the energy used in production, but a significant portion also comes from the process itself. Companies face a huge challenge – there is increasing societal pressure for them to reduce their emissions, but in order to do that, fundamental processes need to change. At the same time, many are now facing a heavy tax burden from policy makers. Divea has created a graphene filter which captures $CO_2$ directly at the source – the factory – offering a simple and energy efficient way for companies to minimize their impact on the world around them.

### Why is our technology important?
Divea's technology is based on Nobel-prize winning material – a 1-atom-thick selective layer of graphene. Once installed, it allows a high level of $CO_2$ capture at low capital and energy cost.

Divea's special filters are installed directly at industrial sites. It is connected to the flue gas, and, as emissions are created, it removes any $CO_2$ content and prevents it being released into the atmosphere. This $CO_2$ can then either be stored permanently or used in the production of other high-performance materials.

### The benefits of our solution

- Divea lowers the cost of carbon capture, making sustainability efforts financially rewarding for manufacturers.
- Unlike existing technologies, the membrane does not use heat to operate. This broadens the field of the industries that can use a carbon capture technology
- Divea's membrane capture the same amount of $CO_2$ as existing membranes but with a much smaller footprint. This means a compact installation making carbon capture available in small and difficult spaces (such as offshore oil platforms)
- The creation of steel or aluminum results in steam with very low $CO_2$ concentrations. Traditionally, these industries have struggled to find a method of carbon capture that meets their requirements while still being economically viable. Our graphene membranes manage to perform well under these parameters and offer a way of producing metals without the associated emissions.

### Keywords
Carbon capture, Post-combustion capture, graphene membrane, Cleantech, climate change, Industry

### Founding Team
Karl Khalil
Dr. Mojtaba Rezaei –linkedin.com/in/mojtabarezaei/
Prof. Kumar Agrawal – linkedin.com/in/kumar-varoon-agrawal-b25ab15/

Find us at divea.ch



Get in touch
We'd love to speak to you more about our project.
You can book some time with us here: karl.khalil@epfl.ch