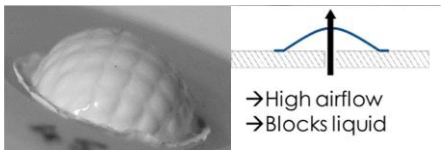
Seeking applications for novel microporous elastomeric and adjustable material

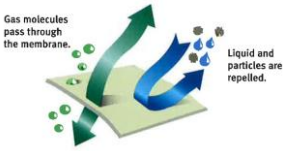
A unique PTFE-based microporous membrane that is gas permeable and liquid tight, with adjustable elasticity and/or 3D formability

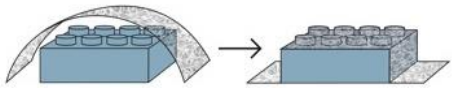
An **elastic, formable and porous control material** that can be used to **protect components** from damage or unwanted / unexpected environmental changes, e.g. pressure or temperature differentials.

This membrane technology can be **tuned to control liquid and gas flows in 1 or 2-way directions**. Whilst materials do exist to provide such a venting application, they are constrained by needing to be mounted to an enclosure/dispenser to protect the components or packaging contents and their inflexible nature restricts their potential usage.

This material can be **formed as a self-supporting 3D structure around a component** to protect it, or its **elastic nature allows higher gas throughput** via expanded surface area, so providing a **control mechanism** (e.g. emergency de-gassing) **whilst maintaining the integrity of the product.** These features are currently unavailable in such a tuneable material. A 2D material becomes a 3D controlling enclosure.







The material can be tuned to required operating conditions, and the manufacturing process allows it to be fully functionalised for a variety of applications. We are actively searching for new applications for this material in the broad industrial, transportation & packaging industries, particularly in automotive, chemical dosing/dispensing & enclosure solutions.

Some ways the material could be used

- Simultaneously acts as a valve/vent, a protective enclosure from the external environment and control of the internal environment to maintain the integrity of a product/component
- Allows designers to improve and combine functions of material to save cost /space
- Control/safety mechanism of packaging used for dosing and dispensing products
- Adds adjustable porosity to existing elastomeric film
- Equalise, stabilise or maintains a pressure e.g. protects the user & allows safer storage/transportation of semi-rigid liquid containers
- Protects against changes in atmospheric pressure that can impact performance and accuracy

Physical characteristics

Temperature: Up to +260°C
UV & Chemical resistance: Broad
Protection: Ingress protected up to a certain IP level (tbd)
Pore size: Can be adjustable
Manufacturing: Mouldable and weldable.

Functions & features	CONTROL (air/gas/liquid)	PROTECT (air/gas/liquid)	FILTER (air/gas/liquid)
Function	1 or 2 way control functioning as a valve to allow gas exchange	Against particles, liquids, electrical current	High efficiency flexible filtration
USP	Flow direction adjustable & enables emergency degassing (high throughput), maintaining seal integrity following internal/external environment change	Adapts to surfaces, covering 2D & 3D objects, removing need for mounting enclosure	High efficiency flexible filter medium with up to 10x higher airflow with same base area
Features	- Switches by pressure, temp, humidity - Volume or tightness are adjustable - Adjustable symmetric/asymmetric flow - Open with overflow speed	- Formable (Flexible OR rigid) - Removes need for mounting enclosure, so saving space & weight	- Particle Filtration efficiency: 0.3µm >99.9%, 1µm >99.97% - Adapts surface shape to liquid streams by speed of liquid flow - Flexible at activation pressure (adjustable)

Do you know of a potential application for this technology? Perhaps it can replace an existing component, provide additional functionality to a product or allow a completely new product application? We will be pleased to hear from you…

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How to Collaborate

Please click **here** to tell us more about your idea and how to win a €1,000 cash prize for submitting it. Whilst we are only interested in receiving potential applications at this time, there is however, the potential for collaboration with our client to take your application idea forward - as a user, manufacturer or product partner.