

## The textile reactor takes its place on the recycling landscape

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Credit: University of Borås

A multi-year collaboration between researchers within Resource Recovery at the University of Borås, Sweden, and a textile manufacturing company is now yielding results – a new type of reactor



made of a textile material has found its way onto the market in different parts of the world. The reactor transforms different kinds of waste into new products, such as biofuel.

To date, the <u>textile reactor</u> has been tested in different markets in the world, and the technology has evolved along the way. The latest market tested is India, where the Swedish company F.O.V. has established a subsidiary that supplies reactors with volumes from five cubic meters to 300 cubic meters. Approximately 30 reactors have been established and technical trials are being carried out with the researchers at the University of Borås.

A first prototype of the reactor saw the light of the day in 2014. Over a few years, it was tested in several research projects. First, attempts were made to produce <u>biogas</u> with kitchen waste in the lab environment, then later with manure. The results were excellent.

Today, textile reactors have been developed and established in several locations around the world to produce biogas on both small and large scales, ranging from a few cubic meters to 300 cubic meter large reactors. They are used so far mainly in agriculture.

## Search for new applications

Research on the textile reactor has now entered a new phase – to find new applications for it. In new projects, it is now being tested for the production of things other than biogas and <u>bioethanol</u>. Among the projects one is investigating whether fungi can grow it the reactor to use in <u>new products</u>, such as for the production of animal feed.

Another ongoing project is to develop an entirely new material for the textile reactor itself, which today consists of a thick fabric of composite material with a sealing layer on the inside that keeps the fabric



impermeable. The new material should consist of a thinner textile layer that becomes impermeable through a new method. It is completely recyclable and does not release any hazardous substances. The goal is to close the recycling circle as well as to ensure that the material that the textile reactors consist of can be recovered when the lifetime of the reactor is complete.

## Short facts about the textile reactor

Possible areas of use can be anywhere organic waste is produced, from a standard kitchen with gas stove, fruit markets, forestry and agricultural industries to the food industry and restaurants.

Five cubic meters corresponds to a hot tub while 300 cubic meters corresponds to a swimming pool 25 meters long and four swimming lanes wide.

Research on the textile reactor is conducted in the field of resource recovery.

Provided by University of Borås

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