

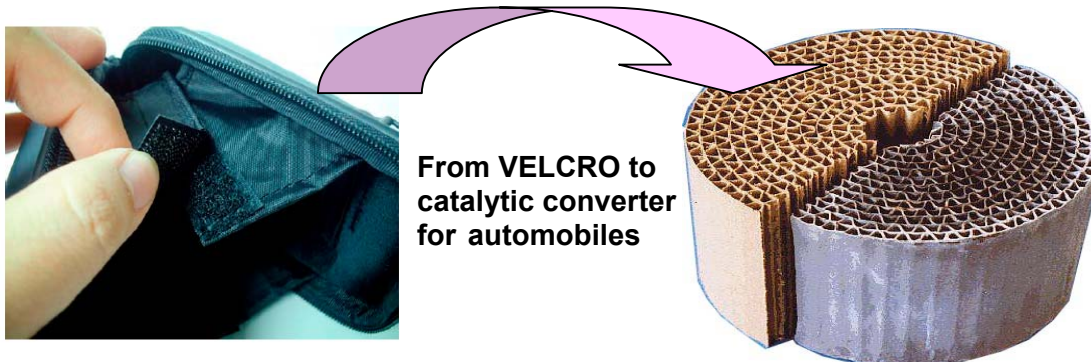
Biomimetic Materials & Processes

With increased understanding of nature, the natural materials and the processes involved, even mass production industries are interested in adapting biomimetic materials because of environmental compatibility and low energy content and cheap raw material feed stocks. Last not least the recyclability of biomimetic materials is intrinsically much better than their standard industrial equivalents.

Today the Automobile industry is investigating biomimetic processes for several reasons such as: superior performance, low cost raw materials, recyclability and surprisingly mass production compatibility. All majors GM, Ford, Daimler-Chrysler and Toyota are investigating biomimetic presses for applications such as:

- structural ceramics for piston heads, cylinder liners, disk brakes, glow plugs, catalytic supports and others
- dirt repellent paints and transparencies
- high energy density batteries and super-capacitors
- fuel cell electrodes
- high strength structural materials
- gas /odor sensors

Of course the automobile industry is not the only driver, there are even more powerful ones such as the bio-medical industry. All in all industry has not yet recognised to advantages of copying nature, however this will be just a matter of time. MEMS related companies should look for biomimetic processes, since most of this biological process occurs in microscopical scale, for instance piezoelectric motors are built on the principle of rotation of flagella bacteria. Even the aerospace industry is investigating low drag wing surfaces base on shark-skins. The military establishment is a prime sponsor of most of these projects conducted at universities in USA and Europe.



*This Tech Watch study is carried out in collaboration with **sgt Sensor Consulting Dr. Guido Tschulena**. Further Information on this report can be obtained from **Dr. Felix J. Trojer** from Netlab GmbH in Düsseldorf. Phone: + 49-211-994-5473, Fax: + 49-211-994-5476, e-mail: netlab@t-online.de*

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Dr. Felix J. Trojer
Netlab GmbH
Kronen Strasse 52
D- 40217 Duesseldorf, Germany
Fax: +49 211-994-5476
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