Partner sought to jointly develop and commercialize novel active filter materials for health protection and fighting future pandemics

- SCHEDA
- APPROFONDIMENTI

Identificativo proposta:TODE20200624001 **RICHIEDI MAGGIORI INFORMAZIONI**

German start-up with expertise in production and functionalisation of graphene and its processing into various formulations seeks partners to jointly develop novel filter material with active and smart components(e.g.as solution for health protection or active prevention to fight future pandemics).Concept and proof of concept are available.Cooperation with industrial partners is envisaged in terms of joint venture,commercial agreement with technical assistance or research cooperation agreement.

The German company is a growing technology-driven materials start-up, manufacturing and selling a portfolio of large-flake, few-layer E-Graphenes (electrochemically exfoliated graphenes) and formulations, tailored to integrate seamlessly into downstream processes. Spin-out of Technical University they generate revenues selling tailored E-Graphenes, custom formulations and R&D projects to EU, US & JP corporations, SMEs and institutes in the packaging, electronics, wearables and aerospace sectors based on their own IP. Main application areas currently are inks (for conductivity, diffusion barriers and anticorrosion), resins & rubber additives (for reinforcement and antistatic properties) and foams (mainly for air filtration). To overcome capacity limitations and serve the growing demand they have recently moved into new labs and are setting up pilot-scale facilities. By providing good scalability and yield, low production costs and a good processability, their mission is to unleash the currently limited potential of graphene in various fields. The development of highly porous, conductive hybrid materials is based on a long-term collaboration between universities and start-ups from Germany. Whereas in the beginning the application focus was more in the area of energy storage, an idea was developed to also use these materials for air filtration. Preliminary tests have already shown that the filter properties of these materials are very similar to those of conventional HEPA (High Efficiency Particulate Air filter) filter systems and that these highly porous materials can be heated up to 400°C in just a few milliseconds, due to their electrical conductivity. In a first test, this effect could already be used to sterilize a material loaded with bacteria. With the concept and idea, the start-up addresses the following problem: Today's filter materials are passive, i.e. they are based on a purely physical separation of contaminants from air and therefore have to be replaced regularly. If this replacement is not carried out regularly, or if bacterial loads are particularly high and the environmental conditions are unfavorable, conventional filter materials can also act as breeding grounds for bacteria and viruses and, accordingly, can even spread germs via air conditioning and ventilation systems. Potential of the solution: The approach represents a paradigm shift in air filtration by moving away from passive filter elements towards active and smart components. The solution can save energy and resources as well as improve the safety of the air we breathe in a sustainable way: with new filter materials that are not only able to passively filter out contaminations from the air, but that can also be sterilized, cleaned and regenerated quickly and with little power via heating, all while being installed in a working system. On the one hand, the number of filter changes can thus be dramatically reduced, on the other hand, it prevents that filters can act as a breeding ground for germs also in applications where a regular filter change is not required. To finally boost development from concept stage to different steps towards market launch partners are sought. Commercial agreement with technical assistance/ Joint venture: Partners from industry are sought who are interested to finance the development and later to implement/ commercialize it. Research cooperation agreement: The client is also interested in joint development in the frame of an EU funded project. If the idea meets an existing or planned project proposal, they would be open for cooperation.

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