Carrying out R&D using high temperatures and flammable hydrogen can be almost impossible for an SME due to the expensive laboratory infrastructure required. Through the facilities at STFC’s Innovations Technology Access Centre (I-TAC), Designed Materials were able to set up their R&D space and start operating quickly and safely.

The challenge
When thinking of diamond, most people’s minds won’t immediately jump to power tools, yet this is the core business of I-TAC incubatee Designed Materials. Despite not being its most glamorous application, diamond is the hardest naturally occurring material in the world, making it easy to understand why demand in the manufacturing industry is growing rapidly. The main industrial use for diamond is in grinding and power tools, but it also has potential for future applications in many areas, including electronics. The current methods of producing synthetic diamond, however, are expensive and power hungry.

Designed Materials is developing a new method of diamond growth which has the potential to revolutionise the industry, lowering production costs and maximising yields of product created. Designed Materials needed high-tech laboratory infrastructure with established safety procedures to handle the high temperatures and flammable hydrogen used in their manufacturing methods. To set up this type of laboratory in a certified manner is a long, expensive process if starting from scratch.

The solution
Designed Materials found the perfect location to undertake their R&D at STFC’s I-TAC facility based at the Harwell Oxford science and innovation campus. With the support of I-TAC’s experts, they were able to access thorough health and safety training for their team and secure the insurance needed to undertake their high-risk manufacturing process. The company was also able to take advantage of affordable access to high-tech testing equipment, including electron microscopes and raman spectroscopy techniques, which is normally only a possibility for large companies and organisations.

The benefits
Locating at I-TAC meant that Designed Materials could get the equipment that they needed to work safely with hydrogen and high temperatures, alongside expert guidance and support to adopt STFC’s comprehensive health and safety infrastructure. The time saved on this process has allowed Designed Materials to focus on further developing their manufacturing process, as well as speeding up patenting and commercialisation. This has enabled them to bring in around £900,000 of investment, including a Technology Strategy Board grant, which resulted from the many networking opportunities on the Harwell Oxford campus. The ability to set up a lab quickly has saved Designed Materials money and time – two commodities vital to a growing start-up company.

Work with us
The Science and Technology Facilities Council (STFC) keeps the UK at the forefront of international science and tackles some of the most significant challenges facing society and industry.

We collaborate with industry, the research community and government to develop business opportunities arising from our world-leading science and technology.

With our facilities, capabilities and expertise, we are perfectly placed to solve your high-tech innovation challenges and enhance your competitiveness - whether you are an established global corporation or an entrepreneur with a great business idea.

For more information about how your business could benefit from access to I-TAC:
Tel: +44 (0)1925 603708
Email: innovations@stfc.ac.uk
Twitter: @STFC_B2B