
OCSiAI Enables Enhanced Breathing Apparatus for Firefighters

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Ultra-lightweight fully composite cylinders enhanced with graphene nanotubes.

Dräger, a leader in manufacturing medical and safety technology products headquartered in Lübeck, [Germany](#), has commercialised a firefighting breathing apparatus with the world's lightest type 4 composite cylinders enhanced with graphene nanotubes to minimise weight.

Over 16,000 have been supplied to fire services in [Saudi Arabia](#), [Turkey](#), the [UK](#), [Germany](#), [Indonesia](#), [Qatar](#), and other countries to date.

“Reduced weight and a non-limited life performance are the key features of the compressed air breathing cylinders,” explains Piotr Saferna, R&D leader of Techplast, the company which developed the nanocylinders. “The combination of lightweight sturdy cylinder material, which was achieved with the use of OCSiAI’s graphene nanotubes, and impact-resistant caps, ensures the high durability and solid robustness of the nanocylinders. They are 75% lighter than steel cylinders and 30% lighter than aluminium alternatives.”

In 2021, Dräger received exclusive rights to use these nanocylinders in its self-contained breathing apparatus.

“Thanks to a shell weight of only 2.8kg and 6.8 litres of air, the Dräger NANO Type 4 reduces fatigue and increases firefighter agility,” says Mike George of Dräger Safety [UK](#). “Since 2021, we have provided fire service companies in more than twenty countries worldwide with self-contained breathing apparatus equipped with nanocylinders fully compliant with EN12245:2009. Now airport and industrial fire brigades, marine firefighters and mine rescue teams have the opportunity to increase safety via a longer duration of air consumption and

air supply if using a twinning option.”

Headquartered in [Luxembourg](#), [OCSiAl](#) is the world’s largest manufacturer of graphene nanotubes, also known as single wall carbon nanotubes. It employs more than 450 people worldwide in locations including the [United States](#), Europe, and Asia.

Founded in 1889, Dräger generated revenues of around €3.3 billion in 2021. The Dräger Group is currently present in over 190 countries and has more than 15,000 employees worldwide.

Techplast was founded in 2002 and is headquartered in Polska, [Poland](#). It focuses on developing and producing composite cylinders.

Read the [original article](#) on Innovation in Textiles.