



Novec™

Brand

Sustainable fire protection for QINOUS smart energy storage

Support of critical electricity infrastructure is becoming ever more important. At the same time, a growing number of businesses, including hospitals, hotels and even entire villages, rely on remote independent microgrids for their power supply. QINOUS is a Berlin-based renewable energy storage specialist and provider of smart energy storage solutions. It has recently started using 3M™ Novec™ 1230 Fire Protection Fluid in its systems as its fire protection solution.

The rise of microgrids

QINOUS develops microgrid storage systems for solar and wind energy in an average power range of 30–2000 Kilowatts. These microgrids can connect and synchronise to other power grids, or can operate independently in ‘island mode’, as required by physical or economic conditions. Software developed by QINOUS regulates the combination of energy production (by both fossil and renewable sources), energy storage and usage. This way, the microgrids can optimise their technical and commercial energy usage.

Analysts expect the global market for the storage systems sector relevant to QINOUS to grow by more than 400 percent by 2020 – to around five billion euros. In October 2018 Rolls Royce Power Systems announced strategic funding in QINOUS, an investment that is forecast to support further growth of the business.¹

QINOUS smart energy storage containers



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QINOUS Managing Directors, Steffen Heinrich (left) and Reinhard Edelmann (right) favour the use of Novec 1230 fluid from 3M in the company's Energy Storage Systems. © 2019 QINOUS All Rights Reserved.

The QINOUS energy storage systems are housed in standard ISO 20 feet or 40 feet shipping containers. The outdoor cabinet is made of a vandalism-proof, double wall, aluminium structure and state-of-the-art thermal insulation material to withstand the harshest of climates. The interior is separated into two sections. One section is completely airtight, preventing deterioration effects from dust, salt mist, insects or humidity. The other compartment houses the heat exchanger, the AC system and the transformer.

Safe from fire

A fire protection system with 3M™ Novec™ 1230 Fire Protection Fluid can be used to protect the compartment with the battery trays, converter and the control systems.

The fire protection system is not used to extinguish a battery fire, since the installed battery management system and the passive safety mechanism protects the container from battery fires and prevents thermal runaway. The Novec 1230 fire

protection system can instead be used to protect the control system and inverter. Fires in the incipient stage are rapidly extinguished through the removal of heat, avoiding spread of fire to the battery racks.

Novec 1230 fluid met all the criteria required by this application, including space-saving, fast discharge within ten seconds and rapid, clean fire extinguishing. Joseph Theune, Systems Engineer at QINOUS explains: “A fire protection system with Novec 1230 fluid offers the required personal safety and the agent itself is inert and does not damage the materials in the container. Fire protection systems with Novec 1230 fluid will be our solution in cases where our customers request fire protection”.

A sustainable solution

Sustainability is key to QINOUS's offering; their systems enabling greater use of solar and wind energy. To date, QINOUS has enabled 15 megawatt-hours of storage capacity for more than 30 different projects

throughout 16 countries in Europe, Asia, North America, Australia/Oceania and Africa. Among these projects are hospitals, hotels and schools, as well as even whole city districts, which were previously relying exclusively on fossil fuels. "The energy world is transforming rapidly and fundamentally" says QINOUS Managing Director Steffen Heinrich, "Use of electricity storage and renewable energy enables significant savings on fuel costs – while protecting the environment".

With the highest environmental profile of synthetic clean agents available today, 3M™ Novec™ 1230 Fire Protection Fluid was an obvious choice to complement QINOUS's smart energy solutions. With zero ozone depletion potential and a global warming potential of less than 1, Novec 1230 fluid helps protect the environment as well as valuable assets. Says Joachim Hellmann, Key Account Manager for Novec 1230 fluid at 3M: "Novec 1230 fluid has an unsurpassed sustainability profile and

is used to protect power generation plants, control rooms and other critical assets the world over. This is an exciting, evolving application using Novec 1230 fluid in smart energy storage, and we're delighted that our technology is enabling such an important trend in the energy market".

Smart. Safe. Sustainable.

3M™ Novec™ 1230 Fire Protection Fluid is an advanced clean agent fire suppression material, based on a proprietary chemistry from 3M. It was designed to address industry needs for clean agent fire protection that is safe and effective, while offering a sustainable environmental profile that no other halocarbon agent can match. This includes: zero ozone depletion potential; a 5-day atmospheric lifetime, and a global warming potential of 1. Because of these properties, Novec 1230 fluid is not targeted for phase-down or regulatory restrictions anywhere in the world. It is approved for use in total flooding fire suppression systems by the U.S. Environmental Protection Agency and most major regulatory bodies. All of this makes Novec 1230 fluid today's sustainable choice for clean agent fire protection.

The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all 3M™ Novec™ products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, protective coatings, immersion cooling, advanced insulation media replacement solutions and several specialty chemical applications.

3M™ Novec™ Engineered Fluids ■ 3M™ Novec™ Aerosol Cleaners ■ 3M™ Novec™ 1230 Fire Protection Fluid ■ 3M™ Novec™ Electronic Grade Coatings ■ 3M™ Novec™ Electronic Surfactants ■ 3M™ Novec™ Insulating Gases

Regulatory: For regulatory information about this product, contact your 3M representative.

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References

1 News QINOUS: Significant growth with the help of Rolls-Royce <https://www.qinouis.de/en/qinouis-significant-growth-with-the-help-of-rolls-royce/>



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