

## FluoRok announces first publication in *Science* showcasing its revolutionary new approach for producing fluorochemicals

- Fluorochemicals are crucial for the world's energy transition, global food supply and our health
- FluoRok's pioneering approach, originally developed at the University of Oxford, bypasses the traditionally toxic and hazardous process based on hydrogen fluoride (HF)

**Oxford, United Kingdom, 21 July 2023** – FluoRok, a deep-tech company developing revolutionary processes to access fluorochemicals in an efficient, safe, clean and sustainable way, today announces the publication of its first article in *Science*.

The article describes a new method for the direct synthesis of high-value fluorochemicals from fluorspar ( $\text{CaF}_2$ ) with a process that will revolutionize safety standards for fluorination and make significant progress towards net-zero emissions in the fluorochemical industry. The study was led by the University of Oxford (research group of FluoRok's co-founder Prof. Véronique Gouverneur) and FluoRok in collaboration with University College London and Colorado State University.

The authors describe a new process allowing the direct conversion of the mineral fluorite (fluorspar) into high value fluorochemicals bypassing the traditional energy-intensive intermediate production of hydrofluoric acid (HF), one of the planet's most toxic and hazardous chemicals. The methodology relies on the use of an inorganic phosphate activator in conjunction with mechanical activation. The manuscript describes its application to the synthesis of numerous well-known fluorinating reagents and key building blocks for agrochemistry and pharma.

The full manuscript 'Fluorochemicals from fluorspar via a phosphate-enabled mechanochemical process that bypasses HF' can be found online on Science Journal [here](#).

FluoRok recently raised [£3m of seed funding from Oxford Science Enterprises](#) to develop and commercialise this groundbreaking technology which represents a radical shift for industrial processes, bringing fluorochemicals production to the 21st century.

Dr Gabriele Pupo, FluoRok's CEO said, "This is a really exciting day for FluoRok, representing a stepping stone in our journey towards revolutionizing fluorochemistry. To access fluorochemicals, the world has exclusively relied on a centuries-old, energy intensive and dangerous process requiring the production of toxic hydrofluoric acid. This study demonstrates that there is another way, a way that is better, safer, and more sustainable."

Dr Robert G. Syvret, renowned fluorine chemist and FluoRok advisor said, "The technology that spun-out of the University of Oxford and is now under development by FluoRok has tremendous potential to change the paradigm in fluorochemical materials manufacturing. Not only does the technology permit fluorine atom utilization directly from mineral fluorspar, thus by-passing the intermediacy of HF and its inherent costs and risks, but FluoRok has recently demonstrated that it can also facilitate the use of lower grades of fluorspar and the harvesting of fluorine atom value directly from many industrial waste processes, which heretofore were not considered viable fluorine atom sources for fluorochemical production."

### About Fluorok

FluoRok is a start-up company based in Oxford, UK and focused on fluorochemical R&D, manufacturing and licensing. It develops novel and transformational technologies to access fluorochemicals in an efficient, safe and sustainable way. Founded in 2022, the company builds on decades of research in the laboratories of Professor Véronique Gouverneur at the University of Oxford.

FluoRok's proprietary technology directly employs fluorinated waste material or naturally occurring fluorite mineral as a source, to access high-value compounds that are key to the world's energy transition, our global food supply, and our health. Its innovative solution reduces energy requirements, lowers CO<sub>2</sub> emissions and enables reshoring of fluorochemical manufacturing due to intrinsic process safety.

FluoRok is backed by Oxford Science Enterprises, an independent, billion-pound investment company, that funds transformational businesses via its unique partnership with the University of Oxford.

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