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News

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Press Release
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Every time synthetic textiles are washed, millions of plastic microfibers can be released, representing a largely invisible but significant source of pollution. To remedy this, IFP Energies nouvelles (IFPEN) has developed CleanWash, a technology that captures and recovers these microfibers directly at the outlet of professional textile washing facilities.

Successfully tested at a 5àsec dry-cleaning facility in Vénissieux in eastern France, with the support of CTTN-IREN*, this solution has proven its effectiveness by removing more than 80% of plastic microfibers. This is a concrete step forward, at a time when the majority of such microparticles continue to elude wastewater treatment plants, contributing to water and soil pollution.

In a context where 60% of textile fibers worldwide are plastic materials, capturing these microfibers at source when they are released during washing is essential to prevent them from being released into the aquatic environment and migrating into wastewater treatment sludge used for agricultural spreading operations.

The fruit of four years of research and development

Suitable for dry cleaning and industrial laundry facilities, CleanWash technology uses a process directly inspired by IFPEN's work on oil/water separation in industry.

Developed thanks to the combined expertise of IFPEN teams, CleanWash is based on an advanced flotation system using precisely-sized air bubbles, capable of capturing suspended microfibers and concentrating them on the surface before recovering them in a dedicated compartment.

The innovative design of the equipment optimizes the collision between the microfibers and the bubbles, thereby improving separation efficiency while remaining compact enough to meet industry requirements.

During the 4-week test period, the technology demonstrated:

- Excellent operability with low discharge volume
- 80% retention of microfibers ? 50 micrometers in length
- The possibility of increasing this performance to levels above 95% by adding bio-clarifiers.

“This technology is one of the first concrete solutions for the professional cleaning market. It delivers performance in line with evolving regulatory requirements, consumes very little electricity, and enables robust operation without the clogging issues typically encountered with filtration-type solutions" , says Matthieu DREILLARD, Project Manager and Research Engineer at IFPEN.

Industrial development dependent on future regulations

The successful demonstration of the CleanWash system is a key step towards its industrial development. However, the lack of regulations currently limits the roll-out of such solutions. The

CleanWash project was originally launched to anticipate the requirements of the French AGEC (anti-waste and circular economy) law, requiring the fitting of professional washing machines with plastic microfiber capture devices from the beginning of 2025. Pending these regulatory clarifications, the technology developed by IFPEN will enable industry players to stay a step ahead and actively contribute to environmental protection.

* CTTN-IREN : *Institut de Recherche sur l'Entretien et le Nettoyage* (French Maintenance and Cleaning Research Institute)

About IFPEN
IFPEN is the French national institute for research and training in the fields of energy, mobility and the environment. Its teams develop innovations for a low-carbon, sustainable world, covering the entire chain from scientific concepts through to technological solutions. From technologies and software to equipment and services, the institute's low-carbon innovations are paving the way for the transition and facilitating the emergence of the industrial sectors of the future. IFPEN boldly imagines and meticulously designs solutions for society's future.
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