

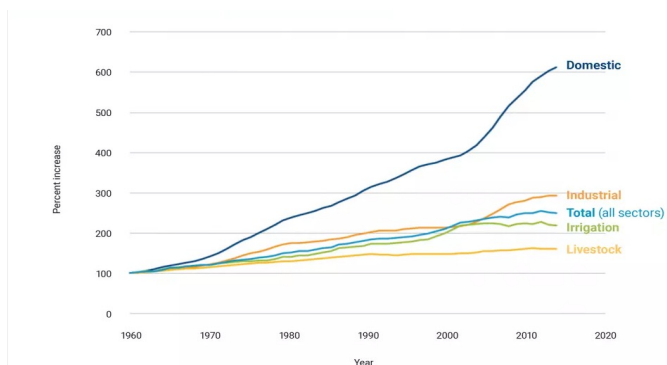


WATER EFFICIENCIES AND EFFLUENT MANAGEMENT IN INDUSTRIAL LAUNDRIES

October 2024

WATER EFFICIENCIES AND EFFLUENT MANAGEMENT IN INDUSTRIAL LAUNDRIES

Water conservation is a critical issue in today's world, where resources are constantly under pressure. Whilst water is the most plentiful and essential compound on earth, according to UNESCO, 70% of the global freshwater withdrawals are used for agriculture followed by industries just under 20% and domestic use about 12%. Since the 1980s, the global demand for freshwater has been increasing by just under 1% per year during this period. As illustrated below, the municipal demand for freshwater has exponentially increased over the years.



Source: <https://www.unesco.org/reports/wwdr/en/2024/s>

On average, a typical four-member household in the UK would use about 450 litres of water per day, 15% of which is utilised by washing machines. A modern front-loading washing machine of 4/5 kg capacity would use over 50 litres of water for a 40-degree wash program.¹ This means the water usage in a domestic setting ranges from 10-25 litres per kg processed depending on the age of the machine and the loading habits.

A typical commercial machine used in launderettes or on-premise laundries would use between 20-30 litres per kg of textile processed. This varies also depending on the staff training and optimisation measures taken in individual cases.

When it comes to laundry machines used in industrial laundries, water usage and demand are highly optimised. In many cases, water is recycled and heat-recovered after each and every wash process. Typically, the industrial laundry machines utilise anywhere between 2-4 litres of water per kg of textile processed. This level of efficiency is achieved through high optimisation capabilities and automation of laundry wash processes in an industrial setting combined with high economies of scale. A medium-sized hospitality laundry washes millions of pieces of textiles every week which facilitate a consistent flow of water which is often recycled and reused in various stages of the wash process.

EFFLUENT AND WATER TREATMENT

The industrial laundry sector is a circular economy service and water efficiencies and effluent quality are immensely important to the laundry operators. The UK textile product portfolio in hospitality, healthcare and industrial manufacturing sectors is predominantly cotton-rich. This means that the contribution of the industrial laundry sector to microplastic pollution is minimal. Most textile articles used for industrial purposes are long filament yarns, highly twisted and tightly knitted / woven designed to shed less polymers from polycotton products.

The fibre release from textiles peaks within the first few washing processes. This means the longer the textiles are used, significantly fewer fibres are shed from a life cycle point of view. The highly enhanced chemistry with effective water filtration utilised in industrial laundries helps increase the longevity of the products. Industrial laundry textile products and processes are designed to make these articles last as long as possible which in turn helps reduce the impact on the environment.

The type of detergents used in a washing process can make a difference in how much fibres or plastic particles are shed. According to a study, powder detergent used predominantly in home settings contributes to increased fibre release.² Liquid detergents devoid of insoluble components like zeolites are in use in industrial laundries, and so is low-temperature washing.

Whilst laundries reduce the microplastic footprint within their effluents, it is ultimately the water authorities and the large-scale water treatment processes that can provide tangible difference to the marine ecosystem.

Our industry is committed to water efficiency and clean water systems by adopting sustainable practices. Through these efforts, as an industry we aim to play a part in protecting our precious water resources for present and future generations, fostering a culture of responsibility and sustainability.

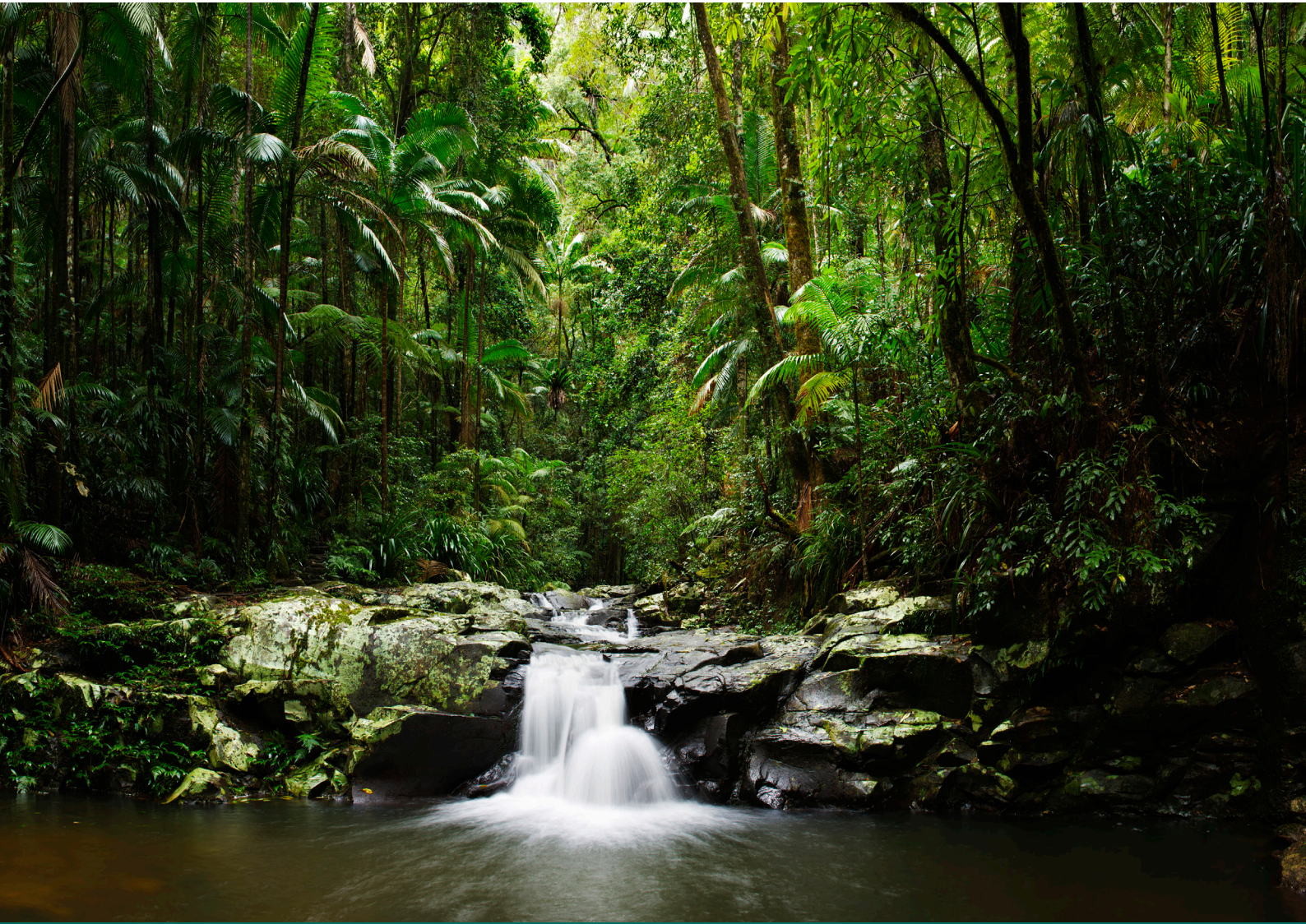
TEST METHODOLOGY

The global industrial laundry community is proposing a test methodology at ISO level (part of the ISO 4484 suite of standards) to determine the shed of microplastics from textiles used in industrial sectors. This will enable a charging mechanism for water authorities for effluent management and provide a standardised way to update the textile product data sheets which will also subsequently inform better purchasing decisions.

References:

- <https://www.savewater.savemoney.co.uk/water-efficiency-tips-advice/view/118/saving-water-around-the-house.html>
 - <https://www.gwmwater.org.au/conserving-water/saving-water/how-much-water-you-use>
2. Francesca De Falco et al. 2018: Evaluation of microplastic release caused by textile washing processes of synthetic fabrics. Environmental Pollution 236 (2018) 916-925





TEXTILE SERVICES ASSOCIATION

Regus, Venture House | 2 Arlington Square,
Downshire Way, Bracknell RG12 1WA

T 020 3151 5600

E tsa@tsa-uk.org

W tsa-uk.org

Copyright TSA 2024.

