

Dirty Laundry

Microplastics from your hoodie into the plastic soup

There's more in plastic soup than floating garbage. The oceans are polluted in depth by numerous tiny particles known as microplastics. A major contributor of primary microplastics release into the ocean is the washing of synthetic textiles. In the laundry machine microfibres detach from the yarn of e.g. polyester, polyacrylic and nylon. A synthetic clothing can release more than 1900 fibers of microplastic per wash (Wright *et al*, 2013).

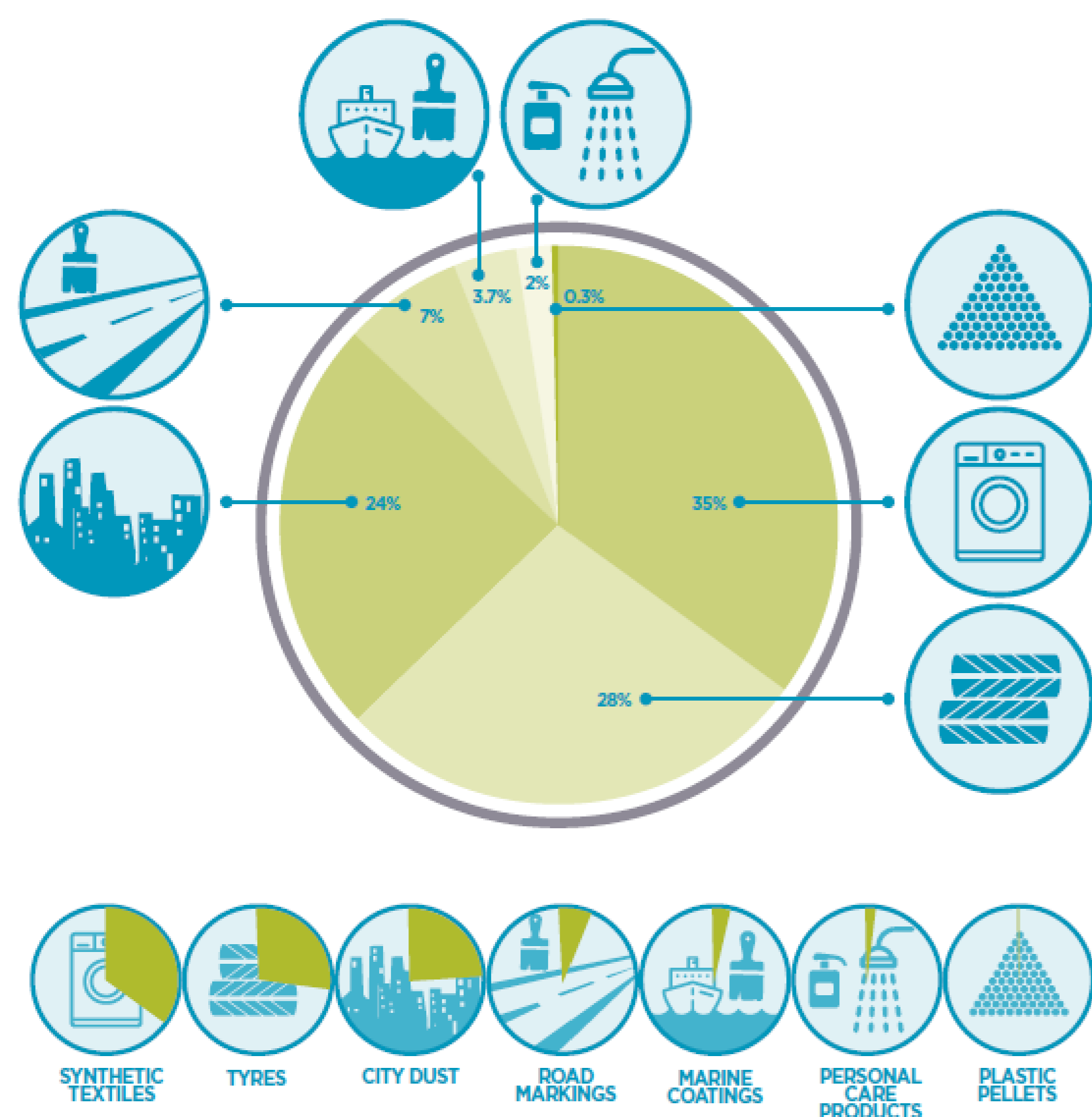
No more wear and tear garments

What can we do to prevent the shedding of textile and the release of textile microfibers into the ocean? Caecilia Satyawan, student in the Honours Master High Tech Systems and Materials, looked over the various options and innovations. At the textile industries there's a potential for biodegradable fabrics, for re-engineering the yarn properties and processing, as well as for coatings to increase the fabrics resistance. Washing machine manufacturers might choose for an added filter in the effluent stream. The textile consumer has options in adapting the washing process by microfiber-catching tools like the Guppy Friend bag.



GLOBAL RELEASES OF PRIMARY MICROPLASTICS TO THE WORLD OCEANS

BY SOURCE (IN %).



Various sources of microplastics release globally, based on 3.2 Mtons release of microplastics annually (Friot, 2017).

Saved by the sewage?

Domestic waste water treatment plants are quite effective: the conventional treatment can filter up to 99% of microplastic particles. Thomas den Hartog, bachelor student at Industrial Engineering and Management, investigated the potential to upgrade the system. Additional techniques such as a rapid sand filters or a membrane bioreactor can remove up to 97 to 99.9 %. However, the costs are high and the release of particles in the outgoing effluent is still significant.

So for the share of textile microplastics to the plastic soup there's no single-best solution identified (yet) and joint initiatives are to be encouraged.