



WASHING TEST UNDER DOMESTIC CONDITION OF COMMERCIAL CLOTHES

The data reported in this report are confidential.

All the clothes supplied by PSF were washed in a Bosch washing machine using the program for synthetic clothes at 40°C and 1200 rpm. For all the washes a commercial liquid detergent was used in the dose recommended by the manufacturer.

For all the tests the adopted procedure to evaluate microfibers consisted in:

- 1) Filtration of the wastewater coming directly from the drain pipe of the washing machine, through a filter of 400 μm pore size. Following in the text this procedure will be coded as FILTRATION 1
- 2) The filtered waste water coming from the FILTRATION 1 was filtered through a filter of 60 μm pore size. Following in the text this procedure will be coded as FILTRATION 2
- 3) The filtered waste water coming from the FILTRATION 2 was filtered through two or more filters (depending on the clogging of the filter) of 20 μm pore size. Following in the text this procedure will be coded as FILTRATION 3

All the filters were weighted before and after the filtration in order to evaluate the amount in grams of microfiber released.

The washings performed are reported below.

CONFIDENTIAL

T-SHIRT 2 washing test

The washed t-shirt is reported a label (A) indicating that it is 100% polyester fabric.



Two washing tests were performed, using each time new t-shirts.

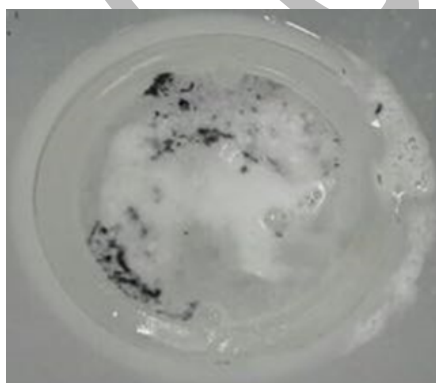
For **1st washing test** 17 t-shirts were washed for an overall weight of 2.535 Kg.

For **2nd washing test** 17 t-shirts were washed for an overall weight of 2.527 Kg.

The amount of microfibers released and determined at each filtration step and averaged between the two washing tests are summarized in the table below.

FILTRATION	Microfibres [mg/kg]	% of microfibers retained per filtration step
1	6,7 ± 2.8	6 ± 4
2	92.8 ± 30.1	74 ± 5
3	25.5 ± 4.8	21 ± 1
TOTAL	125.0 ± 32.1	

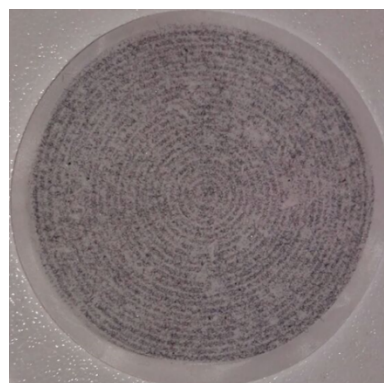
In the figures below the pictures of the filters are reported.



FILTRATION 1



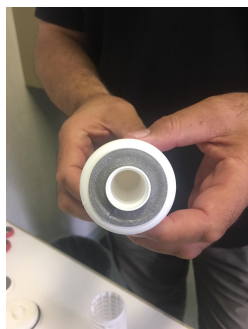
FILTRATION 2



FILTRATION 3

WASHING TESTS WITH NEW PLANETCARE FILTRATION SYSTEM

For this washing test the New Planet Care Filter was used.



For this test 17 t-shirts were washed for an overall weight of 2.517 Kg.

The amount of microfibers released and determined at each filtration step are summarized in the table below.

FILTRATION	Microfibres [mg/kg]	% of microfibers retained per filtration step
1	0	0
2	15.16	47
3	17,56	53
TOTAL	33,17	

The **TOTAL AMOUNT** of microfibers released per kilogram of washed t-shirt is **33.17 mg/Kg**. This data does not take into account the amount of microfibers retained by the New PlanetCare filtration system.

The amount of microfibers retained by the new filter was determined by weighting the filter before and after the washing this amount was 58.95 mg/kg.

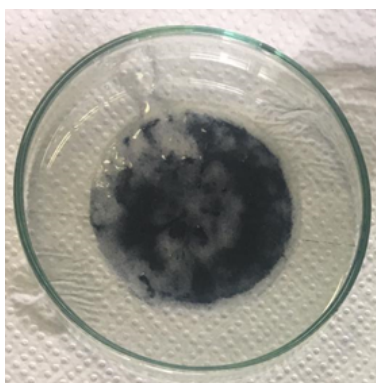
The use of PLANET CARE external filter reduced the amount of microfibers released by the 64%.

The following table compares the percentages of fibres retained by each filtration step in the washings with and without the PlanetCare Filter.

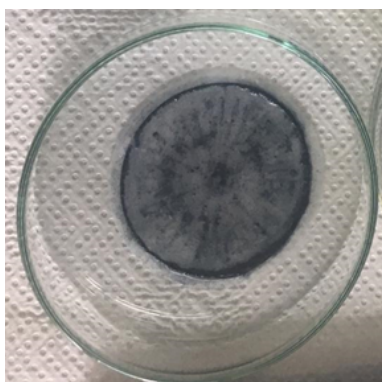
In the figures below the pictures of the filters are reported.



FILTRATION 1



FILTRATION 2



FILTRATION 3

The effect of New PlanetCare filtration system is described in the figure B were the microfibers released (mg/Kg) for the TEST1 (data of the washing tests performed on t-shirts without Planet care filtration system) and TEST2 (results of the washing tests performed on t-shirts mounting the New PlanetCare filtration system) are plotted for each performed filtration step.

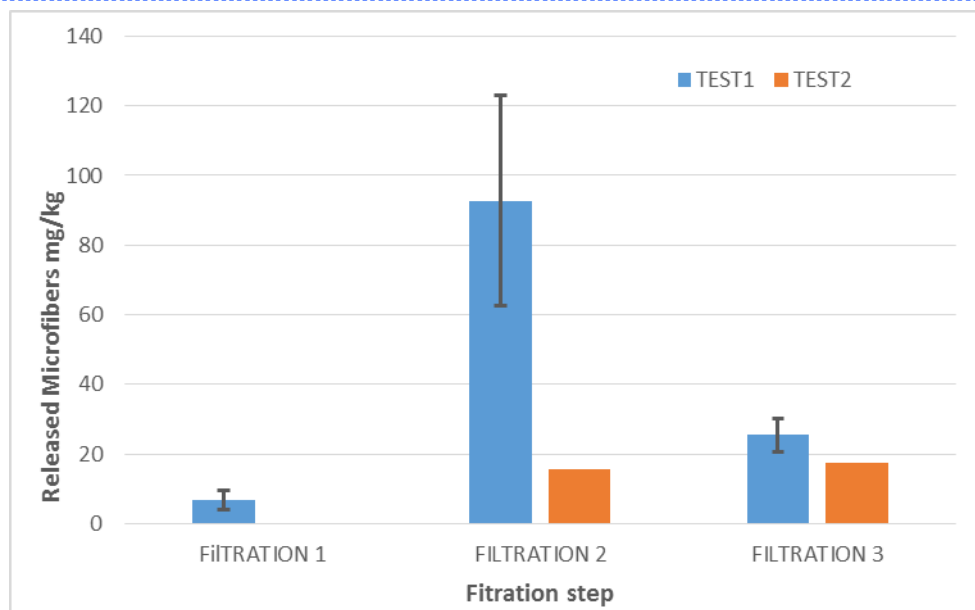


Figure B Microfibers released (mg/Kg) for the TEST1 (data of the washing tests performed on t-shirts) and TEST2 (results of the washing tests performed on t-shirts mounting the New PlanetCare filtration system) per each performed filtration step.