



**WASSER
3.0**

INSTRUCTION GUIDE FOR MICROPLASTIC SAMPLE COLLECTION

FIELD OF APPLICATION: Laundry Machines

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QUESTIONS & ANSWERS











Contact

Wasser 3.0 gGmbH
Neufeldstr. 17a-19a
76187 Karlsruhe/Germany

info@wasserdreinull.de • www.wasserdreinull.de



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SAFETY INSTRUCTIONS



**DISCLAIMER
(GHS07)
DANGER/CAUTION**

Acute toxicity,
skin corrosion/irritation,
serious eye
irritation/damage,
skin sensitisation,
toxicity to specific
target organs.



**CORROSIVE
EFFECT
(GHS05)
DANGER / CAUTION**

Corrosive or irritant
effect on the skin
or serious
eye irritation.



IF IN EYES:

Causes serious eye irritation.
Rinse cautiously with water for several minutes. Remove any contact lenses.
If medical advice is required, have packaging or labelling ready.

Read the label before use. Please follow the care instructions of the textile manufacturer.
Pre-sort laundry according to colour and degree of soiling. Please follow the care instructions on the sew-in label and the instructions of the manufacturer of this detergent.

REQUIRED EQUIPMENT - LAUNDRY



Water Meter

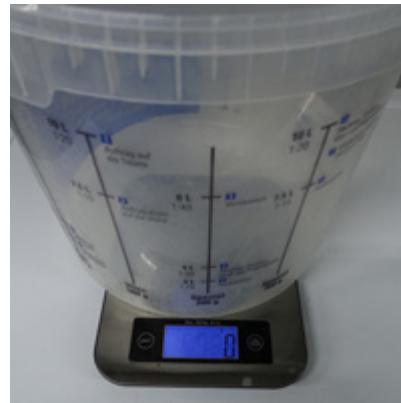


2. Washing machine with inflow and outflow tubes

3. Stainless steel container;
Volume 200 L



2 x $\frac{3}{4}$ inch „GEKA“ clutch



10 L Bucket and scale



SET-UP OF TEST UNIT (LAUNDRY MACHINE)



Set-up the inflow and electricity of the washing machine as instructed in the laundry machine manual (inflow from freshwater intake of building).

Using the standard effluent hose provided with the laundry machine, connect it to the water meter and then the stainless-steel tank (200 L) using the GEKA clutch.

Make sure the water meter is installed horizontally and in the correct direction of flow (see arrow on the water meter).

WASHING LAUNDRY



Tare the scale using the bucket in which the laundry will be placed.



Add the desired amount of laundry/textiles based on the desired weight (in this example, 2 kg).



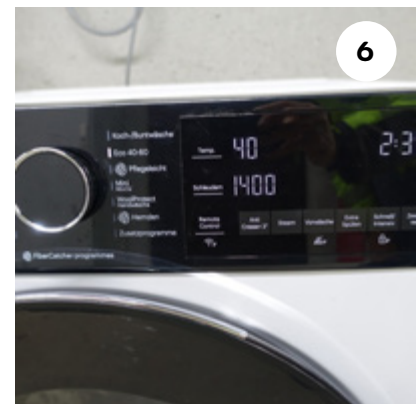
Place the clothes to be washed inside the washing drum of the laundry machine.



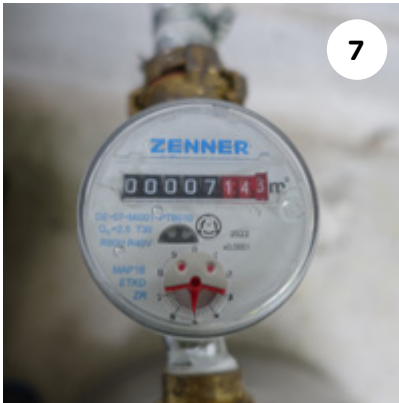
Open the detergent compartment of the laundry machine.



Add detergent to the appropriate compartment.



Select the washing program.



7

Read and record the water meter before beginning the washing cycle.



8

Start the washing cycle/laundry machine.



9

Read and record the water meter/ water consumption again after the wash cycle has finished.

SAMPLE COLLECTION



Washing water / wastewater from the washing machine is collected in the stainless steel container.



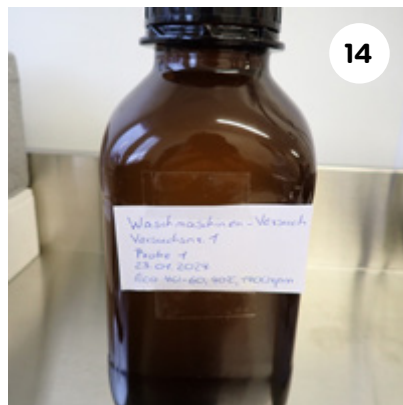
Mix the wastewater with a metal spatula.



Rinse the sample bottle 3 times using the wastewater.



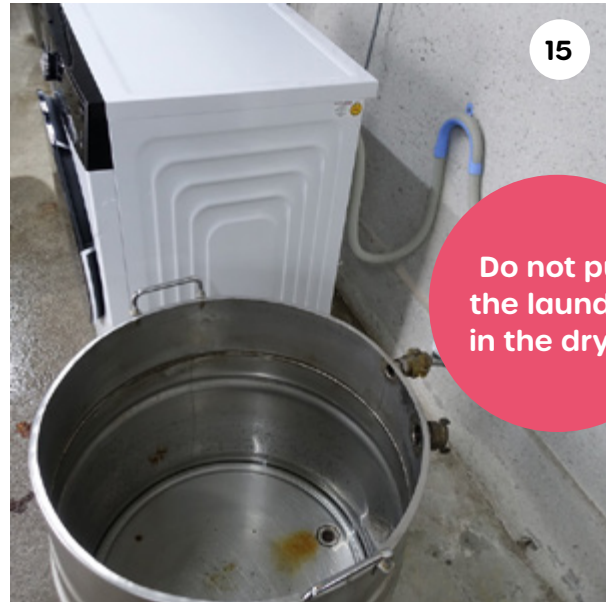
Fill the 1 L sample bottle with wastewater from the laundry machine by submerging it until full.



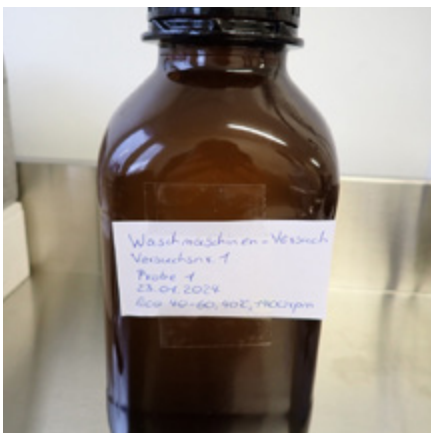
Make sure the sample bottle is labelled correctly.



This procedure is repeated five times for each experimental set-up. Between washing cycles, the clothes remain inside the laundry machine.



After 5 wash cycles, the clothes are removed from the machine and hung up to dry.



LABELLING

Laundry machine - Test

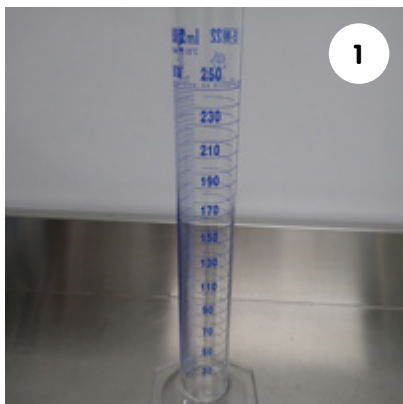
Test number: e.g. 1

Sample number: e.g. Sample 1

Date: e.g. 2024.01.30

Wash program: Eco 40-60, 40 °C, 1400 rpm

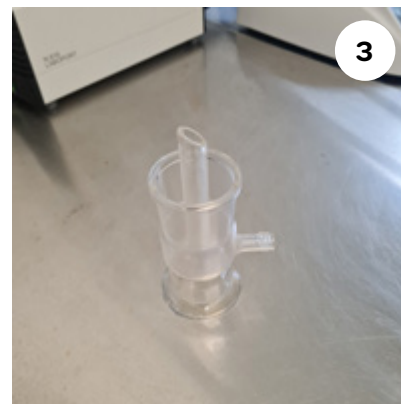
REQUIRED EQUIPMENT FOR SAMPLE PREPARATION



250 mL Measuring Cylinder



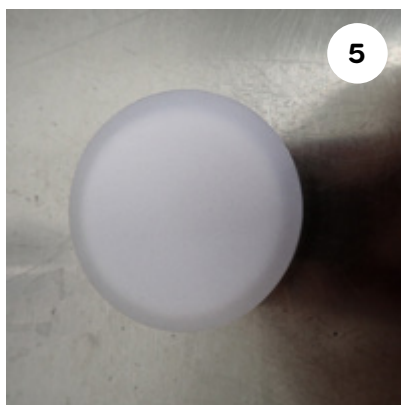
Suction Flask



Attachment NS 45/40



Adapter Plate for Filter



Glass Filter Plate



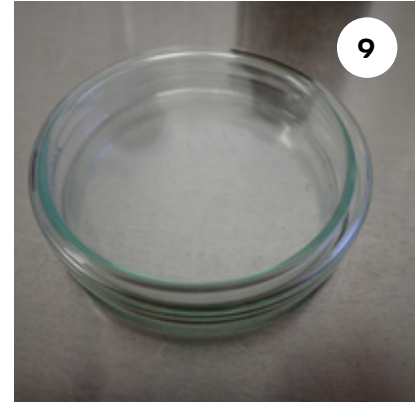
Scaled Glass Reservoir



Clamp (anodized aluminum)

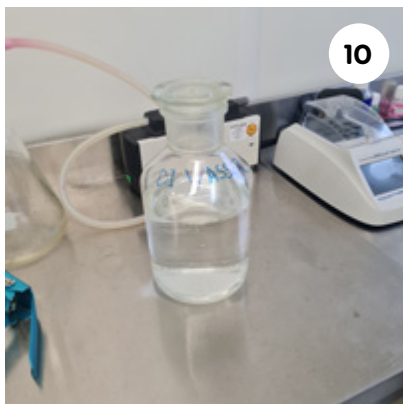


White Membrane Filter with grid,
0.45 µm pore size, 47 Ø mm,
Whatman™



Petri Dish

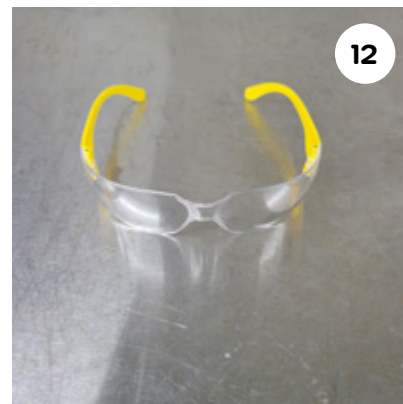
REQUIRED EQUIPMENT FOR SAMPLE PREPARATION



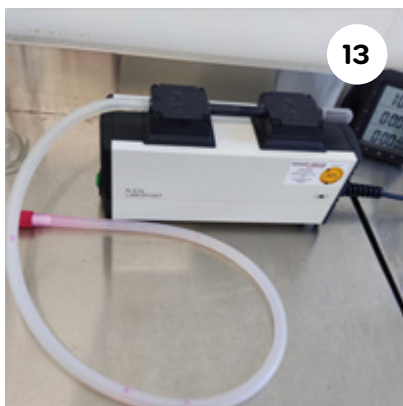
Demineralized Water (in glass bottle)



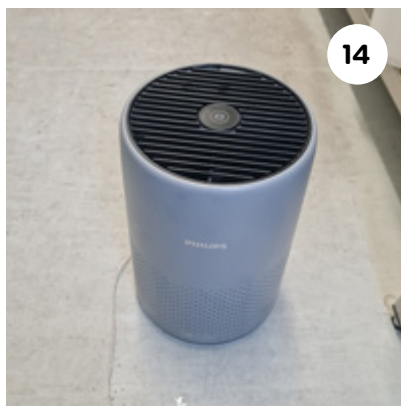
Protective Gloves



Safety Glasses



Vacuum Pump with GEKA with hose with GEKA coupling (1 inch)



HEPA Air Filter



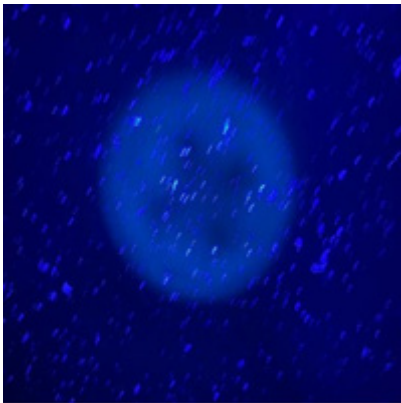
LABORATORY PREPARATION

"Microplastic-free work" and laboratory standards

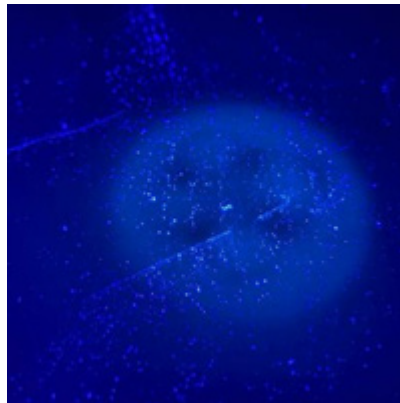
- Regular cleaning
 - Special lint-free cloths
 - UV light for control
- Use HEPA Air filters
- Protective clothing
E.g. 4510M, 3M Deutschland GmbH, Ness, Germany
- Glass laboratory equipment
- Deionized water
- Covering glass laboratory equipment and filters with aluminum foil



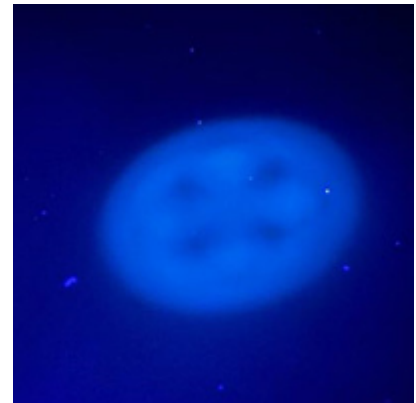
Protective Clothing



Before Cleaning



After Paper Towel



After Lint-Free-Cloth

ASSEMBLING THE VACUUM FILTRATION UNIT



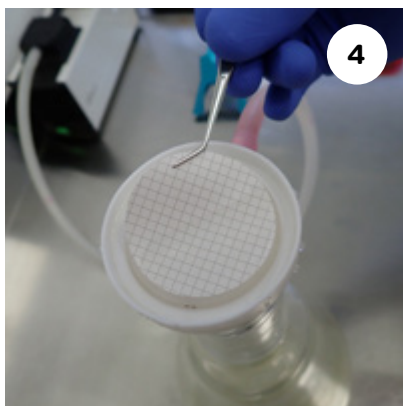
Place the NS 45/40 attachment on the suction flask.



Place the adapter plate on the NS 45/40 attachment and then connect the suction hose of the vacuum pump to the suction flask.



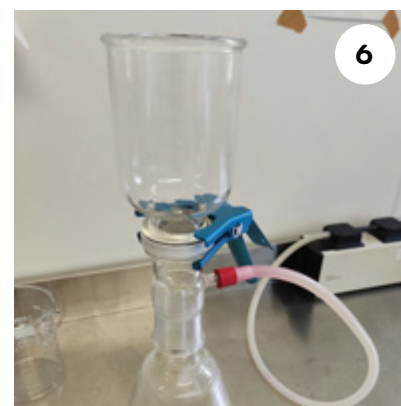
Place the glass filter plate on attachment NS 45/40.



Place the white membrane filter on top of the glass filter plate.



Place the scaled glass reservoir on the adapter plate with the membrane filter.

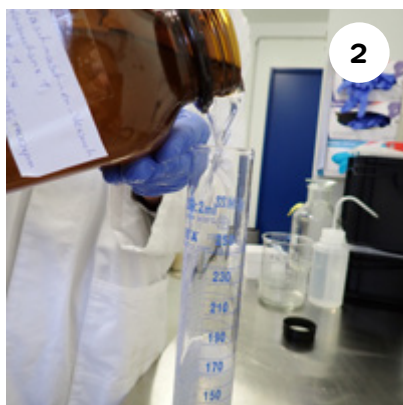


Secure the scaled glass reservoir using the aluminum clamp.

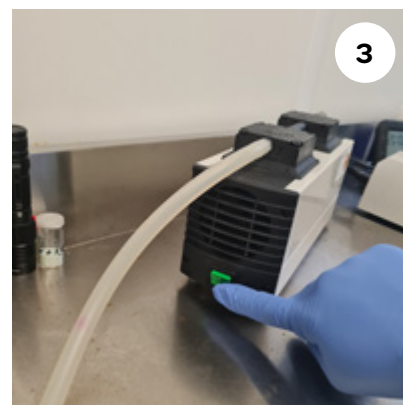
SAMPLE PREPARATION



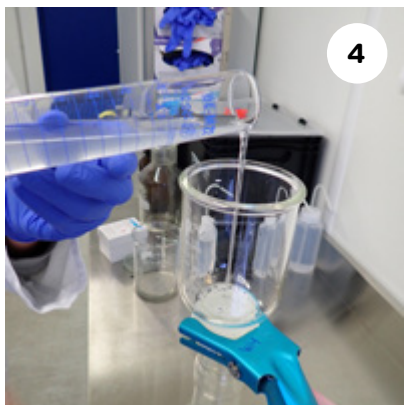
1
Shake the 1 L sample bottle vigorously.



2
Pour 200 mL of the sample into a glass measuring cylinder.



3
Switch on the vacuum pump.



4
Pour the 200 mL sample into the scaled glass reservoir for filtration.



5
Rinse the measuring cylinder with 50-100 mL of DI-Water.

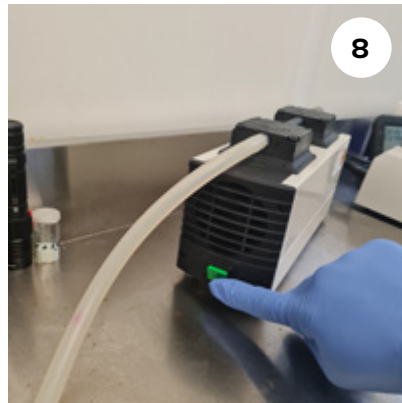


6
Pour the remaining water in the measuring cylinder into the scaled glass reservoir container for filtration.

SAMPLE PREPARATION



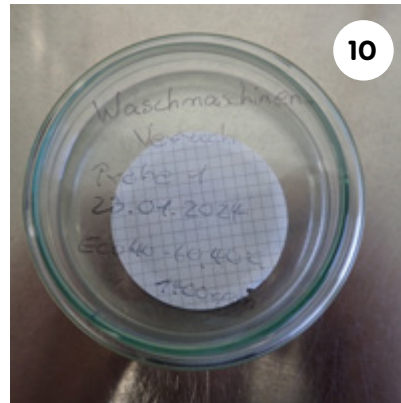
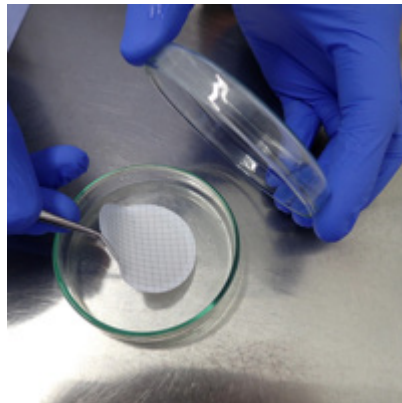
Rinse the scaled reservoir with 100 mL of DI water.



Switch off the vacuum pump.



Remove the membrane filter using the metal tweezers.



Place the filter inside the labelled Petri dish.
The label on the dish should match that of the sample bottle.



The next step is microplastic detection
and data collection.

Get a quote now.



Wasser 3.0 gGmbH • Neufeldstraße 17a-19a • 76187 Karlsruhe • Germany

 +49 (0) 721 15 65 95 93  info@wasserdreinull.de  www.wasserdreinull.de