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## Torwash can fully recycle bioplastic TNO gets help from designers in developing new application

Torwash is the name of the technology developed by TNO. With a new application of this technology, you can completely dissolve and break down bioplastics (such as PLA), after which they can be used again. This offers designers opportunities to design composites and composite products that can still be fully recycled. Gianmaria Della Ratta & Giorgio Gasco, Polina Baikina and the design lab Envisions set to work to help TNO take the next step in this development. On the way to 'Designing for Torwash'. The results can be seen during Dutch Design Week (16-24 October) at Yksi Expo.

Bioplastics the solution to the plastic problem? No, not one-two-three. There are still a lack of ways to recycle them and not all of them are so quickly and easily biodegradable. Compost processors remove the bioplastic and then take it to the incinerator. Recycling companies are even lobbying against biodegradable plastics.

### Polylactic acid

However, Torwash is promising, a technology developed by TNO to upgrade materials of biological or organic origin. Sewage sludge or waste streams in agriculture, for example. With a variant of this technology, you can also fully recycle biodegradable plastics. In particular PLA (polylactic acid), the most commonly used bioplastic made from plants such as corn and sugar cane. PLA dissolves completely in the Torwash installation and can be reused for the full one hundred percent. Other materials that remain such as glass, stone, steel, wood and paper can then be recycled separately – provided they fall apart. This even applies to most other plastics. Thus a big advantage of the Torwash process is that you can process composite objects in it.

## **Embassy Lab**

This application of Torwash is still under development, both as a process and as an installation. TNO, together with Yksi Expo and the Dutch Design Foundation, has organized a so-called Embassy Lab under the banner of the Embassy of Rethinking Plastic. Polina Baikina, the duo Gianmaria Della Ratta & Giorgio Gasco and the design lab Envisions set to work designing examples. With PLA as pressed material, with PLA as material for the 3D printer and with different connections. To gain insight into the possibilities and limits of this new technology, the samples were tested and examined at TNO in the lab Torwash installation. The project and the results can be seen at Yksi Expo, with text and explanation.

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**Note for the editor (not for publication):** For more information about the exhibition and / or marketing material please contact:

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**Yksi Expo** organizes exhibitions to mainly highlight the work of Dutch designers.

**Yksi Connect** connects designers with the industry, provides inspiration, gives directions and resolves issues.

They draw their strength from collaborations and cross-fertilizations.