



# The sustainability of plastics in pet products; rethinking its use

**The pet industry and pet owners produce a lot of plastics waste. It is time for a more sustainable approach.**

## Plastics, plastics, plastics

Two to three times a day we feed our cat with haute cuisine wrapped in a beautiful parcel. Our rabbits live in pens with litter boxes, food bowls and toys. Your favourite pet store receives a new batch of toys and we remove the remains of our dog's yesterday's food from the pavement with a poop bag.

All involve the use of plastics and with the number of pets we keep – over half of the world's inhabitants own a pet – globally the pet industry and pet owners are responsible for a lot of plastics waste.

## Many purposes

Due to its versatility, plastics are the dominant packaging material, representing 40.8% of the global pet food packaging market in 2017, adding up to \$3,391.8 million\* (€3,029.72). Plastics serve several purposes, depending on whether it is for food (wet or dry) or other pet related products:

- Hygienic handling
- Shelf life extension
- Food safety considerations
- Damage protection
- Easy transport and home storage by consumer

\*[www.gfk.com/global-studies/global-studies-pet-ownership](http://www.gfk.com/global-studies/global-studies-pet-ownership)

## Packaging & sustainability

- Sensory implications
- Product branding
- As structural component

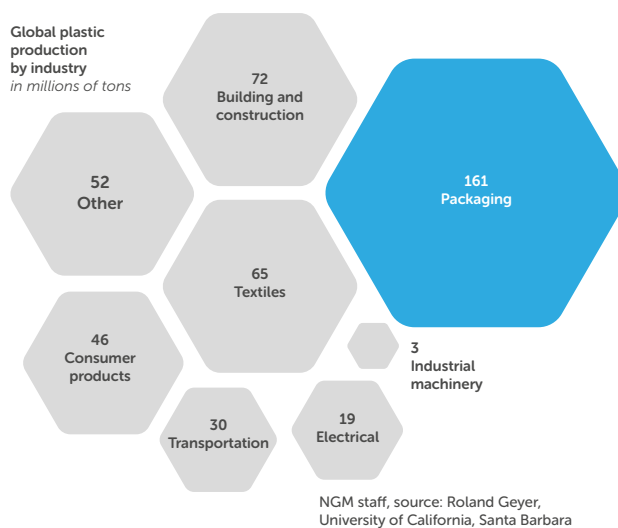
Many pet toys and other products like drinking bowls are made of plastic for the same reasons. It can be moulded into nearly anything. There is no risk of splinters or rotting, like with wood. Plastic toys are far more durable and can be bent, twisted and quite often chewed on without any serious damage happening to them. Also, the fact that plastic toys, bowls and other pet utensils are easy to clean, is an advantage.

### The case for making plastic usage in packaging more sustainable

The sustainability of plastic use gets increased attention. Pet owners that want the best for their pet, now also want a sustainable pet product. Companies have to comply with more stringent regulations that require improved recycling rates and more ethically sourced materials, for example as part of the 'European Strategy for Plastics in a Circular Economy', that demands that all plastic packaging be recyclable or reusable by 2030 at the latest. With only 9% of plastics recycled today, a huge challenge (Geyer, 2017).

### What is actually the environmental impact of plastic use?

We all see the devastating effects of the plastic soup that floats in our oceans. Micro-plastics, tiny fragments less than 5 mm, end up in marine life and also enter the human and pet food chain. Recent studies found micro-plastics in the air, drinking water, salt and honey, with yet unknown impacts on human health. The abundant presence of plastics in our lives can have serious consequences. The Plastic Health Coalition, for example, states that commonly applied endocrine disrupting chemicals (EDCs), such as BPA, are possibly related to an increasing number of disorders, from reproductive and development issues to an increased



chance of hormone-related cancers. Plastics may even lead to behavioural change.

These are impacts associated with discarded plastics at the end of life. The application, processing and resource extraction (mostly petroleum) of plastics has additional impacts. Generally, we express impact in CO<sub>2</sub> equivalents, as a measure for how much CO<sub>2</sub> is emitted during its production and transport. Increasingly, with the Sustainable Development Goals (SDGs) in place, the definition of impact is stretched to include social and environmental impacts like those on health, biodiversity and water.

### Petroleum based or bio based

Plastics can be petroleum based or bio based. Currently most commonly used plastics such as Polyethylene (PE), polypropylene (PP) and polyester (PE) are petroleum based. Their production is associated with vast CO<sub>2</sub> emissions, extensive water use, water and soil pollution and biodiversity impact. Bio based resources (starch, cellulose, wood, sugarcane) are increasingly used as an alternative for non-renewable resources.

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Bio based plastics can contribute to lowering greenhouse gas emissions when substituted for their fossil counterparts. They do, however, require the use of natural resources and hence are associated with land use and impact on soil, water and biodiversity as well. Bio based is not identical to biodegradable. Biodegradable plastics typically degrade in less than six months, where some bio based plastics can be very persistent in our ecosystem.

#### But...what if....

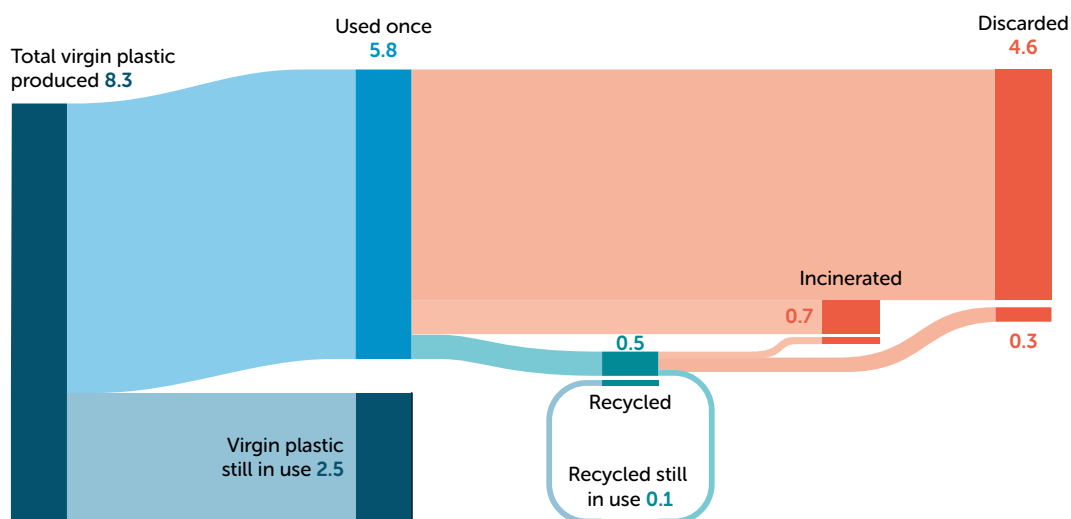
Do we need to make a hundred and eighty degrees turn and avoid all plastics? Do we have to re-invent the wheel, or redesign it and change our ways? Plastics serve a purpose and part of this purpose serves sustainability, for example by increasing the shelf life of food, reducing food waste or improving durability of a toy. For example, when plastic packaging materials are disposed of properly, the carbon footprint of food loss and waste is on average five times higher than the impact of producing or optimising the plastic packaging involved (Denkstatt, 2017).

Complete avoidance of plastics would require replacement with alternative materials that provide the same functionality. Complete replacement at this moment is not realistic, due to limited availability and applicability of alternatives. The challenge is to reduce the environmental and health impact of plastics. Some key principles:

- a. Packaging, type, its functionality and possible negative impact, should be *considered from the start of the innovation process*. Is plastic the best solution or should for example a paper-based option be used?
- b. Related to packaging for food products: as food waste is a major issue in sustainability, *preventing its decay through proper packaging*, extending its life time, is also a way to reduce negative environmental impacts. Pet food is usually bought in larger portions

### The end of all things

Global plastic production and use, 1950-2015, tonnes, bn



Source: Production, use, and fate of all plastics ever made, by R. Geyer et al., *Science Advances* (2017)

and stored for longer periods. Should we maybe return to smaller portion sizes? This is a design question.

- c. Selection of sustainable material for toys, bowls, other pet related plastic products and packaging is relevant, but also its *design for reuse*: use of mono-material plastic solutions that are recyclable, recycling ready or easy to split. Producers could also think of providing collection systems.
- d. Look for other materials which show *similar functionalities as the plastic alternative*. Examples are toys made from hemp, bamboo and wood from sustainably managed forests.

### Redesign the wheel

It is not about reinventing the wheel: packaging is needed, and plastics are a necessary and valuable resource for this, as well as for many pet related products. So... we need to redesign the wheel, to radically rethink plastic usage and how we can reuse

it again in whatever way, after we do not need it anymore in the present product form. We need to take bold actions throughout the whole process cycle of a plastic product – from source to becoming a waste for its present owner. And businesses need to educate their consumers on consequences of the choices that can be made. ◆



**Bianca Nijhof**  
 Managing Director  
 Netherlands Water Partnership  
 b.nijhof@nwp.nl  
 netherlandswaterpartnership.com



**David Thelen**  
 Consultant Natural Capital and  
 Circular Economy at Arcadis  
 david.thelen@arcadis.com  
 arcadis.com