

PLASTICS

A GUIDEBOOK FOR
THE BOOK CHAIN PROJECT
PUBLISHERS

INTRODUCTION

The first man-made plastic was made publicly available in the UK in 1856. Throughout the 1930s and 40s, new types of plastic were synthesised. By the 1950s, polyethylene terephthalate (PET), polyethylene (PE) and polystyrene (PS) were all made in mass production. Since then, over 8.3 billion tons of plastic have been produced worldwide¹.

Most plastic today is made from fossil fuel-based building blocks, ethane and propane, derived from refining crude oil and natural gas².

A great advantage – and now, it seems, a curse - of plastic is its resistance and endurance to wear and tear. A plastic bottle, for example, will take roughly 450 years to degrade³. This incredible longevity made plastic the material of choice, transforming retail, food, and many other industries.

But now the adverse effects of plastic’s long-life are coming in to sharp focus, with attention from regulators and the public centred on single-use plastics, which make up 40% of all plastic waste⁴. It is estimated that 12 million tonnes of plastic enter our oceans every year⁵. If this rate continues, there will be more plastic than fish in the world’s oceans by 2050⁶.

Consumers are calling on legislators and business to reduce single-use plastics, especially in packaging. Business responded by signing the UK Plastics Pact; a collaboration of the plastic value chain, the UK government, and non-governmental organisations (NGOs). The Pact sets four targets to reach by 2025⁷:

- 100% of plastic packaging is reusable, recyclable or compostable
- 70% of plastic packaging is effectively recycled or composted
- Eliminate single-use packaging
- 30% average recycled content across all plastic packaging

The UK Government has plans to tax non-recycled plastic packaging by 2022⁸ to spur progress towards these targets. The EU has similar measures to make all plastic packaging recyclable by 2030⁹ and is aiming for a complete ban on single-use plastic by 2021. Early in 2018, the EU has also adopted a new plastics strategy that is aiming for better design of plastic products, boost recycled content, increase plastic recycling rates and curb plastic waste¹⁰.

A plastic bottle will take roughly 450 years to degrade

¹ <http://advances.sciencemag.org/content/3/7/e1700782.full>

² <http://advances.sciencemag.org/content/3/7/e1700782>

³ <https://www.postconsumers.com/2011/10/31/how-long-does-it-take-a-plastic-bottle-to-biodegrade/>

⁴ https://wedocs.unep.org/bitstream/handle/20.500.11822/25496/singleUsePlastic_sustainability.pdf

⁵ <https://friendsoftheearth.uk/plastics>

⁶ <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics>

⁷ <http://www.wrap.org.uk/content/the-uk-plastics-pact>

⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752202/Budget_2018_red_web.pdf

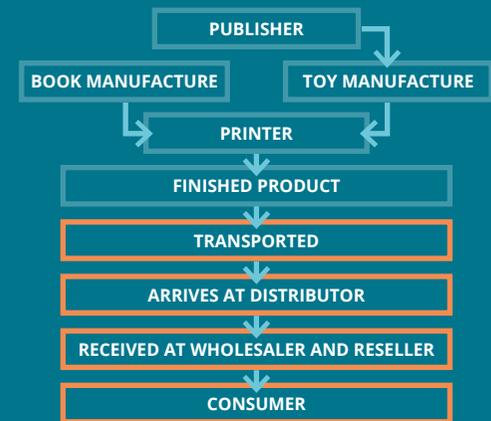
⁹ https://ec.europa.eu/unitedkingdom/news/tackling-plastic-pollution-commission-sets-2030-target-make-all-plastic-packaging-recyclable_en

¹⁰ <https://www.bbc.co.uk/news/world-europe-45965605> and <http://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-annex.pdf>

WHAT DOES THIS MEAN FOR THE PUBLISHING INDUSTRY?

The issue with plastic is how it is being used. The big focus is on removing single use plastic wherever possible and, when it has to be used, creating a closed loop by using recycled content or ensuring the waste product gets recycled. For the publishing sector, when we’re talking about single use plastic it’s mostly in the context of packaging, particularly in the later stages of the supply chain (see highlighted steps in diagram, below). However, it’s worth noting that toys mounted to the covers of books and children’s magazines also risk being labelled as ‘single use’ if they’re not made to last.

In keeping with the aims of the Book Chain Project, we’ve produced this guide to help our publishers make informed decisions around the design, purchasing and production of their books, magazines and journals. It shares an overview of the situation today, looks at some of the common misconceptions, charts the new developments in this area, and presents good practice from other sectors. We conclude with five specific recommendations to will help our publishers to make the right decisions, innovate, and use plastic responsibly.



*Note that some toys included with books/magazines risk being labelled ‘single use’ if they are not made to last

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PLASTICS

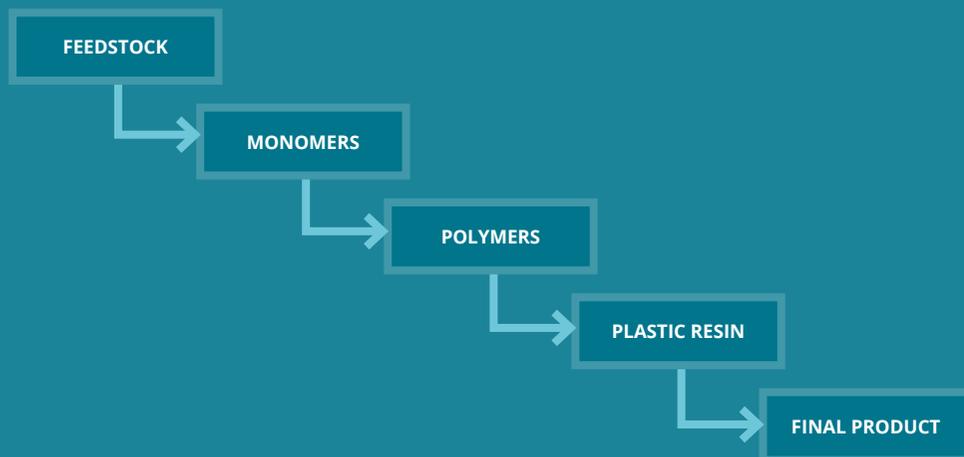
HOW PLASTICS ARE MADE

Plastics begin with a feedstock, most commonly a fossil fuel like crude oil, which is a complex mix of different chemicals. A series of processes break down these feedstocks into simple chemicals called monomers, which are selectively recombined with additives and colourants to help achieve the properties of a desired plastic. This process of recombination, called polymerisation, results in a plastic resin, otherwise called raw plastic, which is delivered to manufacturers either as a powder or pellets.

This general process is outlined in the diagram below, but importantly each plastic can be produced from one or more different feedstocks. As mentioned above, most plastics we are familiar with are derived from crude oil; however a growing awareness of fossil fuel depletion and the environmental impacts associated with extracting such products is leading to the emergence of so-called 'bioplastics'.

The term 'bioplastic' is incredibly broad and can be used to denote one of a few different things. The term is used either:

- to show that a plastic is made from a bio-based feedstock that can be grown as a crop such as starch or cellulose derived from sugarcane (for the purpose of this guide, we will refer to these as bio-based plastics), or
- it is used to describe the end-of-life properties of a plastic and whether or not it is biodegradable.



The full report is available to the publishers who participate in the chemical safety element of the Book Chain Project. If you want to get involved contact us at:

 info@bookchainproject.com