Fact Sheet

Plastics Alternatives and Substitutes 101

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Many INC-2 delegates indicated that the scope of the treaty should include **plastics alternatives** and **substitutes**. However, there are no internationally agreed definitions of plastics alternatives nor plastics substitutes. Sound definitions will support fully informed treaty negotiations.

International agreements emphasize the need to consider the human health, environmental, economic, and social risks, costs, and implications of **alternative substances** (e.g., Art. 9 Stockholm Convention[1]; see also Art. 1 Convention). International legal instruments also note that when considering substitutes, the potential environmental benefits or penalties of substitute materials or activities (i.e., negative externalities) must be considered.

The United Nations Conference on Trade and Development (UNCTAD) has developed the following plastics alternatives and substitutes definitions:

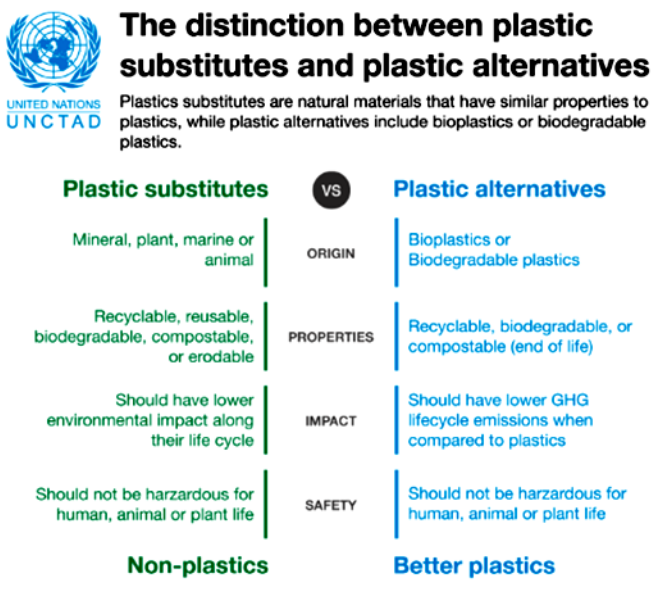
Plastics Alternatives are plastics not made with conventional fossil-fuel based **polymers**[2] In other words, plastics alternatives are bioplastics3. Despite UNCTAD's definitions below, bioplastics are not necessarily 'better plastics'.

Plastics Substitutes are all other non-plastic materials that may be used to replace synthetic fossil fuel-based polymers and bioplastics. Some examples are glass, leather, wood, silk, paper, cotton, wool, stone, ceramic, and aluminum.

A simple and easy way to distinguish between these two categories is as follows:

- **Plastics alternatives = 'better plastics'**
- **Plastics substitutes = 'non-plastic' materials**

[1]Art. 1 (4) Convention for the Protection of the Ozone Layer defines '**alternative substances**' as those which reduce, eliminate, or avoid adverse effects to the ozone layer.
[2]See Plastics 101 fact sheet.
[3]See Bioplastics 101 fact sheet.



Source: UNCTAD Vivas Eugui & Pacini (2022). UNCTAD, based on presentation on plastic substitutes HS codes, Life-cycle analysis and tariffs considerations. WTO Dialogue on Plastics.

Substitute Products

The terms plastics alternatives and plastics substitutes can be applied to materials but exclude final whole products.

Concerns have been raised that some substitute products may contain harmful substances.

The main material of a substitute product may be non-plastic such as new and recycled paper and board food contact materials but still contain toxic substances including some per- and polyfluoroakyl substances (PFAS), organophosphate esters (OPEs), and plasticizers[4].

Safety, Sustainability, Essentiality, and Traceability Criteria for Plastic Alternatives and Substitutes

Any substitute or alternative should be assessed for its essentiality and demonstrably safer and more sustainable than conventional plastics. When considering alternatives and substitutes, delegates may consider the need to assess alternative polymers and substitute materials, products, and approaches against the following set of criteria. These criteria should be grounded in the prevention and precautionary principles and guided by a toxic-free zero-waste hierarchy. These criteria will need to be developed by an independent body of experts including independent scientists, Indigenous rights holders, and community experts.

Source: Safer Circular Economy Fact Sheet https://library.sprep.org/content/safer-circular-economy-plastics-pacific-region

Is it essential? Is the function of the alternative polymer or substitute material or product critical for the health, safety, and functioning of society[5]? If not, for example, a substitute simply replacing one single-use application for another may be a case for prohibition or restriction of the item.

Is it safe? For example, is the polymer or final product toxic or otherwise hazardous in any ecosystem, or to humans, wildlife, and other organisms regardless of intended use and disposal?

Is it sustainable? For example, was the polymer or final product designed for regenerative and restorative circularity, non-toxicity, safe reuse/refill, repair, remanufacture, durability, high standards of biodegradability or compostability? Were the materials grown, harvested, extracted, or otherwise acquired sustainably and equitably?

Is the information transparent and traceable? Is the polymer, material, or product clearly labelled including information about content, safe use, and responsible disposal? Is it traceable/trackable throughout the supply chain?

[4]Zimmermann 2023: https://www.foodpackagingforum.org/news/studies-assess-pfas-opes-and-plasticizers-in-paper-board#:~:text=PFAS%20are%20widely%20used%20in,(FPF%20reported%20and%20here)
[5]Cousins et al 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8372848/#:~:text=To%20assess%20the%20essentiality%20of,3)%20if%20the%20function%20is

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