



Fact Sheet

Plastics Alternatives and Substitutes 101



Scientists' Coalition for an Effective Plastics Treaty

Many INC 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 promote 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(i.e., bioplastics³).

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 polymers'
- **Plastics substitutes** = 'non-plastic' materials



The distinction between plastic substitutes and plastic alternatives

Plastics substitutes are natural materials that have similar properties to plastics, while plastic alternatives include bioplastics or biodegradable plastics.

Plastic substitutes	VS	Plastic alternatives
Mineral, plant, marine or animal	ORIGIN	Bioplastics or Biodegradable plastics
Recyclable, reusable, biodegradable, compostable, or erodable	PROPERTIES	Recyclable, biodegradable, or compostable (end of life)
Should have lower environmental impact along their life cycle	IMPACT	Should have lower GHG lifecycle emissions when compared to plastics
Should not be hazardous for human, animal or plant life	SAFETY	Should not be hazardous for human, animal or plant life
Non-plastics		Better plastics

¹Art. 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.

²See Plastics 101 fact sheet.

³See 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.



