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Plastic materials used in the food industry, their influence on health, and potential solutions

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Plastic

Plastic is a lightweight, sanitary, and durable material that can be moulded in a variety of ways and used in a variety of applications. Plastics, unlike metals, do not rust or corrode. Most plastics photodegrade rather than biodegrade, which mean they gradually, break down into little bits known as microplastics. Packaging serves a variety of functions, including safeguarding items, avoiding spoilage and contamination, prolonging shelf life, guaranteeing safe storage, and assisting in making them easily available to customers.

- India is a major producer of commodities such as food grains, sugar, milk, fruits and vegetables, pulses, and tea.

- Due to varied crop patterns, localised commodity production, safe and hygienic storage, transportation and distribution, and waste management, packaging is essential.
- In India, significant reductions in agricultural output have been seen. The range of crop wastage varies from 5 to 35%.
- Packaging is crucial due to the diverse agricultural patterns, localised manufacture of goods, safe and sanitary storage, transportation, and distribution, and protection against wastage.
- Due to inappropriate packing, the majority of waste occurs during each of the aforementioned processes, namely storage, transit, and at the retail market. Bulk packaging offers a handling, storage, and transportation option for items weighing 10 to 50 kg, whilst smaller packaging for food items ranges from 50 ml to 5 kg.
- PET, Polyethylene, Polypropylene, and Polyvinyl Chloride-based plastics are mostly utilised in packaging.

The term "single-use plastics," sometimes known as "disposable plastics," refers to materials that are frequently used for plastic packaging and are meant to be used just once before being discarded or recycled. Grocery bags, food packaging, bottles, straws, containers, cups, and cutlery are a few examples of these.

Various plastics used in the food industry

- Plastic packaging is marked with resin codes, which are frequently referred to as environmental protection codes.
- The Plastics Industry Trade Association (SPI) created these codes in 1988 to assist recyclers in correctly sorting and directing plastic based on how much of it may be recycled.
- Polyethylene Terephthalate, or PETE
- PETE is a tough, translucent plastic that is frequently used to create bottles and jars for beverages and food products, as well as microwaveable food trays and ovenproof plastic wrap.
- Recycling results in its inclusion in new plastic containers, carpet yarns, polyester fabrics, strapping materials, and engineering moulds.
- High Density Polyethylene, or HDPE. This kind of plastic is most frequently used to package products that require rigid containers and mild protection.
- It can be either transparent, like milk jugs, or opaque, like household detergent or bleach product packaging. In addition, HDPE is used to make reusable shipping containers, wire and cable sheathing, and plastic bags for carrying groceries and retail goods.
- In its recycled form, HDPE is used to make flower pots, plastic lumber, and new containers.

PVC (Polyvinyl Chloride)

- PVC is frequently used, in its flexible condition, for high duty packaging bags and films, blood bags, and medical tubing, even though it is normally associated with rigid items like pipes, framing, and fence materials, along with blister or clamshell packaging.
- In most cases, semi-flexible building materials, flooring, garden hoses, floor tiles, and mats are produced from recycled flexible PVC.

LDPE (Low-density Polyethylene)

- Most frequently, this frail, thin plastic is used as bags for bread, veggies, and newspapers as well as to preserve dry cleaning. Additionally, it coatings disposable plates, glasses, and food cartons.
- Heavy-duty waste bags, panelling, patio furniture, trash cans, and floor tile are all made from recycled LDPE.

PP (Polypropylene)

- Polypropylene is frequently used to create rigid packaging that must withstand high heat during production operations.
- Bottles and containers for groceries, medications, and automobile items are included in this.
- Polypropylene is a recyclable material that is used to produce garden tools, storage containers, and car goods including signal light covers, ice scrapers, and oil funnels.

PS (Polystyrene)

- Polystyrene, sometimes referred to as Styrofoam, is a substance that may be rigid or foamed into tiny pieces for use in packaging.
- Disposable dinnerware, portable coolers, coat hangers, and building insulation are all made from stiff polystyrene.
- More recycled polystyrene is used to manufacture food service containers, rulers, camera cases, wall plates for lights and outlets, and plastic mouldings for construction.

How to Reduce Plastic Use

Here are some different strategies for reducing plastic waste:

- Never again, not even in restaurants, use plastic straws. If you really must have a straw, invest in a glass or stainless-steel reusable straw.
- Put your produce in a reusable bag. The lifespan of a single plastic bag is 1,000 years. Buy or manufacture your own reusable produce bags, and wash them frequently.
- Renounce gum. Gum is constructed of plasticized synthetic rubber.
- Purchase cartons rather than bottles. Products like laundry detergent frequently come in cardboard, which may be recycled more readily than plastic.