

## CORN STARCH BLEND BIODEGRADABLE PLASTIC

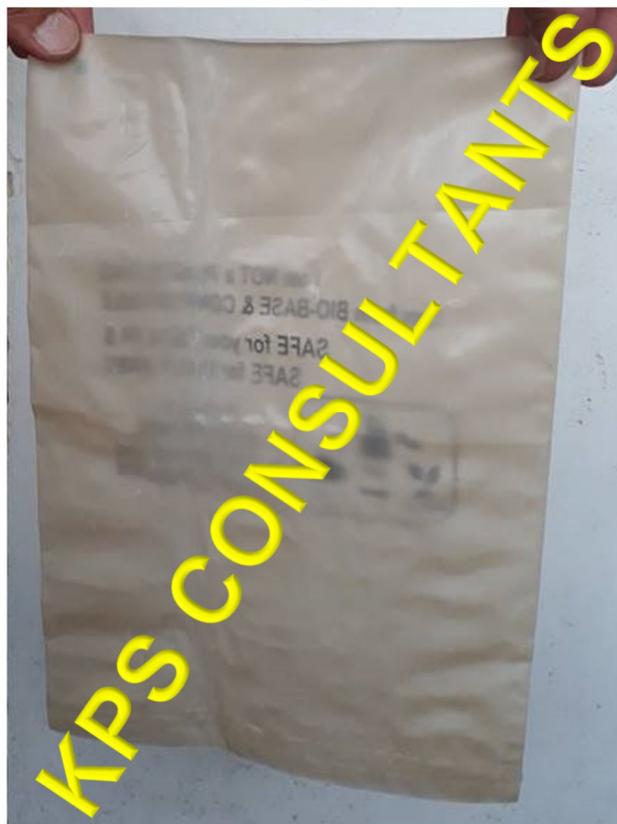
Corn Starch + PVA pellets compounded in twin screw extruder



Corn Starch + PVA blend compound extrusion blown film



### Corn Starch + PVA Bag (heat sealed and printed)

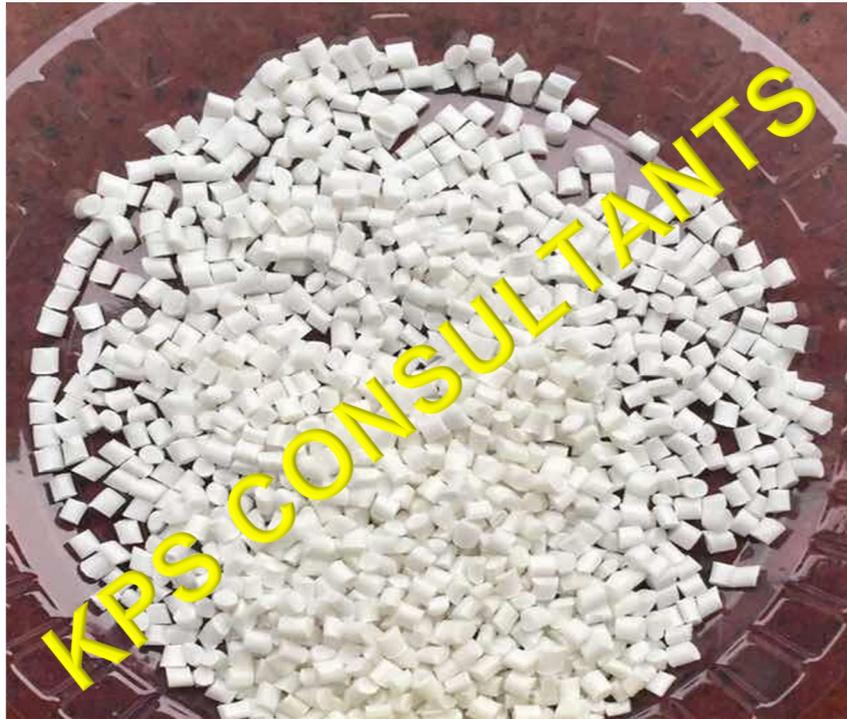


You will be pleased to know that we have produced **Corn Starch & Polyvinyl Alcohol blend plastic compound pellets and extrusion blown film on a commercial basis first time in India.**

Corn starch and polyvinyl alcohol blend thermoplastic is completely bio-degradable and compostable. The extrusion blown film is used to make single use carry bags, shopping bags, food wrap, garbage bags, agricultural mulch films etc. that are 100% compostable. The corn starch – PVA plastic blend film does not drip when burned, does not stick to hot iron and is completely soluble in boiling water.

We can provide complete technical know-how for the manufacture of corn starch blend plastics which are completely bio-degradable and compostable. **This involves compounding of thermoplastic corn starch with bio-degradable plastics such as Polyvinyl Alcohol (PVOH), Polybutylene Adipate Terephthalate (PBAT) & Polylactic Acid (PLA) etc.** The first step is production of compounded pellets of different grades that can be further converted into cast or blown films (for making carry bags, shopping bags, garbage bags, agricultural films etc.) and secondly - extruded sheet (for making thermoformed plates, bowls, cups etc.) and thirdly injection moulding compound (fork, knife, spoon, pens etc.)

Corn Starch + PBAT pellets compounded in twin screw extruder



Thermoplastic Corn Starch pellets compounded in twin screw extruder



Starch is a versatile biopolymer obtained from renewable plant resources such as corn, wheat, potato, rice, cassava and tapioca harvests. Starch consists of two component polymers, amylose and amylopectin. Starch based plastic materials are completely bio-degradable and compostable. Starch based plastic blends are environment friendly, have low carbon footprint, require much lower energy for manufacture and are based on abundantly available, low cost & renewable raw material.

The ban on single use plastic articles in various states in India has provided a good opportunity for use of starch blend plastics to replace LDPE carry / shopping bags. Corn starch blend plastic bags are as strong as LDPE bags at a competitive cost. The regulatory environment is soon going to adversely affect the use for single use plastics all over India. It makes good business sense to invest in bio-degradable plastics specially Starch Plastic in the current scenario. There are only few small & medium size producers in India and there is good opportunity for many new entrants.

Commercial corn starch is an ideal raw material for the production of Thermoplastic Starch. It is readily available, relatively inexpensive and easy to process. Corn starch is blended with suitable plasticizer, lubricants and other chemical additives and processed in a twin-screw extruder to produce thermoplastic starch pellets or granules. These pellets are further processed to manufacture cast or blown films for end applications like single-use carry bags, shopping bags, food wrap, garbage bags, agricultural films etc. The material can also be injection moulded (or extruded as a sheet and then thermoformed) to produce single use disposable containers & plates. **Corn starch plastic can be blended with naturally bio-degradable materials like Polyvinyl Alcohol (PVOH), bio-degradable plastics like Polylactic Acid (PLA), PBAT and cellulose fillers like wood flour, rice husk, bagasse fiber to improve mechanical properties, strength and resistance to water / moisture.**

We are a Project & Technical Consultancy organization with long expertise in the field of plastics and specialty polymer products. We can offer complete technical assistance for the manufacture of products from Bio-based Plastics and Bio-degradable Plastics. Large companies like Reliance Industries Ltd., TetraPak India, DS Group, McKinsey & Co., IL&FS, Boston Consulting Group, Grant Thornton etc. are among our clients. Please see our website [www.kpsimpex.com](http://www.kpsimpex.com) to know more about our organization.

As a first step we can prepare a Techno Economic Project Report that will provide a realistic picture and help you to take an informed business decision, approach banks for project finance and government departments for statutory approvals. Once you decide to go ahead we can provide complete technical services for setting up manufacturing plant - selection of machinery, plant layout design, selection of utilities and support equipment, commissioning of plant, compounding and processing know-how, sourcing of raw materials & additives, quality control and testing, product technical qualification, target market segments, end application know-how, market intelligence etc.

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