



STARCH & DERIVATIVES



SPAC Starch Products (India) Private Limited.,

Manufacturers of Super Fine Native Starch & Modified Starches

(An ISO 9001, 14001 & 45001 Certified Company)

About SPAC (Starch Products (India) Private Limited.) :-

- SPAC Starch Products (India) Private Limited., was established in 1996 to manufacture Tapioca Starch and expanded with integrated manufacturing facilities for Maize & Modified Starch Units along with 4.5MW Captive Power Plant in the year 2013.
- The only company in India having 3 independent Plants for Tapioca, Maize & Modified Starches in a single location with 4.5MW Captive co-gen Power Plant.
- We are one of the largest manufacturer in India for high-quality Tapioca, Maize & Modified Starches.
- Tapioca & Maize Starch (Native and Modified Starches) quality are at par with International Standards.
- Our annual manufacturing capacity is more than 1 lakh MTs of starch with a daily crushing capacity of 800 MTs of Tapioca and 350 MTs of Maize.
- State of the Art technology for immediate conversion of tapioca tuber & maize to starch.
- We have well equipped in house process and R & D Laboratories to ensure International quality standards.
- We deliver customize Products as per Customers' specific applications / requirements.
- We are in process of adding new products and services to cater wide range of Customers.
- Well established Dealer Network all over India and exporting to ~ 20 countries.
- We strive 24x7 to cater our expanding market requirements.

Product Overview

Native & Modified Starches (Tapioca & Maize Base)

- | | |
|----------------------------------|-------------------------------------|
| * Native Starch A Grade | * Carboxy Methyl Starch (CMS) |
| * Native Starch Food Grade | * Corrugation & Pasting Powder |
| * Pharma Grade's - IP / BP / USP | * Dextrin – White & Yellow |
| * Oxidized Starch | * Drilling Starch & HT |
| * Cationic Starch | * Textile Grade's - SPAC Tex, Plast |
| * Spray Starch | * SPAC Jet & One Shot |

Mode of Packing:

50 KG PP / PAPER BAG / JUMBO BAGS PACKED IN PRINTED WOVEN BAGS AND ALSO CUSTOMER SPECIFIC REQUIREMENTS.

MAIZE NATIVE STARCH

TECHNICAL SPECIFICATION

PARAMETER	A GRADE	FOOD GRADE
Appearance	Cream to white colour, Free Flowing Powder	Cream to white colour, Free Flowing Powder
pH of 10% Slurry	4.5 – 7.0	4.5 – 7.0
Moisture Content	13.0 % Max	12.0% Max
Viscosity of 5% solution in Brookfield viscometer at 75°C	1400 Cps Min	1400 Cps Min
Viscosity of 2% solution in Red Wood No.1 viscometer at 75°C	34 sec Min	34 sec Min
Fibre Content(100gram)	1.0 ml Max	0.5 ml Max
Sieve retention on 100 mesh	1.0 % Max	1.0% Max
Ash Content	0.2 % Max	0.2% Max
Sulphur Dioxide	100 ppm Max	50 ppm Max
Brightness	90.0 % Min	90.0% Min
Protein Content	0.45 % Max	0.45% Max
Free Acidity /10 gram	4.0 ml Max	4.0 ml Max
Petroleum Extractable Matter	0.25% Max	0.25% Max
Acid Insoluble Ash	0.05% Max	0.05% Max
Alcoholic Acidity @90% Alcohol	2.0 ml Max	2.0 ml Max
Starch content	98.0% Min	98.0% Min



MICROBIOLOGICAL SPECIFICATION

PARAMETER	LIMITS
TPC	10000 cfu Max
Coli forms	100 cfu Max
Yeast and Mould	200 cfu Max
E coli	Absent
Salmonella	Absent

APPLICATION

A Grade

Textile (Sizing and Dyeing), Paper and Paper Cone Industries, Modified Starch Industries, Aluminium and Cast Iron Foundries, Cosmetics Industries, Detergent Soaps, Dry Battery Cell Industries, Explosives Industries, Glue and Adhesive Industries, Rubber and foam Industries, Starch Derivatives Industries.

Food Grade

Edible Masala Powder manufacturers, Food Industries and Sweet Manufacturers, Ice cream and ice cream cone manufacturers.

TAPIOCA NATIVE STARCH

TECHNICAL SPECIFICATION

PARAMETER	A GRADE	FOOD GRADE
Appearance	White, Free Flowing Powder	White, Free Flowing Powder
pH of 10% Slurry	5.0 – 7.0	5.0 – 7.0
Moisture Content	13.0% Max	12.0% Max
Viscosity of 5% solution in Brookfield viscometer at 50°C	1500 cps Min	1500 cps Min
Viscosity of 2% solution in Redwood No.1 viscometer at 75°C	50 sec Min	50 sec Min
Fibre Content (100 gram)	1.0 ml Max	0.5 ml Max
Sieve retention on 100 mesh	1.0% Max	1.0% Max
Ash Content	0.2 % Max	0.2 % Max
Sulphur Dioxide	100 ppm Max	50 ppm Max
Brightness	93.0% Min	93.0% Min
Free Acidity (10 gram)	1.5 ml Max	1.5 ml Max

MICROBIOLOGICAL SPECIFICATION

PARAMETER	LIMITS
TPC	10000 cfu Max
Coli forms	100 cfu Max
Yeast and Mould	200 cfu Max
E coli	Absent
Salmonella	Absent

APPLICATION

A Grade

Paper and Paper Cone Industries, Modified Starch Industries, Textile (Sizing and Dyeing) Aluminium and Cast Iron Foundries, Cosmetics Industries, Detergent Soaps, Dry Battery Cell Industries, Explosive industries, Glue and Adhesive Industries, Rubber and Foam Industries,

Food Grade

Edible Masala Powder manufacturers, Extruded Snacks, Food Industries and Sweet Manufacturers, Ice cream and Ice cream cone manufacturers.



IP Grade – Tapioca /Maize Base

Pharmaceutical Grade Tapioca / Maize Starch – Indian Pharmacopeia (IP) widely used as tablet binder and disintegrating agent in tablets. BP grade is derived from high quality Tapioca / Maize Starch.

The Pharma Grade - IP Grade Starch is produced and packed under extremely hygienic conditions to make it suitable as IP grade.

S. No	Parameters	UOM	Limits
1	Appearance		White to cream colour Fine Free Flowing Powder
2	Loss on drying	% Max	15.0
3	Acidity	ml Max	2.0
4	Sulphated Ash	% Max	0.6
5	Oxidizing Substance		Complies
6	Identification		Complies
7	Iron	ppm Max	40
8	Florescence		Complies

Microbiological Test

S. No	Parameters	UOM	Limits
1	Escherichia coli	cfu	Absent
2	Salmonellae	cfu	Absent

BP Grade – Tapioca /Maize Base

Pharmaceutical Grade Tapioca / Maize Starch– British Pharmacopeia (BP) widely used as tablet binder and disintegrating agent in tablets. BP grade is derived from high quality Tapioca / Maize Starch.

The Pharma Grade - BP Grade Starch is produced and packed under extremely hygienic conditions to make it suitable as BP grade.

S. No	Parameters	UOM	Limits
1	Appearance		White to cream colour Fine Free Flowing Powder
2	Foreign matter		Complies
3	Loss on drying	% Max	15.0
4	Acidity	ml Max	2.0
5	Solubility		Complies
6	Sulphated Ash	% Max	0.6
7	Oxidizing substance		Complies
8	Identification		Complies

Microbiological Test

S. No	Parameters	UOM	Limits
1	Aerobic count	cfu Max	1000
2	Escherichia coli	cfu	Absent
3	Fungi	cfu Max	100

USP Grade – Tapioca /Maize Base

Pharmaceutical Grade Tapioca / Maize Starch– United States Pharmacopeia (USP) widely used as tablet binder and disintegrating agent in tablets. USP grade is derived from high quality Tapioca / Maize Starch.

The Pharma Grade - USP Grade Starch is produced and packed under extremely hygienic conditions to make it suitable as USP grade.

S.No	Test/Parameters	UOM	Limits
1	Appearance		White to cream colour Fine Free Flowing Powder
2	pH		4.5 - 7 .0
3	Loss on drying	% Max	14.0
4	Residue on Ignition	% Max	0.5
5	Sulphur dioxide	% Max	0.008
6	Oxidizing Substance		Complies
7	Identification		Complies
8	Iron	% Max	0.001

Microbiological Test

S.No	Test/Parameters	UOM	Limits
1	Aerobic count	cfu Max	500
2	Yeast and Moulds	cfu Max	50



CATIONIC STARCH – SPAC CATA

SPAC Cata is cationic wet end starch derived from high quality tapioca / maize starch. SPAC Cata has been developed to provide the paper industries with consistent, cost effective quality product with a unique feature. It is used in the manufacturing of papers / Boards to increase the internal properties as well as retention of fillers and fines.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Appearance	White Free Flowing Powder
pH of 10% slurry	6.0 – 8.0
Moisture Content	13.0% Max
Viscosity of 2.0% solution in Brookfield viscometer at 50°C	100 - 1000 cps
Ash Content	1.0% Max
Brightness	85.0% min
Nitrogen content	0.2% min
Degree of substitution	0.02% min
Cold water Solubility	4.0% max

ADVANTAGES

SPAC Cata has increased internal strength properties and retention of fillers and fines. Faster drains and improved sheet formation, improved effluent quality.

OXIDISED STARCH- SPAC OXY

The Oxidised Starch – SPAC OXY is derived from high quality tapioca / maize starch. It is widely used in the manufacturing of paper.

PROPERTIES

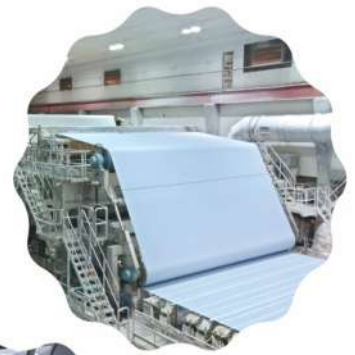
It improves paper stiffness, increased water retention of the coating colour and improve runnability.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Appearance	White Free Flowing Powder
pH of 10% slurry	6.0 – 8.0
Moisture Content	13.0% Max
Viscosity of 20% solution in Brookfield viscometer at 50°C	50 - 500 cps
Ash Content	1.5% Max
Brightness	93.0% min
Cold water Solubility	4.0% max

ADVANTAGES

- Paper surface sizing in Size press.
- In this application, the fibre on the surface of the paper are glued and covered with a starch film. This gives the paper better writing and printing properties. The pressure in the size press rolls induce the solution to penetrate the mass of the paper, which improves the mechanical properties of the paper.
- Coating in size press modified starch SPAC Oxy is used as pigment binder.
- SPAC Oxy is widely used as coating binder.



SPRAY STARCH – SPAC SPRAY

The Spray starch – SPAC Spray is derived from high quality tapioca / maize starch. It is widely used in the manufacturing of paper.

PROPERTIES

It can be used in the wet end by means of spraying to increase the strength and ply bond in case of boards.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Appearance	White Free Flowing Powder
pH of 10% slurry	6.0 – 8.0
Moisture Content	13.0% Max
Viscosity of 5.0% solution in Brookfield viscometer at 50°c	2000 cps min
Ash Content	1.0% Max
Brightness	85.0% min
Cold water Solubility	4.0% max

ADVANTAGES

- It helps in reducing the delamination of the ply' s of the boards.
- These are applied on the paper machine through the spray bars while the web's formed. Used for improving the ply bond of the board.
- In special cases it is used for improving the Z-directional strength or to reduce the delamination tendency between ply's. Due to low gel temperature easily gets gelatinized
- By using spray starch the spring – back tendency of board improves.



DEXTRIN – SPAC TRIN

TECHNICAL SPECIFICATION			
PARAMETER	WHITE DEXTRIN	YELLOW DEXTRIN	BORATED YELLOW DEXTRIN
Appearance	Off White Free Flowing Powder	Off White Free Flowing Powder	Off White Free Flowing Powder
pH of 10% Slurry	2.5 – 3.5	2.5 – 3.5	8.0 – 11.0
Moisture Content	10.0% Max	10.0% Max	10.0% Max
Ash Content	1.0 % Max	1.0 % Max	12.0 % Max
Free Acidity	5.0 ml max	5.0 ml max	-
Cold Water Solubility	80.0% min	95.0% min	-
Borated Content	-	-	10.0 % Max

Dextrins are prepared by that treatment in presence of chemical to suitably modify characteristics and properties of starch. Finished dextrin are very fine powder varying in colour from pure white to dark brown.

APPLICATION

White Dextrin:

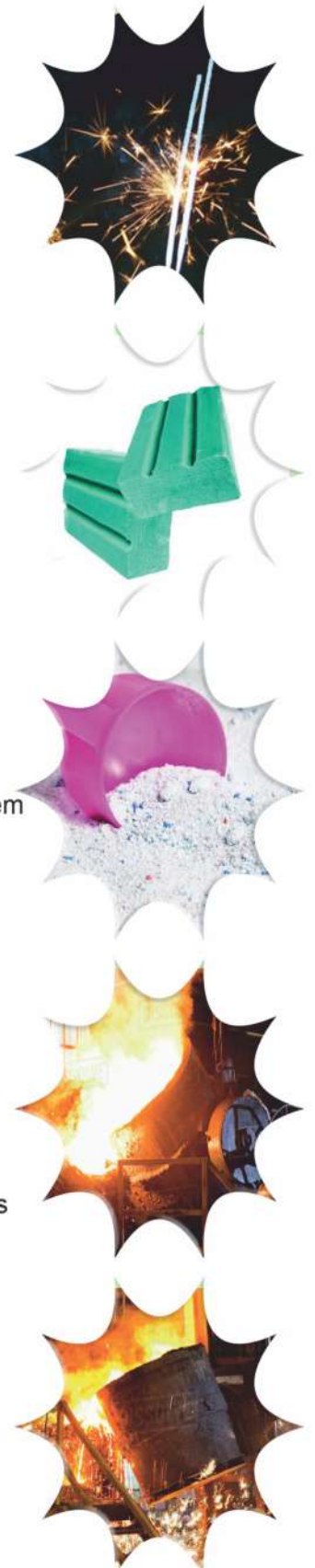
- As pyrotechnic binder and fuel, they are added to fireworks and sparklers, allowing them to solidify as pellets or “stars”.
- A Thickening and binding agents in pharmaceuticals and paper coating
- A Textile finishing and coating agents to increase weight and stiffness of textile fabrics.

Yellow Dextrin:

- Yellow dextrins are used as water soluble glues in remoistable envelope adhesives and paper tubes.
- In the mining industry as additives in froth flotation, as printing thickener and as binders in paint.

Borated Yellow Dextrin:

- Widely used in the manufacturing of paper cones.



CARBOXY METHYL STARCH - CMS

SPAC CMS – Carboxy Methyl Starch is a modified starch with unique properties due to the presence of negatively charged functional group (CH₂COO⁻).

Carboxy Methyl starch has a wide range of applications in industries, mostly used for the purpose of thickening, stabilization and water preserving.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Appearance	Cream Color, Free Flowing Powder
pH of 1.0% slurry	8.0 - 11.0
Moisture Content	12.0% Max
Viscosity of 2.0% solution in Brookfield viscometer	1000 cps max
Ash Content	20.0% Max

ADVANTAGES

- Wide range binding agent, It can be used in Adhesives, paints, water treatment, Mining Industries etc.
- It is an effective "economical" Fluid Loss Control agent for water-based drilling fluids. Increasing additions of CMS can cause an increase in desired viscosity.
- Used of CMS does not require any biocide treatment in normal drilling fluid operations.

PASTING POWDER - COLD

Pasting powder have a consistent viscosity, excellent adhesive properties, high strength film property, best tackiness, wide range of water solubility, fast drying property with best bursting strength and compressed bags.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Moisture content	10.0 % max
Ash Content	5.0 % max
pH of 10% slurry	8 – 11
Viscosity in B 4 Cup [1 : 6]	28 – 32 sec
Solids	10 % min

APPLICATION

It is used in Carton board and Corrugation boxes manufacturing.



DRILLING STARCH

Drilling starch is non-ionic starch based polymers for use in all water-based drilling, completion and stimulation fluids. Drilling starch is extensively used as an additive to prevent the seepage of soil filtrates into the wells in all types of water based drilling fluid systems by increasing the viscosity of the drilling mud and reducing the fluid loss by sealing the walls of the Borehole.



TECHNICAL SPECIFICATION	
PARAMETER	LIMITS
Suspension properties:	
Viscometer dial reading at 600 r/min	
In 40 g/lit salt water, Cps	18 Max
In saturated salt water, Cps	20 Max
Filtrate volume	
In 40 g/lit salt water, millilitres	10 Max
In saturated salt water, millilitres	10 Max
Residue greater than 2000 µm	No residue



Applications / Advantages

- Drilling Starch is extensively used in oil well drilling to reduce the fluid loss.
- Effective in a wide range of make-up water, including high hardness and high salinity brines
- It is used to stabilize rheology and to reduce the filter cake permeability.
- It helps to keep drill bit cool and lubricate, remove the rock fragments or drill cuttings from the drilling area and transport them to the surface.
- It provides well bore stability through filtration control.



The (HT) High Temperature Drilling starch is a polymer derived from the unmodified starch including amylopectin content. This starch has fermentation stability and, it gives enhanced high temperature fluid loss performance when works in combination with drilling fluids. it is apt for drilling, work-over or completion fluid loss and works as a control additive appropriate for its utilization in high temperatures. It has optimal use in all water-based drilling, stimulation and completion fluids.

TECHNICAL SPECIFICATION

PARAMETER	LIMITS
Suspension properties:	
Viscometer dial reading at 600 r/min	
In 40 g/lit salt water, after 16 hrs hot rolling at 250° F, Cps	18 Max
In saturated salt water, after 16 hrs hot rolling at 250° F, Cps	20 Max
Filtrate volume	
In 40 g/lit salt water, after 16 hrs hot rolling at 250° F, ml	10 Max
In saturated salt water, after 16 hrs hot rolling at 250° F, ml	10 Max
Residue greater than 2000 µm	No residue
Solubility in 15% HCL (%)	99.5 Min
Moisture (%)	13 Max
Fermentation test	3 Days Min

Applications / Advantages: -

- Keep up liquid loss control at up to 300°F, At high temperatures help in stabilizing rheology.
- Does not ferment Treatment Rate, Typical, 1 – 4 ppb, as essential to control liquid loss.
- Higher temperatures (above 150°F) may be needful to “activate” HT Starch to supply effective rheology and fluid loss control totally as a binding agent.







SPAC Starch Products (India) Private Limited.,

Manufacturers of Super Fine Native Starch & Modified Starches

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Our Certifications & Licence



API
Certified



Our Membership

