山东福洋生物科技股份有限公司

SHANDONG FUYANG BIO-TECH CO., LTD.

产 品 手 册

Product Brochure

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COMPANY INTRODUCTION

Shandong Fuyang Bio-tech Co., Ltd. is leading company in corn deep-processing, which oriented of bio-fermentation. We produce Corn Starch 700,000.00 tons per year, Modified Starch 100,000tons per year, Sodium Gluconate 150,000tons per year. Now company is honored with ISO9001, ISO14001, HACCP, Kosher, Halal certificates, ISO22000, IP certificate, etc.

Dezhou Huiyang Biotechnology Co., Ltd. locates in Shandong, which nearby the Fuyang factory. With an annual output of 5000 tons trehalose project, which cooperated and developed with Chinese Academy of Sciences, Qilu University of Technology. The production output is China largest one, and the quality also rank first. By using Enzyme method, this production method is awarded with many patents. The Glucono Delta Lactone project is fully enclosed production line, which designed independently by our company. Annual output is 10000 tons per year, which is the largest producer. Now company is honored with ISO9001, ISO14001, HACCP, Kosher, Halal certificates, ISO22000, etc.v

KEY PRODUCTS

Corn starch	700,000tons/year	Acid modified starch
Sodium Gluconate	20,000tons/year	Cationic Starch
Modified Starch	100,000tons/year	Oxidized Starch
Glucono Delta Lacton	10000tons/year	Waxy Corn Starch
Trehalose	5000tons/year	

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Corn Starch

Overview

Other names: Maize starch, name six grains powder
Appearance: White to light yellow powder.
Features: High whiteness, high purity,
Low protein content, Less spots
High fineness, water control stability

Application

Application	Product advantages
Starch sugar	Low protein content, stable pH value and low production cost.
Food production	High whiteness, low sulfur dioxide content, non-GMO.
Paper making	Low moisture, low protein content, high whiteness, high fineness
Modified starch	Low protein content, high fineness, the pH value is stable, the viscosity is stable.
Others	It is widely used in beer, chemical industry and feed fields.

Technical specification

Item	Standard	Fuyang test result
Apearance	White or light yellow powder, no odor	White or light yellow powder, no odor
Moisture，%	≤14.0	13.3
Ash (dry)，%	≤0.15	0.12
Protein (dry)，%	≤0.45	0.28
Spots, points/cm^2	≤0.7	0.2
Fat, %	0.15	0.14
Fineness, %	≥99.0	99.9
Whiteness, %	≥87.0	90
SO2, mg/kg	≤30.0	15.5

Waxy Corn Starch

Introduction

Waxy corn starch is obtained by wet grinding of waxy corn. The amylopectin content is above 95%. It is a kind of polysaccharides with different molecular weights and polymerization degree between 600 and 6000. It is a special starch wide application. It has been widely used in

food industries such as baked food, children's food, puffed food and frozen food. The waxy corn starch paste has high viscosity and is not easy to age after gelatinization. The paste liquid has anti-sedimentation and transparency higher than ordinary corn starch and potato starch.

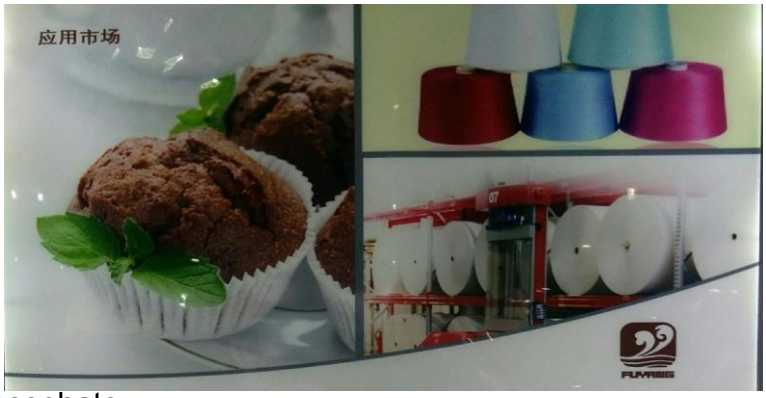
Application

Waxy corn starch is widely used in food applications such as bread, stuffing, pudding,etc.. It has good water retention and viscosity, so it can be used in combination with other starches to increase viscosity, improve surface texture and prevent aging.

Specification

Item	Standard	Fuyang test result
Appearance	White powder, no odor	White powder, no odor
moisture，%（m/m）	≤14.0	13.1
fineness，%（m/m）	≥99.0	99.2
spot， points/cm²	≤0.7	0.31
ash（dry），%	≤0.15	0.12
protein（dry），%	≤0.45	0.3
Whiteness, %	≥87.0	89
SO2, mg/kg	≤30.0	25
Branched-chain，%	≥90	95

Modified Starch



- Oxidized Starch
- Cationic Starch
- Coating Starch
- Spray Starch
- Acid Treatment Starch
- Acetate Starch
- Hydroxypropyl Starch
- Distarch Phosphate
- Hydroxypropyl Distarch Phosphate
- Acetylated Distarch Adipate
- Acetylated Distarch Phosphate
- Oxidized Esterifield Cross-link Starch

Application

Paper Industry	Surface Sizing, Internal Sizing, Coating Adhesive etc. Properties: High White, Low Viscosity, High Transparency, Low Gelatinization Temperature, Low Consistency and High Stability of hot and cold paste.
Food Industry	Tomato Sauce, Seafood Sauce, Mayonnaise; Instant Noodles, Frozen Dumplings Fish Balls; Fudge, Candy, Ice cream, Jelly, Yogurt, Flavored Milk etc.
Cosmetic Industry	Good Fluidity, Non-toxic, no harmless to human body. High White, Good Fineness, High Stability of paste, as Emulsifier or Thickener.
Other Industries	Textile Industry

Hydroxypropyl distarch phosphate

Basic information:

HPDSP is manufactured from tapioca starch or waxy maize corn starch with chemical method; Appearance is in fine white powder.

Functional Properties:

High transparency; High temperature resistance; Strong resisting shearing; Acid resistance; Well suited for high viscosity & high acid thickening with perfect foods appearance, ie.: high glossiness with good stability of Sauce.

Application range:

Seafood Sauce, Chili Sauce, Tomato Sauce, Oyster Sauce, Barbecue Sauce, Mayonnaise, Salad Cream, XO Sauce, Western-style Sauce, Soup Sauce etc.

Specification

Item	Standard
Appearance	White powder, no odorless
Moisture	≤14%
Whiteness	≥88%
Fineness (100mesh)	≥98%
Ash	≤0.45%
PH (20% Solution)	5~8
Viscosity (5%, 92℃) / mpa.s	1100
Hydroxypropyl (g/100g)	≤7.0

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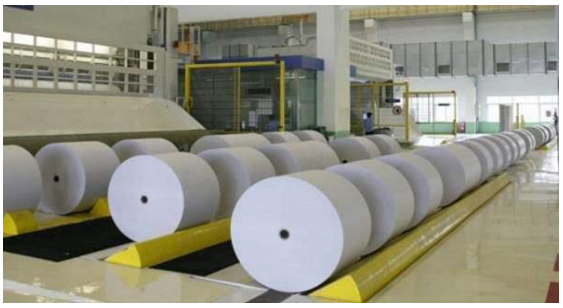
Oxidized Starch



Introduction:

Oxidized starch is modified by the latest oxidation technology of corn starch.

Application:

1. Paper Industry: surface sizing agent,wet-end additive,adhesive additive
2. Textile Industry: warp sizing agent

Properties:

1. Reduce the gelatinization temperature,save energy
2. Low viscosity,good liquidity,high stability, won't cause too much viscosity fluctuation or system pressure increase
3. High whiteness,high purity,increase particle hydrophilicity
4. Good film forming property,soft,good abrasion resistance,high transparency

Specifications：

Item	Specification
Appearance	White powder
Moisture	≤14%
pH	6-8 (customized)
Whiteness	≥90%
Fineness	≥98%
Spot	≤2/cm^2
Viscosity(10% solution,60℃)	8-100 mpa.s (customized)

Cationic Starch

Introduction:

Cationic starch is formed by the reaction of corn starch with quaternary amines so that starch has cation

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Application:

Paper pulp additive

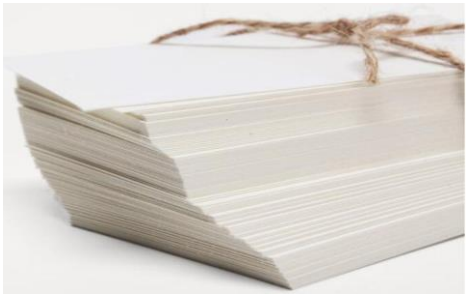
Properties:

1. Reduce the gelatinization temperature, transparent paste,no separation
2. Strong adsorption capacity,increase the retention of small fibers,reduce the concentration of water
3. Increase the ash content、folding resistance and surface strength of paper

Specifications:

Item	Specification
Appearance	White powder
Moisture	≤14%
pH	6-8 (customized)
Whiteness	≥88%
Fineness	≥98%
DS (Degree of substitution)	0.025-0.04 or higher(customized)
Stability of paste	Kept for 24 hours, no delamination
Viscosity	≥600 mps.s

Coating Starch



Introduction:

Coating starch is used as the coating adhesive of coated paper to make the filler bond with each other and make it bond to the fiber, forming a smooth and firm coating.

Application:

Coated paper, art card paper, glass paper

Properties:

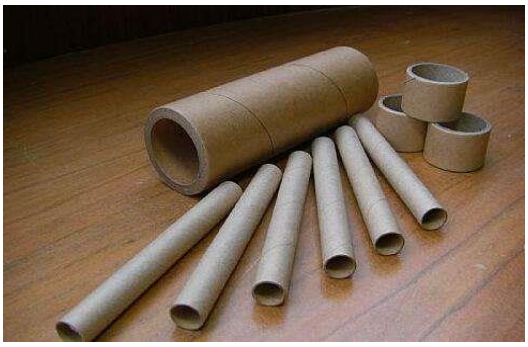
1. Reduce the gelatinization temperature, strong cohesive force, stable viscosity, good liquidity
2. Increase the water resistance of paper, improve paper strength
3. Easy for printing and coating

Specifications:

Item	Specification
Appearance	White powder
Moisture	≤14%

pH(30% solution)	5-7
Whiteness	≥90%
Fineness	≥98%
Spot	≤0.5/cm^2
Viscosity(30% solution,50℃)	≤300 mpa.s

Spray Starch



Introduction:

Spray starch is made from corn starch modified by the latest oxidation and esterification technology.

Application:

white board, paper tube

Properties:

1. Reduce the gelatinization temperature, strong cohesive force, low viscosity
2. Small particle size, high purity, won't clog the nozzle
3. Good film forming ability, high transparency,fast drying

Specifications:

Item	Specification
Appearance	White powder
Moisture	≤14%
pH	6-8
Whiteness	≥88%
Fineness	≥98%
Acidity	18
Viscosity(5% solution,85℃)	450-500mpa.s
Gelatinization temperature	75-82℃
Residue on 325 mesh sieve	0.005%

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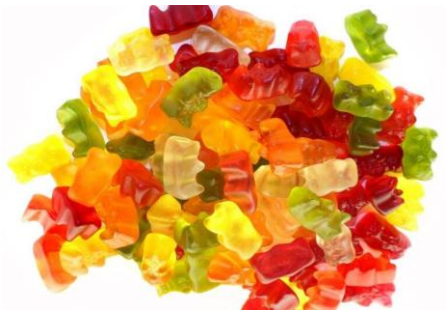
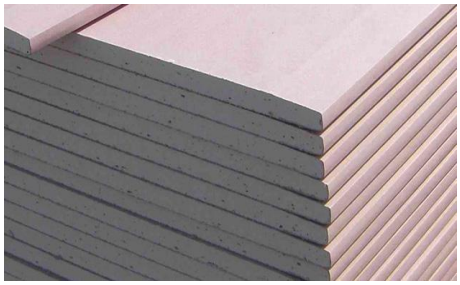
Acid Treatment Starch





Introduction

Acid treatment starch is modified from corn starch by the latest acidification technology.

Application:

1. Food industry: Jelly candy
2. Construction industry: plasterboard
3. Textile industry: warp sizing agent

Properties:

1. Reduce the gelatinization temperature,low viscosity,good paste liquidity
2. Good solubility,good dispersion
3. Good film forming ability,improve film strength,high transparency

Specifications:

Item	Specification
Appearance	White powder
Moisture	≤14%
pH	5-8
Whiteness	≥88%
Fineness	≥98%
Alkali mobility	14-20

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Sodium Gluconate

Introduction:

Sodium gluconate is a polyhydroxycarboxylic acid sodium, which is white or light yellow crystalline powder, and widely used in many fields. It is easily soluble in water, insoluble in alcohol, and salty

Application

Application fields	Characteristics
Concrete additives	Water reducing agent, concrete retarder
Steel surface cleaning agent	If the steel surface needs to be coated, chrome plated, tin plated, nickel plating to adapt to special uses, cleaning age nt adding sodium gluconate will achieve very ideal effect. T his has been confirmed by a large international manufactur er of tinplate.
Special cleaning agent for glass bottles	Cleaning dirt strong, don't block botter washer's nozzle and pipeline, the little residue has not safety problem for food and beverage.
Stabilizer for water quality	Sodium gluconate has excellent corrosion and dirt inhibitio n effect, so it is widely used in water stabilizer.
Pharmaceutical fields	Regulate acid-base balance in the body and restore normal role of nerves. It has same purpose used as food additive.

Trehalose

Introduction:

Trehalose, also named fenugreek, is a non-reducing sugar, which consists of two glucose molecules 1, 1-glycoside bone. As a safe and reliable sugar, trehalose has unique biological characteristics that other disaccharides do not possess, it has a protective effect on many large molecules, and is well known as "Sugar of Life" in the scientific world.

Properties:

High stability, Hygroscopic, Low cariogenicity, Mild sweetness, Excellent crystalline, Anti-aging, Tolerance and safety

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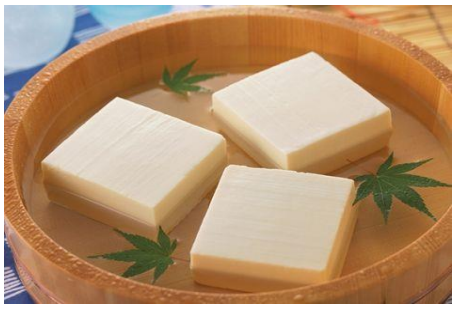
Specifications:

Item	Specification	Result
Appearance	Fine, white, odorless, crystalline powder	pass
Assay（dry basic）%	≥98.0	99.4
PH	5.0--6.7	6.5
Ignition residue，%	≤0.05	0.016
Loss on drying，%	≤1.5	0.13
Chroma	≤0.100	0.0034
Turbidity	≤0.05	0.0034
As, mg/kg	≤0.5	negative（<0.010）
Pb, mg/kg	≤0.5	negative（<0.05)

Applications

Application	Product Advantage
Food area: Bakery, Frozen food, Rice flour products, Chocolate confectionery, Beverage, Fruits, Energy products, Seafood, Freeze-dried powder probiotics	Prevent starch aging and gelatinization, improve freeze resistance, and prevent protein denaturation, reduce sweetness, improve taste, enhance product flavor, protect color, lock water and moisturize, extend shelf life, in freeze-drying and hydrolysis, protein in microorganisms are protected from deformation
Cosmetics: Facial mask, Hand cream and Eye cream	It has strong physiological effects such as moisture retention, water lock, sun protection, anti-radiation and water retention
Pharmaceutical	As a special protective agent for biological molecules and tissue cell stabilizer

Glucono Delta Lactone (GDL)



Introduction:

Glucona Delta Lactone（GDL）, a non-toxic white crystalline powder, is obtain from the oxidation of glucose to gluconic acid or its salts by purification, decolorization, concentration and crystallization.

Properties and Applications:

GDL，soluble in water，slow decomposition under 25℃，is widely used in food industry.

Application	Product Advantage
Tofu solidifier	As a protein solidification agent, it makes tofu white and delicate in texture
Baking powder (Citric acid)	Used in food products for rapid fermentation
Milk gelling agent	Increase gel strength in yogurt or cheese
Amendment	Emulsion and corrosion prevention
Acidifier	The acid substance or the acidity regulator in the compound fluffy agent

Specification:

Item	Unit	Result
Appearance	/	Fine, white, Odorless, crystalline powder
Assay	%	99-100.5
Heavy Metal	%	≤0.002
Reducing substances	%	≤0.5
Particle size	mesh	16-100
Sulfate	%	≤0.03
As	mg/kg	≤0.0003
Pb	mg/kg	≤0.001

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