Our Products

Maize Starch	Pre-Gelatinised Starch
Liquid Glucose	Yellow Dextrin
High Maltose Syrup	White Dextrin
Monohydrate Dextrose	Maize Gluten
Anhydrous Dextrose	Maize Germ
Sorbitol 70% Sol.	Maize Oil
Malto Dextrin	Maize Germ Cake
Oxidised Starch	Maize Fine Bran
Cationic Starch	Maize Coarse Bran
Thin Boiling Starch	Corn Steep Liquor

The Ability to Respond

At Sukhjit our customers can count on a level of continuous support that is second to none. specialists are on call to help customers select the most appropriate formulations for their end use and plant trials.

A consistent policy to modernise operations at various plants has been accelerated in recent years. New projects are in hand to match future demands through improvement and diversification of our abilities. Our Facilities incorporate the most advanced processing technologies in plants, notable for their outstanding environmental Cleanliness. Innovative production processes and new product facilities are being introduced so that sukhjit continues to lead-in the years ahead.

Sukhjit boasts of well equipped laboratories and Pilot Plant at Phagwara (Punjab) and is supported by contributions to the research and development functions from its other well located plant operations, this cannot be achieved unless customers are completely satisfied with the products and services that are provided.

R&D does not, therefore exist as an isolated part of the organisation, Sukhjit maintains close links with a number of educational Institutions, research centres, independent consultants and Govt. bodies collaborating regularly with these different entities ensures that the benefits of any innovation are quickly adopted, either through improvements in manufacturing or in the provision of new and better products.

The concept of quality assurance is a key feature of Sukhjit's dimension. Quality control systems are rigorously applied through out the plants by quality control laboratories with sophisticated analytical equipments operating on a 24 hour basis on a plant level.

Stringent quality control procedures ensure that all products consistently meet customer specification. In addition Quality Assurance within the organisation ensures that all manufactured products conform to National Legislation. Sukhjit has invested in a No. of Quality Control methods and has been awarded ISO 9001 : 2008, HACCP, WHO-GMP certification for its plants. These extensive support facilities enable Sukhjit to supply a "Quality Assured product" to all is Customers.

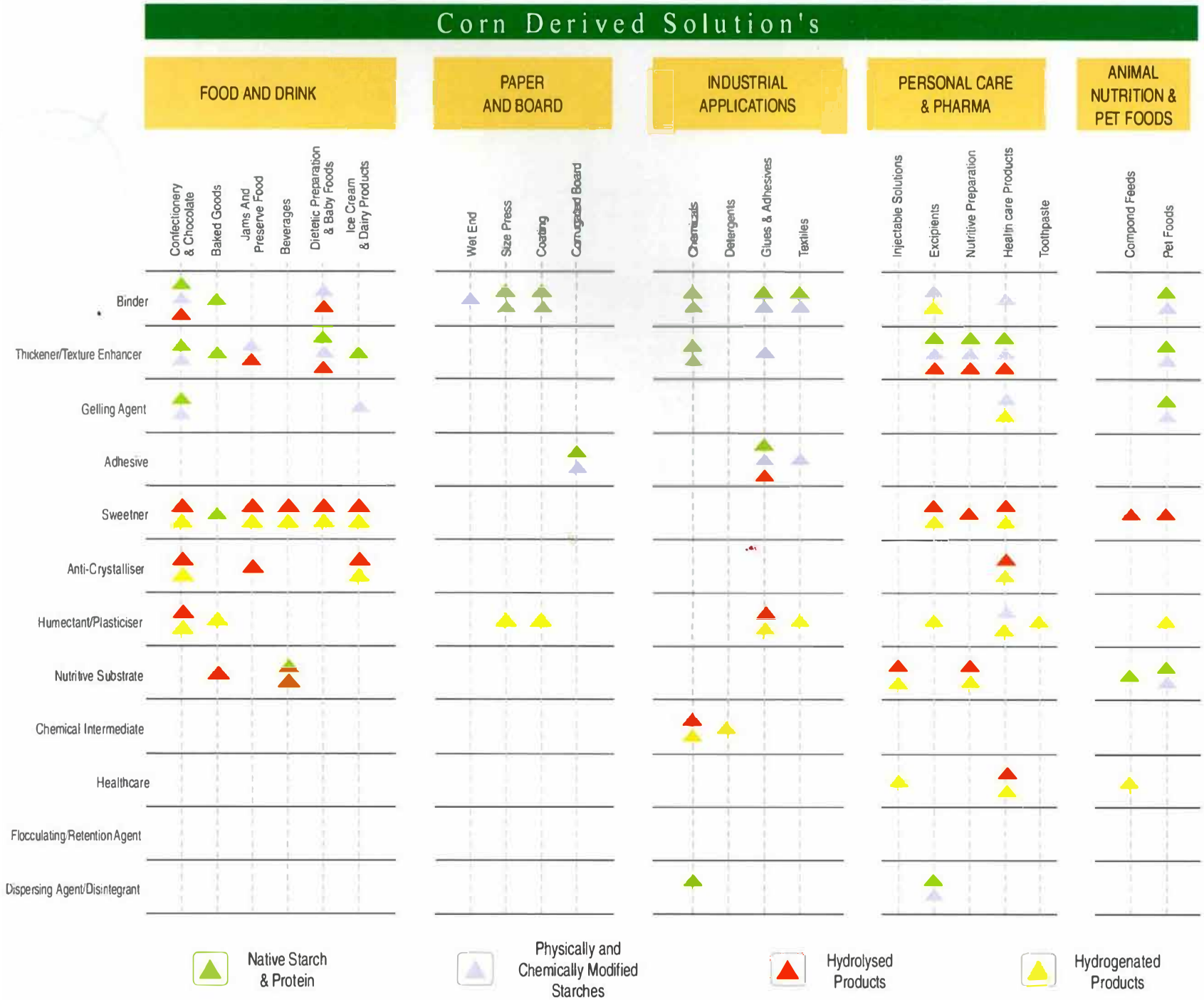
Corn Derived Solutions

This is a guide to selecting the product's manufactured at Sukhjit for their functional benefits in varied end uses. These products reflect the innovation versatility and quality with which Sukhjit has become associated. The Chart given on page no. 3 gives a complete range of our Products and also emphasis the range of Industries that rely on us. The Chart is divided into five Main segments i.e.: Food & Drink, Paper & Board, Industrial Applications, Personal Care Pharma, Animals Nutrition and Pet Foods Enterprises.

The comprehensive chart provided page no. 3 can be of help in sourcing the most suitable ingredient for your end Product.

1943 : The Company establishes its first Facility with a capacity of 1800TPA at Phagwara (Punjab)
1944 : The Company Goes Public thereby creating a wider financial base for Itself and at the same time opening up to new horizons.

Corn Derived Solution's



Maize Starch

Maize Starch $(C_6H_{10}O_5)_n$ also known as Corn Starch or Corn Flour is a fundamental ingredient in most of the packaged food and industrial products it is extracted from the Maize Kernel and has a distinctive appreance and feel. Maize Starch in Natural, Modified, Pregelatinised and Dextrinised forms provides viscosity, texture and other desired properties to all types of food & paper, products. Practically every industry in existence uses Starch or its derivatives in one form or another size.

Functional Advantages

Thickening & Gelling Agent

Maize Starch is most commonly used as a thickening and gelling agent for puddings, sauces, soups etc. It provides an economical and reliable substitute to other ingredients which are unstable at higher temps.

Texture and Clarity

Maize Starch helps in achieving the right degree of clarity, structure and mouth feel. It is also used to achieve chewiness in gums. They are equally useful as moulding powders and as ingredients of paste foods.

Binder & Stabilizer (Exciepient)

Maize Starch is an effective binder as it allows homogenous dispersion of water in foodstuff, and acts as a stabilizer. It is an ingredient of choice in the manufacture of soups, salad dressings, bakery products, various desserts. It is a binder and filler of choice in the Pharma Industry for tabletting, depending on the application, it acts as a diluent and disintegrating agent.

Ethanol

Maize Starch is an economical fermentation feedstock to produce many organic chemicals. The most widely known bio-product is Ethanol it is made by fermenting sugars produced from Maize Starch. Ethanol, produced from Maize Starch promises renewable source of fuel for automobile and other engines with environmental advantages.

Corn Sweeteners

Native Maize Starch forms the basic ingredient for all Corn sweeteners. A variety of enzymatic and acid-catalyzed processes are used for the manufacture of corn sweeteners which are used in food to provide clean, sweet taste, retain moisture, control crystallization and freezing points, contribute to texture, provide gloss, maintain colour, inhibit spoilage and modified density. Corn sweeteners are a major commodity and include products such as Sorbitol, Malto-Dextrins, Glucose Syrups, Dextrose, High Maltose Syrups, etc.

Sizing-Paper and Textiles

Native Starch is used to provide dry strength and as a surface improvement aid, in alkaline papermaking, Starch is a critical part of wet-end sizing, it is an integral part of micro-particle retention, and works as a binder, water holding agent, and carrier for surface sizing chemicals and other functional additives. In the manufacture of Textiles Starch keeps the yarn straight and strong significantly improving its ability to withstand the stress of weaving.

Cyclo Dextrines

Another fascinating type of compound produced from Maize Starch by the action of a cyclodextrin-transglycosylase enzyme is the cyclodextrins (Shardinger dextrin's, cycloamylosses). Cyclodextrins stabilize substance's that are degradable by, or sensitive to, light, heat, oxygen and ions, reduce volatility and bad odour, transform viscous oily liquids to stable flowing powders, enhance solubility effect by slow release, remove unwanted flavours in juice and beverage. These properties would be useful in the fields of Phamaceuticals. Processed Food's, Cosmetic's, Toiletries' And agro-Chemicals'

Applications

- Manufacture of Sweeteners
- Sizing of Paper and Textile's
- Food Thickener
- Stabilizer
- Ethnic Sweets
- Manufacture of Modified Starches.
- Pharmaceutical
- Corrugated Board
- Bio-Plastics
- Ethanol
- Frozen Food

Bio-Plastics

Since Starch is biodegradable in a wide variety of environments it allows for the development of totally Degradable products for specific market needs. Bio-plastics from renewable origin are a new generation of plastics able to significantly reduce the environ-mental impact in terms of energy consumption and green-house effect in specific application. Bio plastics perform as traditional plastics when in use and are completely biodegradable within a composting cycle. Eg: Fast Food service-ware (cup, cutlery, plates, straws, etc.) Packaging (soluble foams for industrial packaging, film wrapping, laminated paper, food containers), Agriculture (much, films, nursery pots, plant labels), Hygiene (diaper back sheet, cotton swabs).

1965 : The Company starts modernisation of the Phagwara Facility and expands Capacity to 12700 TPA.
1967 : The Company commissions Liquid Glucose Plant at Phagwara with 100% Indigenous technology.

Maize Starch

Technical Data

Maize Starch Powder $(C_6H_{10}O_5)_n$

Analysis

	Minimum	Maximum
Form	White to Creamish Fine Powder	
Moisture (%)	11%	15%
Carbohydrate (Content (%)	99%	-
Protein (%)	0.3%	0.5%
Fibre (%)	---	0.03%
Sulphated Ash (%)	---	0.20%
Fat (%)	---	0.25%

Suggested Microorganism Standards

Total Plate Count	---
Moulds	---
Yeast	---
Coli Forms	---
E-Coli	---
salmonella	---

Particle Size	Passing through 90 mesh	
	Retention on 100 mesh	0.4%

	Features	Benefits
Packaging		
50 Kg (Nett) 25 Kg (Nett)	Fine Particle Profile	Free flowing powder with Good Binding, Sizing & Tableting Properties

I.P. Status

Not Applicable

Labelling

Maize Starch Powder

Storage

Maize Starch in bags should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch & Chemicals Limited

Evolving with Nature

Modified Starch

Modified Starch is used as a thickening agent, stabilizer, or an emulsifier. Apart from Food products, Modified Starch also finds use in Paper manufacturing, Pharmaceuticals and various other Industrial applications. Starches are modified to increase their stability against excessive heat, acid, and freezing, to change their texture, or to lengthen or shorten gelatinization time. A modified Starch may be an instant Starch which thickens and gels without heat, or a cook-up Starch. While Acid-treated starch is prepared by treating Starch granules with in-organic acids. Other treatments may produce modified Starch with different enzymes such as alkline-modified Starch, Bleached Starch, Oxidized Starch, Enzyme-Treated, Acetylated Starch and Acetylated Oxidized Starch.

Sukhjit has a diverse portfolio of Modified Starches suitable for various applications these products have been highlighted below.

Pre-Gel Starch

Pre-gelatinised Starch is used to thicken instant desserts. allowing the food to thicken with the addition of cold water or milk. Similarly, cheese sauce granules (such as in Macaroni and Cheese or lasagne) or gravy granules or sauces may be thickened with boiling water without the product going lumpy. Commercial Pizza toppings containing Pre-Gel Starch will thicken when heated in the oven, keeping them on top of the pizza, and then become runny when cooled. A part from food Pregel Starch finds use in Textile & Lundary applications due to its properties of cold water solubility & good water absorption capabilities

Cationic Starch

Cationic starch is produced by treating the slurry of partially swollen granules of starch with a reactive compound. This reagent contains quaternary nitrogen, yielding a positive charge that is independent of PH. The reagent usually attaches to the starch at the C_6 position, the most accessible of the-OH groups. The typical level of derivatization is one to two charged groups per hundred glucose units. Because the reaction is usually carried out in slurry, it is expected that the distribution of charged groups will be highly non-uniform. Cationic Starch finds extensive use in the paper industry and its key functions are as a dry strength additive, Emulsification of sizing agents, it helps to improve the sizing efficiency at lower alum level, which ultimately helps to reduce linting problem of paper.

Yellow Dextrin

Yellow Dextrin is manufactured by partially hydrolysing Starch, using the dry roasting method in the presence of a catalyst: The dextrinisation chemically reduces the starch molecules into smaller components. Yellow dextrin has low viscosity and is very sticky and hygroscopic in nature. Used in the foundry as a binder for cover, Yellow dextrin helps in increasing dry strength at the same time being completely soluble in water. This product also finds its application as a binder for mould and core washes. Its binding abilities make it an essential ingredient in various other applications, such as Adhesives, Gums, Pastes and Pyrotechnics.

White Dextrin

Whitedextrin is manufactured by partially hydrolysing Starch, using the dry roasting method in the presence of a catalyst. The dextrinisation chemically reduces the starch molecules into smaller components. White Dextrin is white in colour, but with reduced viscosities. It's cold water solubility's range from 25% to 65%. White Dextrin produce's a light coloured paste that sets to soft but a definite gel. The higher solubility white Dextrin can be used at much higher concentration to yield very soft gels. Its solution is a half-transparent plaster. White dextrin has good glutinosity and resolution. It is an indispensable excepiant for medicine, food and health care industry. It is also used as an additive in the certain applications for the manufacture to Textile, Adhesive and Dye's.

Oxidised Starch

Native Starch is treated with a variety of oxidizing agent and oxidized starches are obtained. Oxidized starches have shorter chain lengths than native starches. It improves whiteness and reduces microbiological content. In addition, the hydrogen bonding reduces the tendency to retro-gradation. Producing soft-bodied gels of high clarity, Oxidized starches are the best thickener for applications requiring gels of low rigidity. This improves adhesion in batters and reading.

Diluted solutions of highly oxidized starches remain clear on prolonged storage, making them suitable for clear, canned soup and transparent confectionery products. Oxidized starch is also widely used in surface sizing for paper industry and for warp sizing in textile industry, lamination, paper Coating, Paper Adhesive, Building materials.

Thin Boiling Starch

Thin boiling starch has low and uniform viscosity, which does not change much with temperature unlike native starches which show wide variation in viscosity. Thin boiling starches are manufactured by acid addition to Native Starch Slurry. Low viscosity enables its use in high concentrations without the viscosity getting too high. In some applications, for example in instant soups, thin boiling starches are often used as filler without an specific technical function. Thin boiling starch non- congealing characteristic, transparency of paste and lower viscosity ensure easy working compared to other Modified Starches. Unlike gum and glues which require soaking, thin boiling starch is readily dispersed in water and can be boiled into a smooth paste without any pre-treatment. Its application in yarn weaving is particularly advantageous as it does not develop abrasive points on over drying and its flexible film gives the yarn the desired elasticity.

1975 : The Company expands Crushing at Phagwara to 36000 TPA.

Technical Data

Modified Starches

Analysis

	Spray Starch	Pregel Starch	Catonic Starch	Yellow Dextrin	White Dextrin	Oxidised Starch	Thin Boiling Starch
Appearance	White Powder	White to Off White Flaky Powder	White Powder	Yellow Sticky Powder	White Sticky Powder	White Powder	White Powder
Moisture (%) (Max)	12%	5%	12%	4-10%	4-10%	12-14%	12-14%
pH Spare	7.0-9.5	4.0-6.0	6.0-8.0	3.0-5.0	3.0-50.	5.0-8.0	5.0-8.0
Ash (%) (Max)	2%	0.5%	1%	0.5%	0.5%	1%	1.5%
Solubility (Min.)	---	---	---	90% min	60% min	---	---
Viscosity	---	---	---	---	---	150-400 Cps	---
Mesh Size	Passing 85 Mesh	Passing 60 Mesh	Passing 85 Mesh	Passing 90 Mesh	Passing 90 Mesh	Passing 90 Mesh	Passing 90 Mesh
Nitrogen Content	---	---	0.3%	---	---	---	---
Gel Temp	62-65°C	---	---	---	---	---	---

Packaging

---	25kgs Nett	50kgs Nett	50kgs Nett	50kgs Nett	50kgs Nett	50kgs Nett

I.P. Status

Not Applicable

Labelling

Spray Starch	Pregel Starch	Catonic Starch	Yellow Dextrin	White Dextrin	Oxidised Starch	Thin Boiling Starch

Storage

Products in bags should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch & Chemicals Limited
Evolving with Nature

Liquid Glucose

- Liquid Glucose molecular formula $C_6H_{12}O_6$ also know as Corn Syrup is a fundamental ingredient in many food and industrial products, it is a purified concentrated aqueous solution of nutritive saccharides obatined from Starch.
- The solids are composed of various carbohydrates such as Dextrose, Maltose and higher Saccharides, the different carbohydrate profiles compiled with various available solids levels, give Liquid Glucose its unique functionalities. The quality of Liquid Glucose has a direct impact on the quality and performance of the finished product.

Functional Advantages

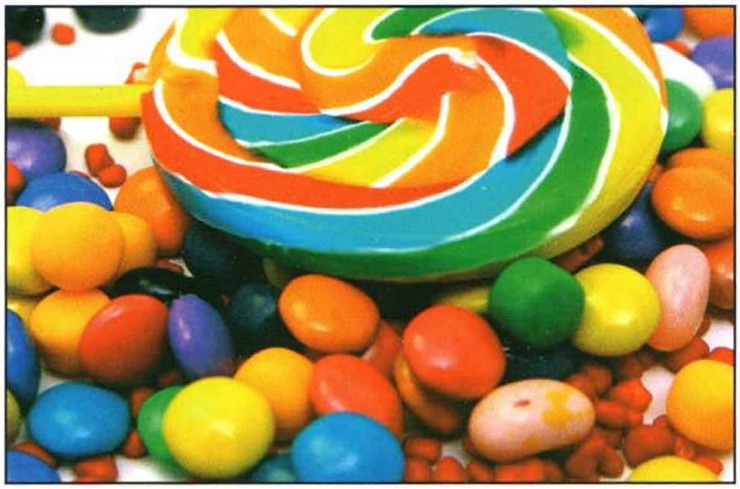
Crystallising

Liquid Glucose is used in almost every type of confection, particularly hard Candies. It is primarily used to control Sucrose and dextrose crystallisation in confections.

Candies made out of Sucrose alone are subject to crystallisation and may crumble.

Texture Enhancers

Liquid Glucose provides a smooth body and smooth texture to Ice-cream and other frozen desserts. It helps to eliminate graining or crystallization that can be objectionable to mouth feel. Liquid Glucose alsoimparts a firmer and heavy body to Ice creams.



Stabilizer

Liquid Glucose acts as a stabiliser and improves the shelf life of the product. It helps to reduce the freezing point thereby reducing the manufacturer's freeze time and improving freezer capacity

Adjuncts

Adjuncts are used to supplement malted Barley in brewing and Liquid Glucose has a number of advantages as an Adjunct, it is completely soluble and economical, easy to handle and adaptable. Liquid Glucose is ideal for high gravity brewing techniques which increases the overall Brew house efficiency and yield.

Fermentation

Liquid Glucose is an economical source of fermentable solids and a popular choice in the baking industry it not only provides sweetness and density control to cakes and cookies but also adds rich crumb colour.

Humectants

Liquid glucose enhances humectancy levels in certain baked goods which in turn increases the shelf life of these products. The icing produced with liquid glucose has a brilliant sheen and appreance and provides a glaze to the product.

Applications

- Confectionery
- Baking
- Brewing
- Meats
- Ice Cream
- Processed Foods
- Jams and Preserves
- Canning
- Frozen Foods
- Dairy Products

1980 : The Company acquires Vijoy Steel and General Mills Company Limited. A strategic Acquisition foreseeing the future growth of the company, which besides complimenting the parent company by providing the necessary engineering infrastructure, is an independent manufacturer of Industrial equipments.

Liquid Glucose

Technical Data

Liquid Glucose - $C_6H_{12}O_6$

Analysis

	Minimum	Maximum
Dry substance (%)	78.0%	85.5%
Dextrose Equivalent (D.E.)	38	45
Sulphated Ash (%)	0.15%	0.30%
PH	4.80	5.50
SO2 (ppm)	60	400
Sodium		Absent
Color		Clear/colourless to slight yellow

Suggested Microorganism Standards

Bacteria / gm	1000
Moulds/ / gm	20
Yeast / gm	20
Coliforms/gm	10
E Coli/30gm	Negative
Salmonella/100gm	Negative

Packaging

	Features	Benefits
300 kg (HDPE or MS) Barrels Bulk Tankers	High Conversion, Higher Solids Highly Viscous, Moisture Holding, Ion-exchanged, Very low protein Very low mineral content Low color, Excellent Color stability Clean flavor profile	Economical sweetner source Adds more solids to formulations Ease of handling, Extends shelf life, Consitent high protein, interaction, No mineral hazing, No flavour interference, Will not contribute unwanted color, Maintains quality upon Storage.

Labeling

Liquid Glucose

Storage

Glucose in barrels should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch & Chemicals Limited
Evolving with Nature

High Maltose Syrup

High Maltose Syrup (HMS) is a specially prepared, acid-enzyme converted Corn Syrup which contains Maltose as its major constituent. High Maltose syrup improves flavour, body, and texture at high sucrose replacement levels while imparting resistance to color formation, moisture absorption, and crystallization in end products such as Hard Candies. It produces a finished product which has exceptional stability clarity and brilliance.

High Maltose Syrup is made from refined starch by biochemical technology (Double Enzymatic process). The concentration is more than 50% of Maltose. It has the characteristics of soft sweet, fine taste, stable a thigh temperature and acid condition, thus imparting higher shelf life.

It is advantageous to use HMS in the production of Candy with tenacity and transparency as against granulated Sugar. Re-crystallization seldom occurs resulting in cost reduction and improved quality. It is widely used as a thickener and plasticizer in the cold drink industry. In cakes, bread and baked foods, it may extend the shelf life. High quality and delicious taste retained in preserved, canned fruits Jams and Ice Cream etc.

Functional Advantages Crystallizing

High maltose Syrup is generally used in almost every type of confection but particularly in hard candies. It is

primarily used to control Sucrose and dextrose crystallization in confections. Candies made out of Sucrose alone are subject to crystallization and may crumble.

Texture Enchancers

High Maltose Syrup provides a smooth body and texture to Ice-creams and other frozen desserts. It helps to eliminate graining or crystallization that can be objectionable to mouth feel.

Stabilizer

High Maltose Syrup acts as a stabilizer and improves the shelf life of the product. It helps to reduce the manufacturers freeze time and improving the freezing capacity.

Fermentation

High Maltose Syrup is an economical source of fermentable solids and a popular choice in the baking industry it not only provides sweetness and density control to cakes and cookies but also add richer crumb color.

Humectants

High Maltose Syrup raises the humectancy levels in certain baked goods which in turn increases the shelf life of these products.

Applications

- Confectionary
- Baking
- Ice Cream
- Diary Products
- Processed Foods
- Jams & Preserves
- Canning

1982 : The Company commissions Mono-Hydrate Dextrose Plant at Phagwara with 100% Indigenous Technology.

Technical Data

High Maltose Syrup

Analysis

	Minimum	Maximum
Form	Clear, Colourless to Slight Yellowish Syrupy Liquid, Highly Viscous	
Solids (%)	78%	81%
Moisture (%)	19%	22%
Dextrose Equivalent (%)	40%	(65%)
Maltose Content (ONDS) (%)	(50%)	(65%)
Glucose Content (%)	3%	6%
So2 ppm	---	400 PPM
Sulphated Ash (%)	0.15%	0.30%

Suggested Microorganism Standards

Bacteria / gm	400	1000
Moulds / gm	---	20
Yeast / gm	---	20
Coli forms	---	Absent
E-Coli	---	Absent
Salmonella	---	Absent

Packaging

MS / HMHDPE Barrels
300 Kgs Nett.

Features	Benefits
• High Conversion	• Economic Sweetner Source
• Higher Solids	• High Purity
• Highly Viscous	• More Sweeter
• Lower Colour	• No Flavour interference
• Cleaner Flavour Profile	

I.P. Status

Not Applicable

Labelling

High Maltose Syrup

Storage

High Maltose Syrup in barrels should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch
& Chemicals Limited
Evolving with Nature

Malto Dextrin Powder

Maltodextrin Powder is produced by enzymatic hydrolysis of corn starch, slightly hygroscopic in nature. It is a fine white powder produced by spray drying partially hydrolysed Starch, It has a dextrose equivalent (DE) of 10-25%. It provides a convenient and nutritionally sound way to replete energy reserves. Maltodextrin is a complex carbohydrate combination that provides long-lasting energy. Maltodextrin Powder has a rapid rate of digestion, allowing it to supply additional calories without causing abdominal discomfort that can be experienced with simple sugars. The body gets energy from maltodextrin gradually, easily and evenly, so it is ideal for carbo loading.

Maltodextrin Powder is highly recommended for those whose metabolic rate and appetite is the limiting factor in their ability to gain weight. Use of maltodextrin will speed the rate of recovery after exercise by inhibiting proteolysis. Carbohydrate supplementation is one of the most reliable and inexpensive ways to increase exercise performance.

Functional Advantages

Stabiliser/Bodying Agents

Maltodextrin acts as flavouring, bodying, drying and stabilising agent in chocolate drinks, flavour powders, citrous and coffee powders and also improves the shelf life of the product. It can also be used to replace a portion of protein whipping agent in aerated beverage, and is the choice bulking agent in many puddings' soups and frozen desserts. Its addition to cream gives it a thicker mouth feel.

Sweetener

In Indian sweets it is used to making of "Khoya/Mawa" from milk as it improves the quality, softness the texture. It is also excellent in partially replacing cane sugar in sweets. The sweet taste of Maltodextrine is a closer approximation to the taste of sugar which makes it ideal for use in sweetening teas, coffee and powdered soft drinks also.

Carrier/Excipiant

For Instant foods maltodextrine is the perfect carrying agent due to its free flow ability, open structure dispersibility in cold water and ability to maintain clarity any eye appeal.

Food Additive

Maltodextrine is the simplest from of sugar, it has a soft mouth-feel and is easily digested, this property gives it extensive use in baby foods, feed supplements, geriatric foods and foods for convalescents. It is also used as a carrying and dispersing agent for flavours and is ideally suited for encapsulation.

Humectants

Maltodextrine raises the humectancy levels in certain baked goods which in turn increases the shelf life.

Applications

- Indian Sweets
- Baby Foods
- Instant Foods
- Confectionary
- Baking
- Ice Cream
- Diary Products
- Processed Foods
- Beverage

1985 : The Company ventures out of Punjab and Commissions the second Greenfield facility at Nizamabad (A.P.) to produce Corn Starch, Liquid Glucose, Modified Starches, Dextrins, Corn oil, Cattle and Poultry feed Ingredients. The Group becomes the first Multi-locational Corn Wet Milling Company in the Country.

Malto Dextrin Powder

Technical Data

Malto Dextrine Powder

Analysis

	Minimum	Maximum
Form	White Fluffy Hygroscopic Powder	
Moisture (%)	3.0%	5.0%
Dextrose Equivalent (%)	10.0%	32.0%
SO_2 ppm	80	200
Clarity of 10% Solution	Milky	Clear
Sulphated Ash (%)	0.15%	0.30%

Suggested Microorganism Standards

Bacteria / gm	200	500
Moulds/ / gm	---	Absent
Yeast / gm	---	Absent
Coli forms	---	Absent
E-Coli	---	Absent
Salmonella	---	Absent
Particle Size	Passing 100% through 60 mesh	

Packaging

25 Kgs. Nett.

Features	Benefits
• Soft Mouth Feel	• Bakery & Confectionery
• Easily Digested	• Infant Food
• Flavour Enhancer	• Beverages
• Buling Agent	• Instant Foods

I.P. Status

Not Applicable

Labelling

Malto Dextrine Powder / Glucose (MDP)

Storage

Dextrine in bags should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch & Chemicals Limited
Evolving with Nature

Monohydrate Dextrose

Dextrose Monohydrate or D-Glucose Molecular Formula $C_6H_{12}O_6H_2O$ is a white crystalline powder, odourless and sweet to taste. Two Stereo Isomers of the Aldexho sugars are known as Glucose, only one of which is Bio-logically active. This form is often referred to as Dextrose Monohydrate or especially in the food industry as simply Dextrose. It is usually obtained by the hydrolysis of starch and contains one molecule of water.

Functional Advantages

Sweetness

Known for its clean sweet flavour, it is usually rated at 75-80% of the sweetness of sucrose, however because it works synergistically in some formulations, blends of Sucrose and Dextrose are perceived to be as sweet, in some cases sweeter than sucrose.

Flavor Enhancement

Dextrose acts to shorten the perception of sweetness and

enhances flavour. Its a sweetener of choice in certain fruit flavoured desserts and beverages.

Browning

Dextrose can produce the desirable brown colour in bread, beans etc.

Ferment ability

Dextrose being a monosaccharide, is unsurpassed as a carbohydrate source for yeast and other organisms. It provides energy to the cell and many by-products, in addition to carbon dioxide and ethanol. When used in baking and brewing fermentation begins instantaneously and proceeds rapidly.

Glucose-D

Dextrose functions as a good oral rehydrating agent and once enriched with Vitamin D and Calcium to provide easy assimilation and replenishment of essential nutrients in the body. It is a ready source of energy.

Stability

Because Dextrose cannot invert or change on exposure to mild food acid it helps extend the shelf life of many food products.

Bulking Agent and Carrier

Dextrose works to keep dry food mixes and powdered beverage drinks free flowing.

Tabletting

Dextrose is highly suitable for high speed direct compression tableting. It prevents sticking to the die surface during the tableting process.

Applications

- Total or partial replacement for sucrose in baking & other dry mixes, canned products, chewing gum, confections, diary products, meats, preserves, carrier for colors and flavours.
- Bulking agent for intense sweetners, beverage powders and other dry mixes. Specialized applications where low moisture level is required.
- Tableting excipient in confections.
- Source of fermentables in baking, brewing, vinegars, wines
- Baked goods. Caramel coloring.

1986 : Consolidation and Expansion of capacities at both the facilities in Punjab from 36000 TPA to 54000
1992 : TPA And Andhra Pradesh from 12700 TPA to 54000 TPA

Monohydrate Dextrose

Technical Data

Mohohydrate Dextrose - $C_6H_{12}O_6 . H_2O$

Analysis

	Minimum	Maximum
Form	White Crystalline Powder	
Moisture (%)	7.5%	9.5%
Dextrose Equivalent (D.E.)	99.5%	
Dextrose as D-glucose (D.B.)	99.5%	
SO_2	---	20 ppm
Specific optical Rotation	+52.50°	+53.3°

Suggested Microorganism Standards

Total Plate Count	500 cfu/gm max.
Moulds / gm	<10 cfu/gm
Yeast / gm	<10 cfu/gm
Coliforms / gm	Absent
E coli / gm	Absent
Salmonella / 100gm	Absent

Particle Size

Screens	Oversize on	Retention
	100 Mesh	25 - 45 %

Packaging

	Features	Benefits
50 Kg	• Coarse particle profile • Needle shape crystals	• Good tableting excipent & Oral Rehydrating Agent • Good Coating Agent • Excellent Bulking Agent • Excellent Carrier for • Flavour and Colours.

I.P. Status

Not Applicable

Labelling

Dextrose Monohydrate/Glucose (DMH)
Glucose-D

Storage

Dextose in bags should be stored in clean dry area on pallets under ambient conditions. Storage in warehouse beyond 3-4 months is not recommended.

The Sukhjit Starch
& Chemicals Limited
Evolving with Nature

Anhydrous Dextrose

Anhydrous Dextrose or D-Glucose, Molecular Formula $C_6H_{12}O_6$ is a white crystalline powder odourless and sweet to taste. Anhydrous Dextrose is the purest form of dextrose, commonly called Glucose. It is manufactured by refining Dextrose Monohydrate which in itself is a pure form of Dextrose.

It is prepared by dissolving Dextrose Monohydrate and evaporating the solution to a solid content of 84%-85%, it

is then crystallised on added for Induced seed crystals at elevated temperatures. The Anhydrous Dextrose particles have unique properties and, if desired, may be used as a sugar or Dextrose Monohydrate replacement. It is used as a food additive and also in injections.

Functional Advantages

Injectable Glucose

Dextrose Anhydrous in liquid form is a sterile solution

injected intravenously, It assists in providing fluids containing various amounts of sugars to your body when you are not able to drink enough liquids or when additional fluids are needed. It may also be used to give other injectable medicines.

Bulking Agent and Carrier

Dextrose Anhydrous works to keep dry food mixes and powered beverage drinks.

Applications

- Injectable Solution Manufacturing.
- Saline Solution Manufacturing.
- Oral Re-Hydrating Agent

Oral Re-Hydrating Agent

Dextrose anhydrous provides instant energy. It is the primary ingredient in oral rehydration salts (ORS).

Saline Solution

Dextrose anhydrous complements the function of saline solution for a total electrolyte-energy balance.

1993 : The Company Commissions Sorbitol 70% Sol. At Phagwara with 100% Indigenous technology.

Technical Data

Anyhdrous Dextrose - $C_6H_{12}O_6$

Analysis

	Minimum	Maximum
Form	White Crystalline or Granular Powder, Sweet in Taste	
Moisture (%)	0.40%	1.0%
Dextrose Equivalent (%)	99.7%	
Dextrose Content (%)	99.6%	
Solubility	Freely Soluble in Water	
Specific Optical Rotation	$+52.5^0$	$+53.3^0$
Arsenic	0	1 PPm
Sulphated Ash (%)	0.05%	0.1%
Heavy Metals	0	5 PPm

Suggested Microorganism Standards

Bacteria / gm	---	100
Moulds / gm	---	Absent
Yeast / gm	---	Absent
Coli forms	---	Absent
E-Coli	---	Absent
Salmonella	---	Absent

Particle Size — Passing through 30 mesh

Packaging

25 Kg (Nett)

Features	Benefits
• Free Flowing	• Oral Rehydrating Agent
• Low Moisture	• Intravenous Injections
• Carrier for Life Saving Drugs	

I.P. Status

Confirming to Indian Pharmacopoeia 2012

Labelling

Anhydrous Dextrose (IP)

Storage

Anhydrous Dextrose in bags should be stored in a clean & dry area. Storage under warehouse conditions. For over 3-4 months is not recommended.

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Sorbitol 70%

Sorbitol 70%, molecular formula $C_6H_{14}O_6$ also known as glucitol, is a water soluble polyhydric alcohol, besides properties of humectancy and plasticizing. It is obtained by reduction of glucose changing the aldehyde group to an additional hydroxy2 group hence the name sugar alcohol. Sorbitol, besides being immune to bacteriological degradation, is less vulnerable to mould growth compared to other humectants and plasticizing materials. Sorbitol is produced by Hydrogenation of Dextrose under pressure with State of Art reaction controls. Sorbitol is a raw material for production of Vitamin C. It has application in Food products and Tobacco conditioning, high quality papers etc. In powder from it is a white, odourless, sweet-tasting crystalline powder.

Functional Advantages Humectants

Sorbitol is used in Candies, Tobacco, Processed foods, Paints, Toothpaste, Cosmetics and Other Personal care products both as Sweetener and as Humectants (moisture retaining ingredient.)

Emollient

In cosmetics, Soaps and other such products it provides an additional benefit of an emollient (skin softener). Being of neutral pH it is a complementary additive to most cosmetics and does not cause any harsh effect's on skin.

Sweetener Diet Foods

Sorbitol is a sugar alcohol. It has two thirds the calories of sugar, and it not as sweet (60% as sweet as sugar). It is poorly absorbed by the body, so it does not raise insulin levels as much as sugar and does not promote tooth decay, Sorbitol is a sugar substitute often used in diet. Sorbitol is also referred to as a nutritive sweetener because it provides dietary energy.

Tobacco

Sorbitol gives mild aromatic fumes when smoked and does not develop acrolein, which may be the case when glycerine is used as humectants. Sorbitol being non-volatile maintains and preserves the tobacco aroma.

Personal care

Sorbitol is often used in Mouthwash, Toothpaste and Shaving Cream etc. when mixed with other ingredients it can help fight plaque. It also provides coolness in Toothpastes and improves mouth feel of the product. Sorbitol is used as an ingredient in a number of pharmaceutical preparations like Syrups, elixirs, Tonics, Vitamins and Amino Acid-complex preparations, laxatives and ointments for hepatic and Diabetic diseases.

Bio-Fuel

Sorbitol when combined with potassium nitrate has found some success as an amateur solid rocket fuel. [5] Sorbitol is identified as a potential key chemical intermediate [6] from biomass resources. Complete reduction of sorbitol opens the way to alkanes such as henxane which can be used as a bio fuel. Sorbitol itself provides much of the hydrogen required for the transformation.

Applications

- Oral Hygiene Formulations
- Cosmetics
- Processed Food Industry
- Pharmaceutical Industry
- Tobacco Industry
- Textile Industry
- Confectionary
- Frozen Foods

Processed Foods

Sorbitol is used to maintain the freshness in confectionary and bakery products, to preserve the colour and also improves the shelf life of canned fruits. It does not undergo milliards reaction. It is incorporated as per user's requirements into various food items like toffees, biscuits, jams, jellies, chocolates, candies, fruits, carbonated drinks, canned fruits etc.

1996 : The Company Commissions Anhydrous Dextrose plant at Phagwara with 100% indigenous technology.

Sorbitol 70%

Technical Data

Sorbitol Solution - $C_6h_{14}O_6$ - Clear Colourless Syrup

Analysis

	Minimum	Maximum
Form	Clear, Colourless to light yellowish syrupy liquid sweet in taste	
Refraction Index	1.455	1.465
Relative Density	1.290	1.298
Optical Rotation	0	+3.5
Nickle	0	1 ppm
Reducing Sugar (%)	0.05%	0.30%
Sulphated Ash (%)	0.05%	0.10%
Assay (AS Sorbitol) (%)	62%	70%

Suggested Microorganism Standards

Bacteria / gm	500
Moulds/ / gm	Absent
Yeast / gm	Absent
Coliforms/gm	Absent
E-coli	Absent
Salmonella	Absent

Packaging

	Features	Benefits
300 kgs Virgin HM-HDPE Barrels / Bulk Tankers	• Low Sugar • Pharmaceutical Aid • Ion Exchanged • Long Shelf Life • High Temperature Stable • Odourless	• Alternate Sweetner • Low Calories • Humectant • Anti-Bacterial • Binder • Moisture Retainer • Drug Carrier

I.P. Status

Confirming to Indian Pharmacopoeia-2012

Labeling

Sorbitol Solution (Crystallizing), Sorbitol Solution IP (Non-Crystallizing)

Storage

Sorbitol 70% Soln. in barrels should be stored in a clean & dry area. Storage under warehouse conditions. For over 3-4 months is not recommended.

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Maize Gluten

Maize Gluten also known as Corn Gluten meal (CGM) is a By-Productt of Maize Processing. High in protein content, it has historically been used as an animal feed. Maize Gluten meal is a non-volatile powder, and in its granular form tends to remain near where it was applied. Bread texture is affected by the amount and kind of gluten in the flour used for making the bread.

Functional Advantages

Animal Feed

This high protein concentrate is commonly provided at minimum protein. It is highly digestible, contains ME 4131 K Cal/Kg. on D.B. for chicks and rich source of available Carotene 49-72 mg./kg. and Xanthophyll 244-550 mg./Kg.

Herbicide

The protein content in Maize Gluten inhibits formation on newly germinated seeds, killing the plant. The application however must be timed in a manner that Gluten is present and effective as the seeds are germinating.

Handling and Storage

Maize Gluten should be stored in a dry, ventilated area, free from moisture and wet surfaces, Protect against physical damage and extreme heat, Isolate from incompatible substances.

Applications

- Animal Feed
- Herbicide

2002 : The Company Commissions the third Green field facility at Malda (West Bengal) to produce Corn Starch, Liquid Glucose, Modified Starches, Dextrins, Cattle and Poultry feed ingredients, Giving the company a Logistical edge and enabling it to cater to the far flung Eastern and North Eastern States of the country, making it another first.

Technical Data

Maize Gluten

Analysis

	Minimum	Maximum
Form	Golden Yellow Granular Powder Free Flowing with Characteristic Odour	
Moisture (%)	10%	13%
Protein (%)	60%	70%
Carbohydrate (%)	15%	20%
O(%)	5%	7%

Suggested Microorganism Standards

Bacteria / gm	500	1000
Moulds/ / gm	---	20
Yeast / gm	---	20
Coli forms	---	10
Afflotoxin	---	10 PPB
Particle Size	Passing through 60 mesh	

Packaging

	Features	Benefits
50 Kgs. Nett. In HDPE Bags	• Free Flowing • High Protein • Less Fibre • Extended Shelf Life	• Protein Rich Cattle Feed • Economical Food Additive • Essential Poultry Feed Ingredient

I.P. Status

Not Applicable

Labelling

Maize Gluten

Storage

Product in bags should be stored in a clean & dry area. Storage under warehouse conditions. over 3-4 months is not recommended.

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Maize By-Products

The Maize Kernel is a complex mixture of Starch, Protein, oil, water, fiber vitamins and pigment all wrapped in a package. The Corn/Maize Wet Milling process increases the nutritional and economic value of this package by separating it into homogenous fractions each having its specific identity and end use.

Functional Advantages

Maize Germ (HSN Code : 23031000)

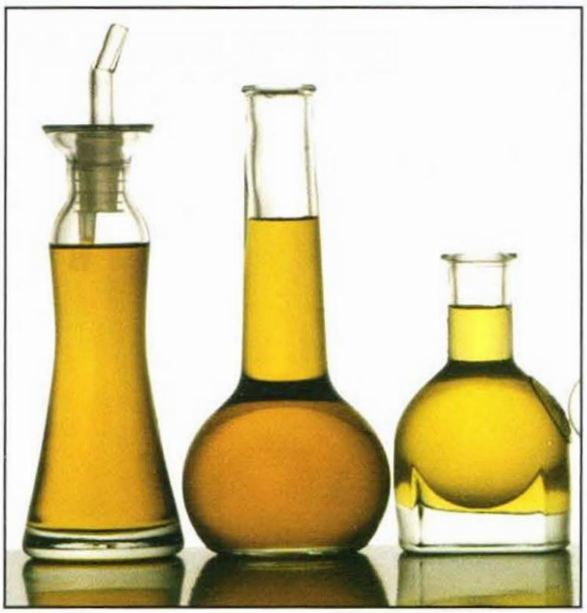
This is a valuable by-product being rich in oil. It has a pleasant nutty taste when fresh but can quickly become rancid if not treated within a short time after milling. Its main value is in the oil which can be extracted or it can be used as animal feed without oil extraction. For economical oil extraction the germ should have maximum moisture content of 2-3% to avoid formation of free fatty acids during storage. Whole germs with undamaged cells is less susceptible to formation cells is less susceptible to formation of free fatty acid. A minium fat content of 14% is also required. Germ should be dried to a maximum of 4%-5% moisture for lengthy storage. It is important that germ is cooled following drying and prior tobinning. The oil yield drops with extended storage prior to the expeller. Pelletting is preferred as this stabilises the fat and improves handling.

Maize Germ Cake

Maize Germ once passed through an expeller results in two major products, Maize Oil and Maize Oil Cake, the cake provides nutritive addition to Cattlefeed.

Maize Oil (HSN Code : 15152100)

Corn oil is oil extracted from the germ of (maize), Its main use is in cooking, where its high smoke point makes it a valuable frying oil. It is also a key ingredient in some margarine. Refined corn oil is 99% triglyceride, with proportions of approximately 59% polyunsaturated fatty acid, 24% mono unsaturated fatty acid, and 13% unsaturated fatty acid. Maize oil is also a source of bio-diesel;



Other industrial uses for corn oil include soap, salve, paint, rust proofing for metal surfaces, inks, textiles, and insecticides. It is sometimes used as a carrier for drug molecules in pharmaceutical preparations.

Maize Coarse Bran

Maize Bran or Corn fibre is produced by Corn wet-milling. Along with the corn fibers, portions of the protein, oil, and starch escape the fibre stream. Corn fibre is composed of approximately 15-25% starch, 10-13% protein, 33-42% hemicelluloses, 15-18% cellulose, 3-6% oil, and 1-2% other components, a corn fibre stream coming form dewatering presses contains about 30 to about 50% solids. Rich in nutrients it forms a major ingredient for cattle feed, it has been know to help in increasing the milk yield. However use to concerns of commodity shortages and as new technology is made available Corn Fibre is being used as a feedstock for the manufacture of Ethanol.

Applications

- Poultry Feed
- Cattle Feed
- Cooking Oil
- Pet Food
- Bio Diesel
- Insecticides
- Printing Ink

Maize Fine Bran

This is a medium protein ingredient composed of the bran and fibrous portions. It may or may or may not contain the condensed corn extractives. It is produced in wet or dry form both. The dried Fine bran analyzes typically as 21% protein, 2.5% fat, and 8% fibre. It is a perishable product in 610 days and must be fed or stored in an anaerobic environment. As Fine bran is high in certain key nutreitants it is widely used in complete feeds for dairy and beef cattle, poultry, swine and pet foods.

2007 : The Company commissions its Fourth Green Field facility at Gurplah, (Himachal Pradesh) to produce Liquid Glucose, Malto-Dextrine Powder, Dextrins, High-Maltose Syrup, Dextrose Mono-Hydrate, Cattle and Poultry Feed ingredients.

Technical Data

Maize By Products

Analysis

	Maize Germ	Maize Oil	Oil Cake	Coarse Bran	Fine Bran
	(Max. Range)	(Max. Range)	(Max. Range)	(Max. Range)	(Max. Range)
Moisture (%)	5%	0.25%	10%	65%	65%
Carbohydrates (%)	35%	---	30%	50%	62%
Protein (%)	20%	---	15%	7%	10%
FFA	---	3%-5%	---	---	---
Residual Oil	---	---	9%	1%	1%

Packaging

Maize Germ	Maize Oil	Oil Cake	Coarse Bran	Fine Bran
40kg Gunny Bags	MS Tankers	40 kg Gunny Bags	Open Trucks In Wet Form / 40 kg Bags in Dry Form	Open Trucks In Wet Form/ 40kg Bags in Dry from

I.P. Status

Not Applicable

Labelling

Maize Germ	Maize Oil	Maize Oil Cake	Maize Coarse Bran	Maize Fine Bran

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