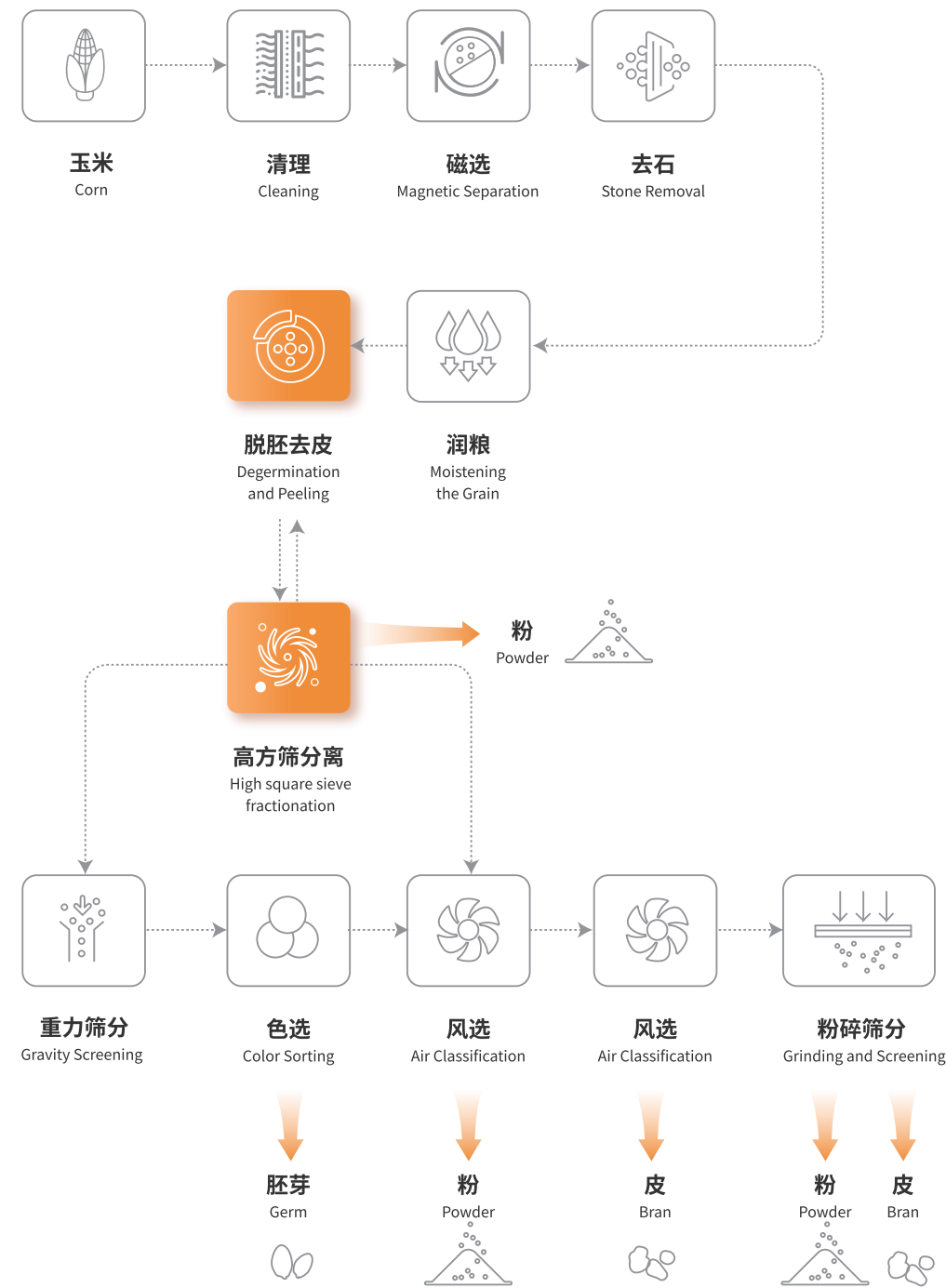


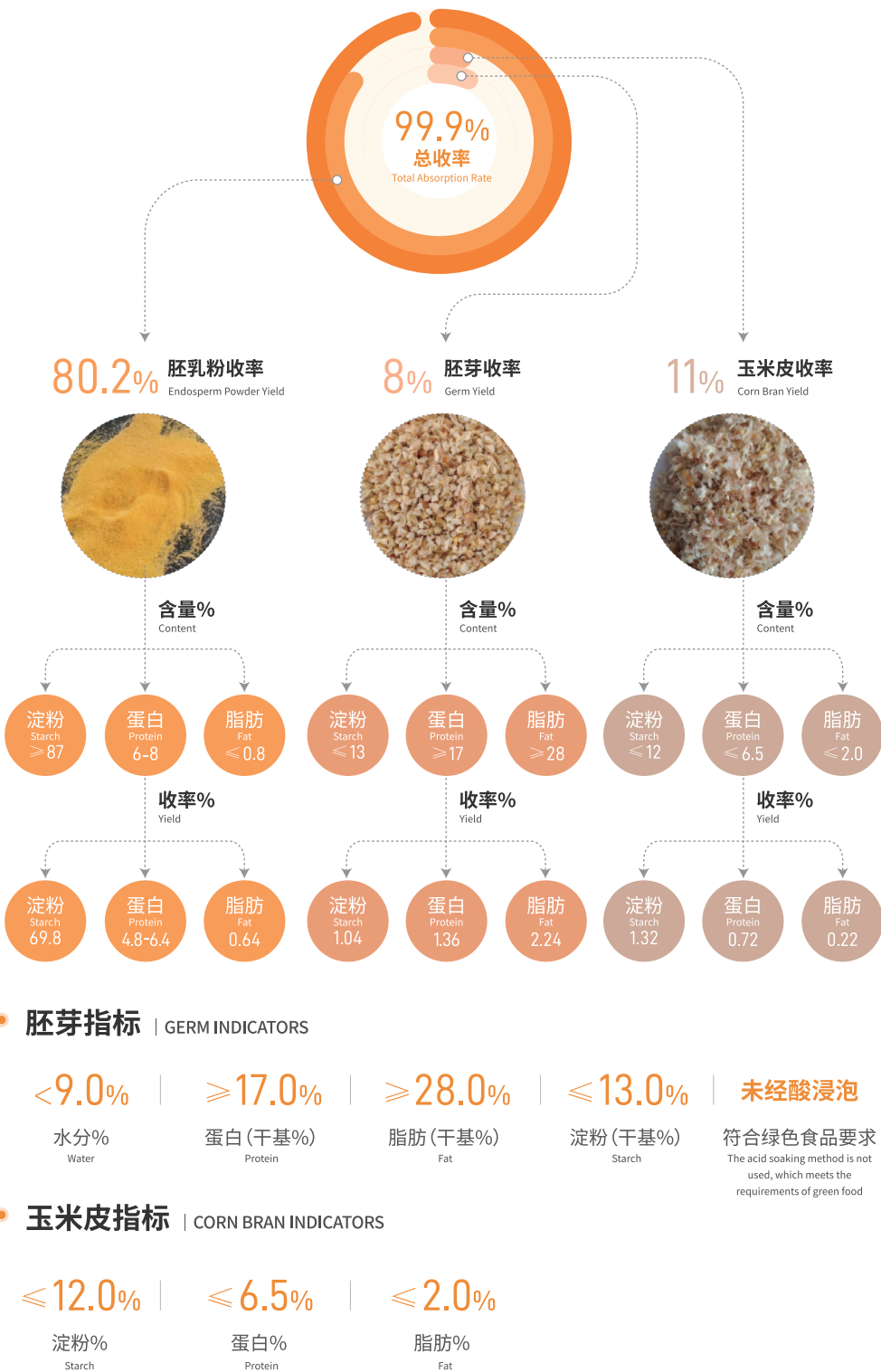
DRY FRACTIONATION PROCESS FLOW

干法分离工艺流程



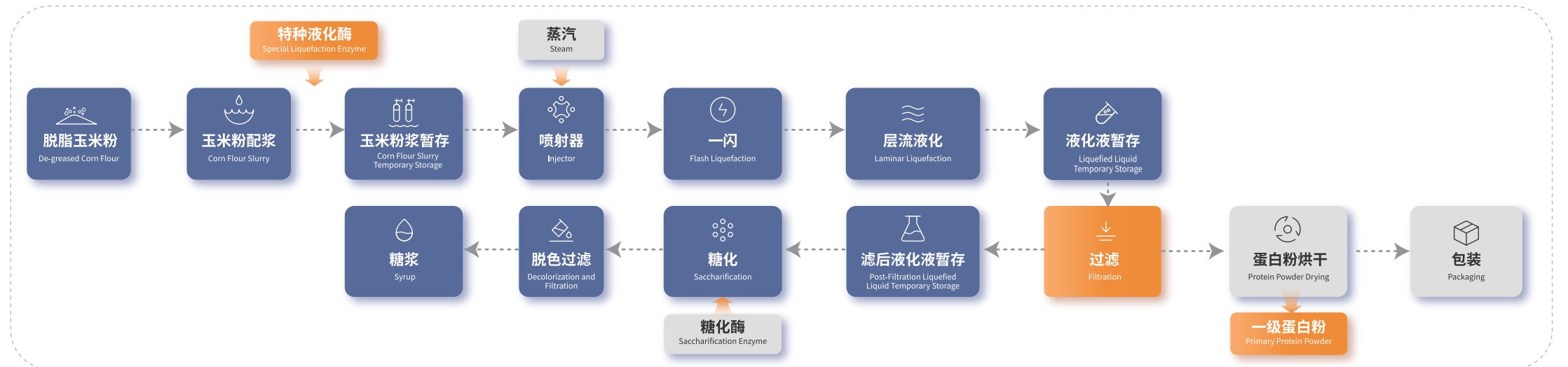
DRY FRACTIONATION TECHNICAL INDICATORS

干法分离技术指标



LIQUEFACTION AND SACCHARIFICATION PROCESS FLOW AND INDICATORS

液化糖化工艺流程及技术指标



葡萄糖指标对比 | GLUCOSE INDICATOR COMPARISON

指标 (Indicator)	标准规定 (Standard Specifications)	干法 (Dry Method)	湿法 (Wet Method)
状态 (Status)	呈粘稠透明液体、无肉眼可见杂质 A viscous, transparent liquid with no visible impurities	呈粘稠透明液体、无肉眼可见杂质 A viscous, transparent liquid with no visible impurities	呈粘稠透明液体、无肉眼可见杂质 A viscous, transparent liquid with no visible impurities
色泽 (Color)	无色或微黄色, 清亮透明 Colorless or pale yellow, clear and transparent	无色或微黄色, 清亮透明 Colorless or pale yellow, clear and transparent	无色或微黄色, 清亮透明 Colorless or pale yellow, clear and transparent
气味 (Odor)	具有葡萄糖浆的特有气味 Characteristic odor of glucose syrup	具有葡萄糖浆的特有气味 Characteristic odor of glucose syrup	具有葡萄糖浆的特有气味 Characteristic odor of glucose syrup
滋味 (Taste)	柔和甜味, 无异味 Mild sweetness, no off-flavors	柔和甜味, 无异味 Mild sweetness, no off-flavors	柔和甜味, 无异味 Mild sweetness, no off-flavors
干物质(固形物)% (Dry Matter (Solids) %)	≥ 71.0	/	34.0
DE值% (DE Value %)	≥ 97.0	99.5	98.3
pH值 (pH Value)	4.5-5.5	5.2	4.2-4.5
透光率% (Transmittance %)	≥ 98.0	99.0	90.0
葡萄糖% (Glucose %)	≥ 96.0	97.1	96.8
二糖% (Disaccharides %)	≤ 3.0	1.5	2.0
三糖及三糖以上% (Trisaccharides and other polysaccharide %)	≤ 3.0	1.0	1.1
硫酸灰分g/100g (Sulfuric Ash (g/100g))	≤ 0.3	/	/
可溶性蛋白 (Soluble Protein)	≤ 0.08	/	0.03

干法制糖玉米蛋白粉 | CORN PROTEIN POWDER FROM DRY METHOD GLUCOSE PRODUCTION

外观性状 (Appearance): 淡黄色粉末状, 有玉米特殊香味, 无苦涩感
Light yellow powder with a characteristic corn flavor, no bitterness.

理化指标 (Physical and Chemical Index): 水分 < 10%, 蛋白含量 ≥ 60%, 脂肪 6-8%, 灰分 < 2.0%
Moisture < 10%, Protein Content ≥ 60%, Fat 6-8%, Ash Content < 2.0%

产品特性 (Product Features):

- 有效营养成分高, 脂蛋白含量大于70%。
High effective nutrients content, with a lipoprotein content greater than 70%.
- 没有经过二氧化硫长时间浸泡, 叶黄素高于湿法玉米蛋白粉30%以上
Not treated with sulfur dioxide for extended periods, with lutein levels 30% higher than wet method corn protein powder.
- 经过108°C高温蒸煮, 高温杀死谷物中抗营养因子如胰蛋白酶等, 为熟化蛋白质, 生物价(提高12%)及消化率(提高20%)比较高
Through high-temperature cooking at 108°C, anti-nutritional factors in grains, such as trypsin inhibitors, are effectively eliminated. This process enhances protein maturation, increasing the biological value by 12% and improving digestibility by 20%.
- 产品为粉末状, 方便使用, 降低使用成本
The product is in powder form, making it convenient to use and reducing application costs.
- 原料为脱脂玉米粉, 为直接入口食品, 提取玉米蛋白粉可作为食品级玉米蛋白粉
Raw material is de-greased corn flour, a food-grade ingredient, and the extracted corn protein powder can be used as food-grade corn protein powder.
- 本产品不含有任何毒素, 尤其赤霉烯酮
The product does not contain any toxins, especially ochratoxin.

COMPARISON OF RESOURCE CONSUMPTION

单耗对比 (*单耗指标以32%糖浓度折干计) (*Consumption indicators are calculated based on a dry matter content equivalent to a 32% glucose concentration.)

项目 Item	名称 Name	单位 Unit	干法单耗 Dry Method Single Consumption	湿法单耗 Wet Method Single Consumption
原料 Raw Material	商品玉米 Commercial Corn	t/t	1.508	1.51
辅料 Auxiliary Materials	特种酶 Special Enzymes	t/t	0.0002	0
	液化酶 Liquefaction Enzyme	t/t	0.0002	0.00021
	糖化酶 Saccharification Enzyme	t/t	0.0004	0.00039
	98%硫酸 98% Sulfuric Acid	t/t	0.001	0.0008
动力 Power	水 Water	t/t	2.5	3.5
	电 Electricity	kW·h/t	130	230
	蒸汽 Steam	t/t	0.55	1.10
副产品 By-Products	胚芽 Germ	t/t	0.121	0.102
	纤维 Fiber	t/t	0.145	0.145
	蛋白粉 Protein Powder	t/t	0.129	0.081
环保 Environmental Protection	玉米浆 Corn Slurry	t/t	无 None	0.131
	废气 Waste Gas	t/t	无 None	大量酸废气 Large Amounts of Acidic Waste Gas
	废水 Wastewater	t/t	无 None	1.2

COMPREHENSIVE COMPARISON

综合对比

项目 Item	玉米干法制糖 Corn Dry Method Glucose Production	玉米湿法制糖 Corn Wet Method Glucose Production
厂房占地面积 Factory Floor Area	与湿法相比减少40% Reduced by 40% compared to the wet method.	大 Large
工艺设备复杂性 Process Equipment Complexity	简单 Simple	复杂且多 Complex and numerous
生产时间 Production Time	生产周期短, 效率高 Short production cycle, high efficiency	生产周期长, 效率高 Long production cycle, high efficiency
总干物收率 Total Dry Matter Yield	99.90%	98.70%
葡萄糖浆 Glucose Syrup	DE值高于湿法, 即葡萄糖含量更高 The DE value is higher than that of the wet method, meaning higher glucose content.	--
副产品 By-Products	无玉米浆; <input checked="" type="checkbox"/> 蛋白粉的脂肪含量为6-8%为高油型产品; 没有经过浸泡的玉米胚芽, 价值更高; 胚芽、蛋白粉的产量比湿法高, 进一步提高了副产品的价值。 No corn slurry; the protein powder has a fat content of 6-8%, classified as a high-fat product. Corn germ that has not been soaked, with higher value. Additionally, the yield of germ and protein powder is higher than the wet method, further increasing the value of by-products.	有玉米浆 (使高价值的蛋白变成价值最低的产品) Contains corn slurry (which turns high-value protein powder into the least valuable product)
环保 Environmental Protection	无污水、无异味, 为绿色精益生产的典范 No wastewater, no odor, serving as a model of green and lean production.	大量污水和异味废气 Large amounts of wastewater and odorous exhaust gases
生产运营成本 Production Costs	每吨折干糖比湿法降低50% The dry method reduces the cost per ton of dried glucose by 50% compared to the wet method.	--

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THE TECHNOLOGY OF CORN DRY FRACTIONATION AND GLUCOSE PRODUCTION

玉米干法分离制糖工艺技术

工艺革新 重塑制糖

PROCESS INNOVATION

RESHAPING GLUCOSE PRODUCTION

PAIN POINTS OF CORN WET METHOD GLUCOSE PRODUCTION PROCESS

玉米湿法制糖工艺痛点



THE TECHNOLOGY OF CORN DRY FRACTIONATION AND GLUCOSE PRODUCTION

玉米干法分离制糖技术

玉米干法分离制糖技术是一种创新性的制糖方法, 是玉米深加工行业新生产力的代表。利用干法分离工艺将玉米脱脂转化为符合制糖标准的脱脂玉米粉, 进而采用创新先进的液化技术和糖化技术, 制得高质量的葡萄糖浆。该技术可以显著降低企业生产成本, 提高糖液的质量和副产品的价值, 是一项具有革命性、创新性和可持续性的技术。

The Technology of Corn Dry Fractionation and Glucose Production is an innovative glucose production method and a representation of new quality productive forces in the corn deep processing industry. This technology uses a dry fractionation process to degrease corn and convert it into degreased corn flour that meets the standards for glucose production. It then employs advanced liquefaction and saccharification techniques to produce high-quality glucose syrup. This technology significantly reduces production costs, improves the quality of glucose solutions, and enhances the value of by-products. It is a revolutionary, innovative, and sustainable technology.

工艺原理 | TECHNICAL PRINCIPLE



干法分离 Dry Fractionation

随着设备创新和光电自控水平的提高, 通过蒸汽润粮、机械破碎、筛分、风选、压胚、重力分离、色选等先进工艺过程, 高效分离出脱脂玉米粉(胚乳)、胚芽、玉米皮, 分离效果优于湿法。

With advancements in equipment innovation and the enhancement of photoelectric automation, a series of advanced processes, including grain steam moistening, mechanical crushing, screening, air classification, germ pressing, gravity separation, and color sorting, are employed to efficiently separate degreased corn flour (endosperm), germ, and corn bran. The separation efficiency of this method exceeds that of the wet method.

液化糖化 Liquefaction and Saccharification

创新先进的液化技术和糖化技术, 使脱脂玉米粉(即胚乳)液化、糖化, 高效分离出玉米蛋白粉, 制得高质量的葡萄糖浆。

Through the application of innovative liquefaction and saccharification technologies, degreased corn flour (endosperm) is liquefied and saccharified, allowing for the efficient fractionation of corn protein powder and the production of high-quality glucose syrup.