



AUTO STARCH KITCHEN SYSTEM

Highly Dispersed Starch Adhesive for Corrugator Application

Corrugating Adhesives

Our Services & Technology

About Us

CHC (Chuen Huah Chemical Co., Ltd.) has been established in Taiwan since 1987. Over the past 32 years, we always commit in advanced chemical development and manufacturing.

CHC currently has four production sites and serves customers more than 30 countries. We target to create technological solutions that lead to process improvement and efficient production for our clients.

Corrugated Industry

CHC has provided effective bonding solutions and coating materials to corrugated industry for over 30 years. We not only offer reliable starch formulation knowledge and performance aids, but also comprehensive advices on the entire corrugating process to customers. In recent 12 years, CHC successfully develops the most advanced starch mixing systems and has more than 500 installations globally. CHC is a company always committed to creating innovative and sustainable solutions to meet highly diverse needs from corrugated industry.





Auto Starch Mixing System

CHC engineer team successfully integrates an ultra shear mixer, together with VFD control and inline viscometer, to build a fully automatic starch kitchen system. This advanced technology not only offers the access to multi mixing processes, including Hybrid, Stein Hall, and No Carrier, but also very flexible and reliable formulation capability. The operators are able to formulate the optimal ratios of gelled starch and partially swollen starch granules, at highly stable viscosity, consistent gel temperature, and excellent penetration ability to meet the most demanding bonding requirements.



Low Gel Temp



Remote Computer



Speed Adjustment



Inline Viscometer



High Shear



Recycle Wash Water

Ultra Powerful Dispersion

CHC introduces a new technology to process starch adhesive of a higher level of uniformity.

When dry starch is continuously added into viscous fluid, starch powder has a tendency to form agglomerates. The starch agglomeration is negative to adhesive viscosity stability and bonding performance in corrugator applications. In order to overcome this unfavorable phenomenon, CHC successfully integrates an ultra high speed motor with the VFD control system and special tank geometry to reach very powerful mechanical shear effect. The high shear action of CHC main mixer rapidly disperses starch agglomerates, progressively reduces particle size and exposes the maximum surface area of starch granules to the surrounding water medium. The resultant starch adhesive performs excellent penetration ability, viscosity stability and bonding strength with paper fibers.

CHC main mixer motor rotation speed is controlled by an inverter system. According to different mixing technology, formulation settings, and processing stages, the agitation speed and mixing efficiency is able adjusted and optimized.

A homogenous and uniform starch adhesive is prepared in very short batch time.

- » Recycled Wash Water for Starch Mixing
- » Flexible Starch Solids & Low Gel Points
- » Bonding Quality Improvement
- » Ultra Short Batch Time
- » Dry Starch Usage Reduction



Premium Component Selection

In order to make sure CHC starch kitchen system stability and service life, we only use premium electric and pneumatic components to build our control panel for Hybrid-Mix. CHC control systems are compliant with UL and CE certifications.

In addition, the main mixer module, structural frame, dry powder addition system, and control panel are built of stainless steel material (SUS304) to reach the highest quality standard.

Viscosity Control System

By utilizing CHC VDC system, the real starch viscosity is continuously detected, displayed, and feedback to the programmable controller. Hybrid-Mix is able to automatically adjust 2nd caustic dosage and process borate input at correct preset viscosity to ensure batch viscosity stability and consistence.

In addition, when starch kitchen is running Stein Hall process, VDC system is able to measure and adjust final batch viscosity before transferring to storage tanks.



Multi Mixing Process Selection

CHC starch kitchen system is able to run multiple mixing technology, including Stein Hall, No Carrier, and Hybrid process.

According to raw material condition and corrugator requirement, it is flexible for operator to select the most suitable mixing process, develop starch formula, and adjust correct shear rate to obtain versatile starch adhesives.

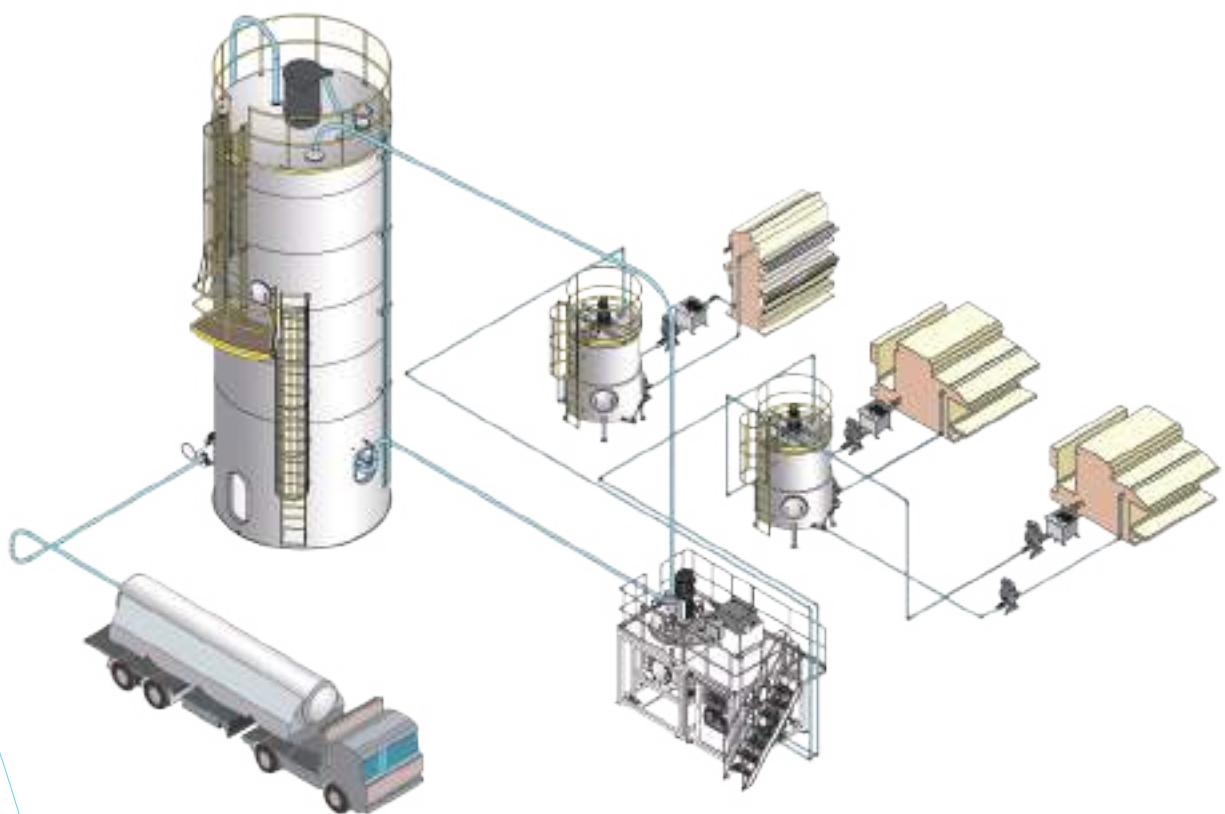


Auto Starch Glue Transfer System

Auto Starch Glue Transfer System

The starch glue storage tanks are located near corrugator to shorten circulation line and minimize mechanical force effect, which is able to shear down starch viscosity. CHC starch kitchen directly delivers starch glue to the storage tanks, which are usually designed with temperature control system.

With this system setup, fresh and stable starch glue are processed for the circulation between tanks and corrugator units. In addition, the energy consumption from continuous pumping is well managed.



Air Conveying System

The exterior bulk starch silos of typical volume between 80m³ and 100m³, air conveying systems, and receiver hoppers are designed and fabricated by CHC for corrugated plants. This system enables highly efficient dry starch transfer from trucks to the starch silo.

The air blower unit can transfer dry starch to the interior receiver hopper on demand for the starch kitchen usages. Unfavorable starch dusts and heavy manpower requirements from the operations of bag packing starch are completely eliminated.

Corrugating Starch Chemicals

Starch Crosslinking Agents

As performance aids, CHC starch crosslinking agents are able to modify native starches with anti-hydrolysis property and shear force resistance. The treated starch adhesives show excellent viscosity stability and bonding performance for high speed corrugator applications. The corrugated boards are improved with better bonding strength and good moisture resistance.



Starch Waterproofing Agents

Starch waterproofing resins are particularly used to provide starch bonding sections with superior wet strength. The starch adhesives with CHC resins show very stable and consistent viscosity for corrugator operations. The productions are benefited with higher runnability and better bonding strength. The corrugated boards show excellent strength and water resistance against degradation.



Water Repellent Agent

Water repellent agent is typically applied for the surface coating by roll coaters to a wide range linear papers. After heat curing process, the treated paper surface performs excellent water repellency and water resistance. This product is widely applied to the boards for agriculture and refrigeration purposes.



| Model | HYBRID-A2T | HYBRID-A1T | EM-Mix |
|--|---|---|---|
| Main mixing module | Capacity : 2,000 Liter / Mixer motor : 40HP | Capacity : 1,200 Liter / Mixer motor : 30HP | Capacity : 1,200 Liter / Mixer motor : 30HP |
| Max. RPM @ 60Hz | 1,800 rpm / VFD | 1,800 rpm / VFD | 1,800 rpm |
| Mixing technology | Hybrid / Stein Hall / No Carrier | Hybrid / Stein Hall / No Carrier | Stein Hall |
| Control panel | PLC / HMI / Weighing indicators / Flow meter | PLC / HMI / Weighing indicators / Flow meter | PLC / HMI / Weighing indicators |
| Pneumatic system | Solenoid valves / Air operated valves / diaphragm pumps | Solenoid valves / Air operated valves / diaphragm pumps | Solenoid valves / Air operated valves / diaphragm pumps |
| Viscosity detect & control system | CHC VDC System | CHC VDC System | Optional |
| Starch homogenizer system | Optional | Optional | Optional |
| Main pump | Two | Two | One |
| Liquid caustic dosing | Flow meter measurement | Flow meter measurement | Weighing measurement |
| Liquid resin dosing | Two nonmetallic diaphragm pumps | Two nonmetallic diaphragm pumps | One nonmetallic diaphragm pump |
| Dry addition unit | Two | Two | One |
| Dry starch storage & conveyor system | Customized design | Customized design | Customized design |
| Starch adhesives transfer system | Automatic | Automatic | Automatic |
| Remote Computer | Optional | Optional | Optional |
| Auto starch adhesives circulation system | Customized options | Customized options | Customized options |
| TVC System | Customized options | Customized options | Customized options |



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