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INSPECTION REPORT

SECOND-HAND STACKABLE POTATO CHIP SYSTEM (Planters)

On 7 April, 2006, Steve Twitty and Rob Price of Food Systems Design - Asia traveled to Cairo, Egypt in order to inspect the condition and operation of a second-hand stackable potato chip processing and packaging system. The equipment is currently owned by Pepsico and was decommissioned in 2004. The equipment is in storage at a warehouse in Elesslan, a small town seventy (70) kilometers northeast of Cairo

The inspection commenced on the morning of 8 April. The equipment had been prearranged in a general layout, processing through packaging, and all equipment had easy and full access. Pepsico had previously hooked-up all major components to electricity and compressed air was available. Pepsico also provided an electrical engineer and maintenance engineer as support to the FSD-Asia team.

Starting at the raw material handling equipment and moving in the direction of product flow, each component was checked for overall integrity inclusion of all parts and when appropriate, was switched on to verify motor function and overall unit operation.

On 9 April, 2006, the team returned to the factory for a follow-up inspection, review of spare parts and to document equipment dimensions. No drawings of the system or equipment are available at this time.

The accompanying outline of the inspection offers more detailed analysis of the inspection results. The following is a supplement of this outline:

Raw material handling - The system features a stainless steel, potato flake dump hopper with a Flex-feeder attachment for conveying the dumped flakes to the ribbon blender. This hopper and the internal component of the Flex-feeder were not on-site but will be included with the equipment.

Process water system - This system was complete and all pumps were tested and passed inspection. Components such as solenoid valves were not checked. All piping was included. One of the process water tanks has a nine (9) inch diameter dent in the outer layer of its hot oil jacket but this should not affect its overall operation. The two motors for the Lightning mixers were tested and approved. The process water delivery pump was tested dry and approved. This unit's overall function will need to be verified under load.

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Ingredient mixer - This unit was in good condition and included all components; Star-valve for potato flake metering, process water injection nozzle, recycle dough cyclone, dough partition plate, dough discharge gate and discharge gate drive motor. It was found that the partition plate would no longer fit into its bracket indicating the mixer housing has been bent slightly inward about 2 millimeters. This "bending" does not affect the mixer's operation in any way though it is recommended that either the plate is reduced in width by 2 millimeters or the top the mixer is opened (bent) outward the same amount. All other components and operation of the mixer were found to be normal.

Sheeter / Cutter - The frame and housing of this system is in good condition. All drive motors and overall function of the sheeter / cutter system were operated and passed inspection. It was noted that the front and back sheeter rollers have several "shallow" dents (depressions) in them and the front sheeter roller is scratched. It is recommended that both rollers be removed and milled to smooth surfaces prior to start-up. This same problem was noted during the original installation and start-up at Chipsy Foods but was never eliminated. All belts on the sheeter / cutter system will need replacing.

Recycle dough system - All components in this system; incline take-off conveyor, cross conveyor, chopper blower, Urschel grinder and main blower are all in good working order. All pneumatic piping is available but was not assembled.

Fryer - The Fryer has been well-maintained and is clean and ready to start. This unit was skidded with I-beams and angle iron in order to move it from the factory to its current location. Though this skidding appears strong, it is recommended that additional cross-beams and base support be added for greater strength and less flexibility for the trip to Canada. Note that the overall fryer length is forty-five (45) and will require an appropriate shipping container. When shipped from the US to Singapore, this unit was placed on an open container with a heavy, water-proof shroud.

The fryer main drive motor was started and the flyer's top and bottom mould chain systems were operated from a slow speed to an operational speed of twenty-six (26) meters per minute. All motors and pumps were started and all oil piping and CIP piping were inspected and approved. The Bernoulli system for chip-chain removal was tested with air and approved. This unit is in good condition. As for flyer moulds, there were about twenty (20) bent moulds on the top conveyor and about thirty (30) bent moulds on the bottom conveyor. These moulds will need to be replaced. About one thousand (1,000) new moulds for both top and bottom chains are listed in the spare parts section.

Take-out conveyor - This conveyor was run at speeds up to the standard operational settings of twenty-six (26) meters per minute. No problems were seen.

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Seasoner - This unit operated well at varying speeds. It was noted that the rubber drive roller for the seasoning dispensing conveyor is in need of replacement though this unit can be operated with the roller that is currently in place.

Chip breaker - The chip breaker was tested and approved. It's roller system was tested with air and functioned as normal. The bearings of this unit will require further inspection due to the normal seasoning salt build-up in this area.

The chip breaker also features single-lane discharge conveyors that were originally lane reject conveyors. At some point the conveyor frames were welded together and now form a fixed conveyor system. It is suggested that a lane reject point be added at the discharge end of this conveyor system.

Cooling conveyor - The cooling conveyor is a ten (10) foot long belt conveyor. At Chipsy Foods, fans were used to blow onto the chips prior to single-stacking on the packing conveyers. Due to problems with imploding canisters and packers having to handle hot chips, it is recommended that this unit be upgraded to a plenum system for more efficient cooling. The belt on this conveyor needs replacing.

Packing conveyor system - This is a two conveyor system onto which the lanes of chips are shingle-stacked and then manually packed into canisters. The conveyors feature canister filling scoops on each side, four (4) on each side of packing conveyor #1 and three (3) on each side of packing conveyor #2. These conveyers were operated at various speeds. All conveyor belting in this system will need replacing.

Canister take-away conveyor system - The section mounted on the two manual packing conveyors is in good condition. All other section; a.) delivery to checkweigher b.) discharge from checkweigher and c.) nitrogen tunnel section to seamer will require some structural repairs or replacement.

Checkweigher - This is an Ishdia, model DACS-W. The unit is in good physical condition but it was not possible to zero the load-cell or test the unit's overall function. It is believed that the long-term memory battery has run down but Pepsico has agreed that an Ishdia technician will be commissioned to inspect and/or repair the unit at no charge to the buyer.

Nitrogen tunnel - This unit was fabricated from Lexan and was damaged beyond repair during transport from the factory to the storage site. This structure will need to be designed and replaced, including the nitrogen delivery piping.

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Canister seamer - This is a Canco 400, rebuilt 'as- new' by Varin Machinery in 2000 in Bangkok, Thailand. The unit is in good condition. Overall adjustment of the seaming chucks and rollers will be needed.

Additional machinery - Included on the equipment list is a Varin semi-automatic canister seamer (no nitrogen flushing capabilities) and a Metal Box semi-automatic canister seamer (with nitrogen flushing capabilities). Both units were operated and approved though adjustment of the chucks and rollers will be needed.

Also included is a nine (9) inch wide, two-roll sheeter and rotary cutter. This unit can be used for further development of alternative formulas for the fryer or it can be used as a prototype system for baked stackable potato chips.

Summary - Ever though this equipment is a bit dated, fabrication for Planters Snacks was in 1978, its still in good condition and with continued care and preventative maintenance, will provide many more years of service. As noted, there are some parts that need repairs or replacing but there is nothing major that will keep the system from operation.

Note: It was not possible to test the two air-conditioning units used for cooling the sheeting rollers or the hot water heater used for the process water system. It is recommended that these components be installed as new equipment.

Packeging list

| Item | Equipment | Groupe |
|------|--|--------|
| 1 | Bernules (NO. 05BN01) | Freyer |
| 2 | Bad Product Conveyor (NO . 05BP 01) | |
| 3 | Mould Cleaner (No. 05MD01) | |
| 4 | Fryer (NO. 05 FH 01) | |
| 5 | Fryer Hode Hoist (NO. 05 FH 01) | |

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