

Potato chip making process

Potatoes are received daily from the farmers' fields or storage tanks. During each spring, the majority of the potatoes come from the Florida area. From Florida, we use the potatoes in North Carolina, Alabama, Virginia, Wisconsin, and Ohio. Around September 1st, we move into Michigan, North Dakota, and Minnesota. Field potatoes are used from May 1st through October. From November through April, we use storage potatoes.

Potatoes that are freshly dug from the ground are placed into metal wagons in the fields and are transported to an area for grading.

During the grading process, potatoes are inspected for rot, green heads, double growth, or all other types of defects or disease. After the potatoes are graded and inspected, they are loaded loose into a trailer for delivery to the manufacturer.

Potatoes are unloaded at the plant by a truck that backs onto a lift which elevates the truck (cab and trailer) into the air at an angle that allows the potatoes to roll off into a metal base conveyor. The potatoes then proceed to a cleaned conveyor belt where they are fed into storage tanks which hold approximately 50,000 lbs. of potatoes.

In the initial processing phase, the potatoes flow from storage tanks into a large hopper that slowly feeds them into a destoner. This piece of equipment is full of water and has a spiral lift auger that takes the potatoes into the peeler. The destoner will remove all stones, wood, or any other foreign matter that may have been dug when harvesting the potatoes.

The peeler consists of 23 abrasive rollers that revolve at a given speed to insure that the potato is peeled properly. Upon completion of removing the skins, the potatoes are processed on an inspection line where employees inspect them again. Potatoes that do not pass inspection are removed prior to processing.

Upon completion of inspection, the potatoes proceed on the conveyor belt to a lift where they are dropped into a holding hopper that feeds the two slicers. The potatoes are lifted from the holding hopper to the slicer by metal buckets or rubber cleats .

The potatoes are then sliced very thinly after they fall into a revolving slicer that has 8 cutting blades that are set by a gauge. The potato slices then proceed into a rotating mesh drum that is constantly running in water. As the potato slices tumble in the drum, they are washed and most of the starch removed from them.

From the drum, the potato slices proceed up a mesh conveyor where they are washed and dried upon entering the frying kettle.

The frying kettle is filled with cottonseed oil which is heated to a temperature of between 330 to 350 degrees. The slices fry for approximately 4 minutes. There are paddle wheels that move the slices forward to the front of the machine. As the potato slices leave the paddle wheel area, they are submerged into the cooking oil by a mesh conveyor which is approximately 6 feet long. This conveyor finishes cooking the slices. The operator of the cooker inspects the chips to insure they are completely cooked and also to insure the temperature of the machine is proper at all times. This plant operates four fryers. One which produces approximately 3,400 lbs. per hour, one at 3,000 lbs. per hour and two cookers at 2,000 lbs. per hour.

As the chips proceed past the fryer's inspection point, they fall onto a small mesh stainless steel conveyor and then pass under the salter. As the salt is dispensed, it falls onto a spinner type bracket that spreads the salt evenly on the chips.

After the chips are salted, they fall onto a vibrating conveyor where normally two employees inspect the product. Chips that do not meet the required standards are removed from the line and disposed of into plastic containers. This inspection line is always manned with two employees per machine and sometimes more depending on the condition of the product.

From the inspection conveyor, the chips are dropped into a bucket lift which elevates the chips onto the overhead vibrating conveyors that process the finished product into the automatic packaging machines. There are two bucket lifts that take the chips up to the overhead conveyor so that we can run different products at the same time. As the chips vibrate down the conveyor to the packaging machine, a trap door opens up when the packaging machine needs chips and then closes when the machine is satisfied. The chips fall into a receiving hopper that feeds the product into numbers scales that are on top of the machine. The chips are then weighed and deposited into a former which releases the chips into the bag. The bag is then processed on an inclined cleated belt conveyor to the package stand where they are packed into boxes by employees or automatic packers. Packers inspect baggage for proper weight and sealing of the bag. Bags are packed in corrugated boxes and are placed on conveyors to the warehouse. The warehouse personnel stacks the cartons and



issues them to the driver salesman for redistribution to selling outlets. All cases that go into the warehouse are rotated on a daily basis so that first in and first out concept is established.

Since a potato is approximately 80% water, one will get approximately 20 lbs. of chips for every 100 lbs. of potatoes processed. That is the magic of potato chips.

A special glass enclosed observation gallery looks down on our production process from beginning to end. You will be guided step-by-step with the aid of a push-to-talk audio program and closed circuit TV monitors.



< *Observation Gallery*

Utz is the ONLY major manufacturer in the U.S. to store its ENTIRE winter supply of potatoes. Special temperature and humidity controlled potato cellars allow Utz to create this unique storage facility.

Utz selects only the finest chipping potato varieties that yield the best size, shape, and light golden color. Potatoes are separated by size, washed, and peeled... then inspected and trimmed to remove defects. A precision slicing machine cuts the potatoes to a uniform .055 inch thick. Slices are then tumbled in fresh water to remove starch, thus improving color and texture.



< *Potato Storage Cellar*

Rinsed slices are immersed in a bath of 340 degree cooking oil for about 2 minutes. About 4 pounds of raw potatoes yield one pound of potato chips. Chips are gently conveyed to high-tech packaging equipment where they are automatically weighed, filled, and tightly sealed to guarantee freshness.

The Making of a Michigan Chip (Potato Chip, that is!)

Like many monster stories, this one starts quietly and then gets bigger and bigger. The story starts with a simple potato. A Michigan potato. Michigan producers grew nearly 100 million dollars worth of potatoes. We're not the BIGGEST potato producer in the United States—we're tenth. Yet Michigan grows a special kind of potatoes—Snowden, Pike, Atlantic and Frito-Lay varieties most commonly used for chips. Three quarters of Michigan's potato crop is used for potato chips. And potato chips are America's most popular snack food.



So here comes one more monster fact: Michigan is the largest producer in the United States of potatoes used for potato chips. Envision millions and millions of potatoes growing in Michigan fields. It takes monster equipment and monster production techniques to make the millions and zillions of chips for Super Bowl celebration and for all year round. Potato chips are an American invention, and Michigan has a special role in helping that invention take top honors as America's most beloved snack.



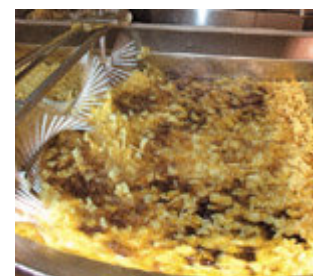
This monster of the snack food industry has to go through many steps before it takes on its form as a potato chip. First the potatoes are dumped into a bath and washed. Then they are lifted to the peeler. The peeler is not the modest little metal potato peeler you use in your kitchen. The peeler is a long cylinder with rollers that revolve around and around stripping the potato of its skin. The peeled potatoes then empty unto an inspection table where inspectors look for defects in the potatoes to remove.



Then the potatoes move to a slicer that looks like something out of a scary monster movie. The slicer features eight sharp blades held upright in a ring. In the center of this ring is a revolving plate. One by one the potatoes drop upon this revolving plates. Over and over the spinning plates throw the potatoes against the revolving blades to remove slices from the potatoes. Generally these slices are 1/20 of an inch.



These newly made slices are carried to the fryer while being washed and dried. Hot oil and slices are put in the back of the fryer together. (The fryer is a long shallow trough.) While cooking the chips, the hot oil pushes them from the back of the trough to the front where they are carried off by conveyor belt.



A conveyor lifts the chip out of the oil. Then workers salt, season and inspect them. A conveyor belt carries them to machines where they are packaged. Those packages arrive at your grocery or convenience stores. Americans snack on potato chips all year round. Yet more of these monstrously popular snack are consumed on Super Bowl Sunday than any other day.

