

Potato Chip Problems: Using Basic Quality Tools to Solve Food Quality Issues

by

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“Denny, I can’t take this shipment,” sighed Lisa, blowing her bangs off her forehead. It was too hot to stand outside arguing, but as general manager, the ultimate responsibility for getting problems solved was hers. And the guys in receiving had told her the potato chip problem was back...again. “Look at all of these open bags! It’s not like I can glue them shut and sell them to people. I’d get shut down for sure.”

Denny narrowed his eyes. “Hey, you keep ordering these fancy chips from California. They were just fine when I left. I even had the guys at the plant open a box for me. No problems.”

“People *like* these chips. That’s why I order them and I go through a few dozen boxes a week,” returned Lisa, not in the least disturbed that Denny, a good foot taller and at least a hundred pounds heavier than her, was getting fairly angry. “It’s your job to get them to me the way they were when they left the plant. And unless you had them open the one good box in this shipment, either something happened to them on the way here or I need to start looking for another delivery company.”

“Yeah, right,” Denny snorted. “Like there’s another delivery company that’d deliver here to the Middle of Nowhere, Kansas for what you pay us. Do you know what going over all those mountains does to my gas mileage? I barely make anything getting your stuff to you.”

“Oh waaah.” Lisa rolled her eyes. “You always complain about how expensive gas is. Doesn’t change the fact that I’m looking at a bunch of chips that I won’t take because the bags are open.”

“Look, I told you, I don’t know how—“

“And they’re all stale too!”

“Hey, I don’t make them, I just move them—what do you mean they’re stale? What, did you figure you get a bunch of free chips because the bags’re open and start eating them?” Denny scowled.

“*No!* My customers have been complaining about the chips being stale for a while, okay? Even the ones in the bags that are closed.” Lisa blew her bangs off of her forehead again. “I wouldn’t eat those; they’ve been open for I don’t even know how long.”

“So why’s this the delivery guy’s problem?” Denny continued to scowl. “It’s always the delivery guy’s problem. Everything else I brought in’s fine, everything except for your fancy chips. Call up Solar Snacks if you wanna complain, but don’t blame me.”

Lisa put her hands on her hips. “You’re right, sorry. It’s crazy hot and I’m just tired of getting bad chips all the time. Everything else in this shipment looks good. Let’s head to my office and get a soda. I’ll get the paperwork for the shipment going and call Solar Snacks. They should know about this problem, anyway.”

In her office, Lisa called the company. Denny leaned against the wall outside the office and listened in on the call. After getting passed through several people, Lisa was finally able to talk to someone who would at least listen to the problem.

“Hi, I’m having problems with the bags of chips I’m getting from your company... Well, they’ve been coming in stale for at least a month... No, I don’t have the lot numbers right here, but I can probably get them out of my records... Yeah, I can get them to you. I’m also having another problem. I’ve never had this problem with any of my other products, but the bags of chips from your company keep coming to me opened...No, they’re not cut open. It looks like they’ve been ripped open... Well, the delivery guy said he checked the bags when he picked them up and they looked fine...Yeah, I have no idea what’s going on. It’s not every single bag, but it’s a lot of them and I can’t accept shipments that have that many open bags...I’d say at least half of the bags are open when I get them...Okay, I can get the lot numbers for those. I think a lot of them are the same as the ones for stale chips. Where should I send that info? Okay, I’ll make sure they get it...No, that’s everything. I hope we can figure out what’s going on. I’m really disappointed that this is happening. My customers aren’t happy...Okay, that’d be great...Thanks, you too. Bye.”

Lisa poked her head out the door. “They said they’d look into the problem, so that’s good. They want you to bring back the open bags.”

“Hope they pay for them” said Denny, straightening up. “I’ll bring ’em back. You got that paperwork done?”

“Just about, I did it while on hold,” said Lisa, scribbling her signature on the forms. “Here you go! Hope the next shipment comes in okay.”

“It better, seeing as how I have to haul all these chips back,” grumbled Denny, taking the paperwork. “Thanks, I’m off to my next stop now.”

“Okay, and sorry for being a grouch,” said Lisa. “I’ll get one of the stock guys to help you load the chips.”



Your group is the quality management team for Solar Snacks, the company that makes the chips that Lisa has been purchasing. The customer service department has forwarded Lisa’s complaints on to you. As this is the fourth complaint of this type that you have gotten in a month, your team wants to track down the source of this problem. One of the process engineers has provided your group with a block diagram of the manufacturing process of the potato chips (Figure 1, next page). Your team has also confirmed that none of the complaints are from local California retailers; they are all from retailers in the Midwest. Now you need to figure out where the problems of the open bags and stale chips could be occurring.

Questions

1. What are the inputs to the potato chip process? What are the outputs? Are there any subprocesses? If so, what are they?
2. Using the block diagram of the process and QI Macros, make a fishbone diagram of potential quality failures that could be causing the bags to break open by the time they reach the store.
3. Using the block diagram of the process and QI Macros, make a fishbone diagram of potential quality failures that could be causing the potato chips to become stale by the time they reach the store.
4. What do you think is the most likely cause of the open bags? Explain your answer.
5. What do you think is the most likely cause of the stale potato chips? Explain your answer.
6. How might the two quality issues be related? Explain your answer.
7. What additional information might help you identify the cause(s) of the problems? How would you obtain that information?

8. Assuming the two quality issues are related and your suggested cause of the problems is accurate, provide at least two strategies to prevent the quality issues.
9. What basic quality tools could you use to compare the number of open bags and bags with stale chips before and after implementing your suggestions in Question 8?

Resources

Frito-Lay. [Website]. How we make Lay's® classic potato chips.

<<http://www.fritolay.com/nutrition/how-we-make-our-snacks/lays-potato-chips.htm>>

How Products Are Made. [Website]. Potato chip.

<<http://www.madehow.com/Volume-3/Potato-Chip.html>>

How It's Made—055 Potato Chips. [Video]. Season 2 episode 1. Running time: 4:44 min.

<<https://youtu.be/L09bMsShfY4>>

Business Email Summary Assignment

As a member of the QA team, write a business e-mail to the head of the quality assurance department explaining the potato chip problem. Include in your email:

- A brief explanation of what problem is occurring.
- The most probable cause of the potato chip bags being open after shipping.
- The most probable cause of the potato chips being stale upon arrival at commercial retailers.
- How these problems may or may not be related.
- Your strategies for preventing these problems in the future.

Keep your e-mail to half a page (350–400 words, single-spaced, 12 pt font, 1-inch margins) and be sure your response is clearly written and professional.

Supplementary Questions

1. What safety issues are associated with the bags of potato chips in this scenario?
2. How might the response of the manufacturer to the problem change if Lisa was a primary customer? If she was a minor customer?
3. How are the ultimate locations of lots and bags monitored? How should this information be stored and used?
4. The quality assurance team at Solar Snacks is working on resolving this issue. Brainstorm a list of information they might need and what tests they might perform to properly address the issue.
5. If your instructor has provided you with additional data about the potato chip process, select the appropriate quality tool(s) to analyze the data. What conclusions can you draw from these data?

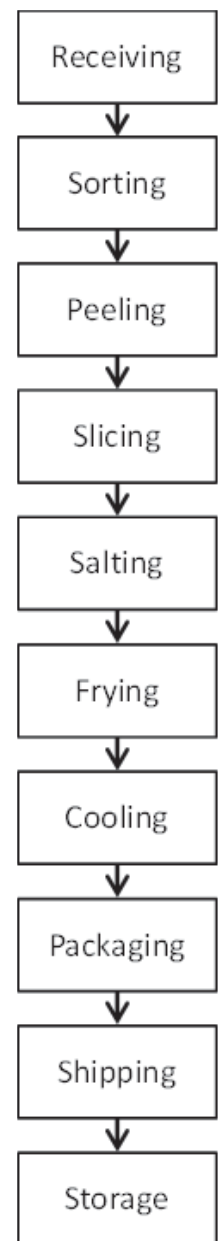


Figure 1. Potato chip manufacturing process.