



# FOOD: EXTRUDER SAFETY



## INTRODUCTION

To help create various products, many food manufacturers will use an extruder to create the desired shape and size of a product. There are many types of extruding equipment available, and some manufacturers may use multiple extruders in their process. While the equipment's design may be simple, improper operation or care could expose employees to injury. In this lesson, we will cover the hazards, personal protective equipment, and safe work practices associated with these machines.

## HAZARDS

When operating or working around an extruder, you could potentially be exposed to one or more of the following hazards:

- Pinch points. Areas where long hair, jewelry, loose clothing, and extremities can get caught.
- Burns from components that may be heated during the extrusion process to cook or partly cook the raw material
- Cuts or lacerations from rotating blades that may be located either at the exit point of the die or in the hopper to feed material into the housing of the extruder
- Repetitive motion injuries from handloading raw material into the hopper



## PERSONAL PROTECTIVE EQUIPMENT

One way to reduce the chances of an accident occurring is to wear the appropriate personal protective equipment (PPE). PPE may include:

- Closed-toed shoes
- Safety glasses or goggles
- Food-safe gloves
- Close-fitting clothing
- Hairnet

Inspect all provided PPE for damage and report damaged items to your supervisor. Do NOT wear damaged PPE.

Additionally, you should tie back long hair and remove all jewelry at this time.



## SAFE WORK PRACTICES

Before you begin to extrude the food product, you should:

- Inspect the machine for damaged parts and report them to your supervisor. Do NOT operate a machine with damaged pieces.
- Additionally, look for missing guards. If guards were removed for maintenance purposes, make sure they have been replaced and secured before starting the machine. If you cannot locate the missing guards, report them to your supervisor. Do NOT operate a machine with missing or modified guards.
- Verify that all manufacturer-provided warning labels are in place and are legible. Labels that have been damaged or are too hard to read should be reported to your supervisor. Replace labels as needed.
- Assure that any dies you will be using are in place and secured according to the manufacturer's instructions. If you must replace dies during the operation process, turn off the machine and wait for everything to come to a complete stop before replacing the die. Replacing the die while the machine is operating could result in spilled contents or injury.
- Clean up any spills. Spilled food or other contents could cause someone to slip and fall, which could result in injury.
- Clear walkways of any items that could pose a slipping, tripping, or falling hazard. If possible, move items such as cords or other moveable obstacles out of the walkway.
- Check any cutting blades for dullness. Dull blades should either be sharpened or replaced per the manufacturer's instructions.
- Know how to use all emergency shutdown devices that the machine may come with. If you have any questions about specific shutdown devices or procedures, please speak with your supervisor.

When you are ready to begin the extruding process, you should do the following:

- Practice proper ergonomics when lifting bags of ingredients into the hopper. If a load is too heavy for you to lift alone, ask for assistance from another employee or use a mechanical assistant to dump the ingredients into the hopper.
- Operate the machine according to the manufacturer-provided operator's manual or other provided instructions. If you have questions about how to operate your specific machine, please speak with your supervisor.
- Keep hands and other extremities away from moving parts of the machine. Putting hands and other extremities near moving parts could result in the extremity getting caught, resulting in injury.
- Additionally, keep hands and other body parts away from heated components. Contact with heated surfaces could result in burns.
- If the machine jams or otherwise malfunctions, turn it off and alert your supervisor.

## Maintenance

Only trained and authorized employees should perform maintenance tasks on extruders. When performing maintenance, you should:

- Perform all lockout/tagout procedures according to your company policies.
- Additionally, troubleshoot or replace damaged parts according to the manufacturer's instructions.
- Keep electrical cabinets closed when not performing troubleshooting or other maintenance tasks. Open doors could result in electric shock or electrocution if someone turns on the machine.
- Only use replacement parts that the manufacturer provides or recommends.



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## CONCLUSION

To conclude, many food manufacturers will use extruders to create products such as cereals, snacks, etc. Improper use or care of extruding machines by employees could result in injury. To help minimize injuries, you should wear the appropriate PPE for the machine and tasks. Additionally, all extruders should be operated according to the manufacturer's instructions.