

まんがでわかる



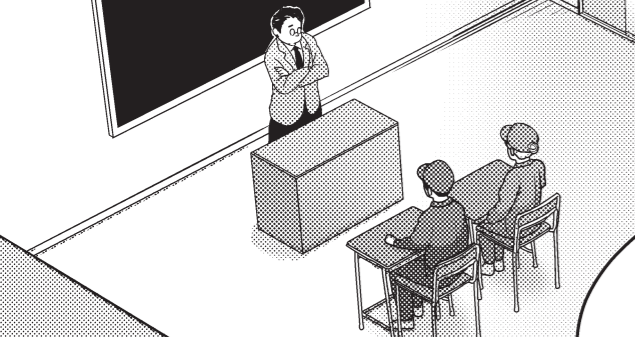
English
英語

鑄造の安全衛生

Learn through Manga
Health and Safety for Foundry Work



This audiovisual material has been created for the purpose of learning the basics of health and safety for those who do foundry work.



Today, we'll learn about health and safety for foundry work!

Because you'll be dealing with hot objects and heavy machinery, it's important to pay attention to safety.

Totally!

I wonder what kind of work they do.



I wonder what kind of things they should be careful of.

Let's find out about this field's industrial injury occurrences.

Okay!

Let's look at the main causes of industrial injuries.

Percentage of fatal accidents occurring in foundry work

1	People or body parts being caught in, under, or between machinery or tools	31 %
2	Contacts with hot objects	13 %
3	Being struck by moving/falling objects	11 %
4	Slip and fall accidents	10 %
5	Injuries from worker inattention/recklessness or improper body mechanics	9 %

Reference: "Industrial Injuries Occurrences per Industry and per Accidents" (2019) by the Ministry of Health, Labor, and Welfare
(Calculated from tallies of foundry industry and non-foundry industry)

* Powder dust is created in foundry work also, so there's a concern of damage from powder dust.

Not just preventing accidents, but also preventing inhalation of powder dust is necessary.

That's right.
Now, let's take a look at specific cases of industrial injuries.

There have been cases where people got their hand stuck in a conveyor belt and were gravely injured.

Some have reported fatal cases where people got caught in castings, molds, and machines, etc.

Why do these industrial injuries happen?

The main reason is not abiding by rules* designed to ensure the safety of the workers.

* The rules to ensure the safety of workers have been created from the past lessons of mistakes and accidents as well as laws and regulations.

What kind of rules are there?

When you work on inspection or repair, first, stop the machine. Confirm that the machine has stopped completely before starting your work.

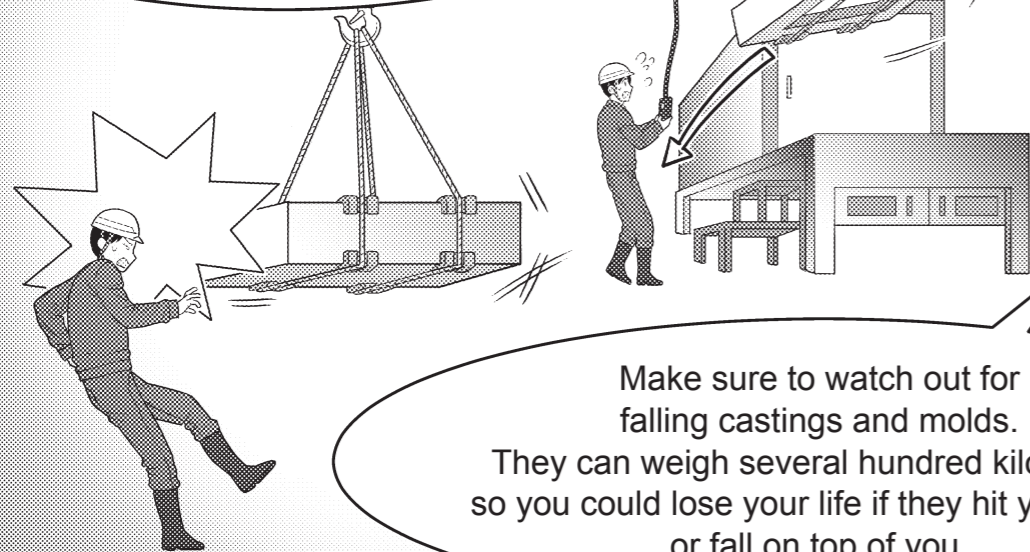
Oh, that's very basic.
I thought there would be more complex rules.

Hm?

It is essential to abide by the rules to prevent any industrial injuries from happening!

Y-yes, sir!

There are also many accidents with cranes. Suspended castings hitting people or people getting caught in between castings and walls, leading to serious accidents.

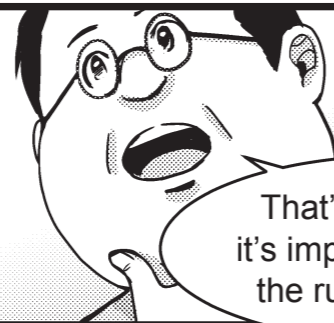


Make sure to watch out for falling castings and molds. They can weigh several hundred kilograms, so you could lose your life if they hit your head or fall on top of you.

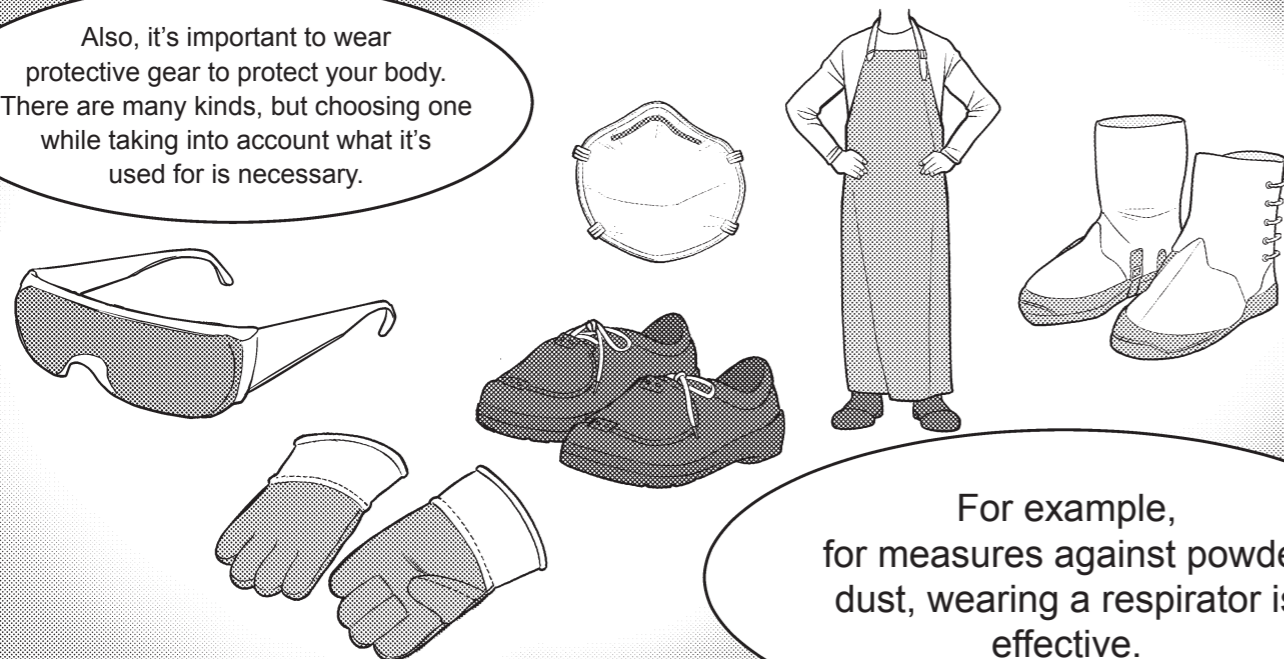
The work sounds so dangerous.



That's exactly why it's important to follow the rules with care.



Also, it's important to wear protective gear to protect your body. There are many kinds, but choosing one while taking into account what it's used for is necessary.



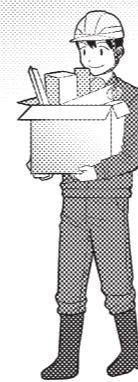
For example, for measures against powder dust, wearing a respirator is effective.

What should we watch out for on a regular basis?

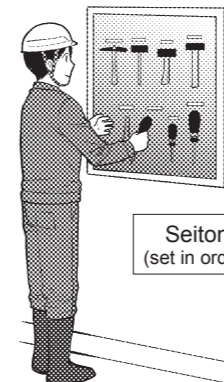


Do you know the 4S principle?

The 4S principle is Seiri (sorted), Seiton (set in order), Seiso (shiny), Seiketsu (spotless). This is the basic of safety.



Seiri (sorted)



Seiton (set in order)

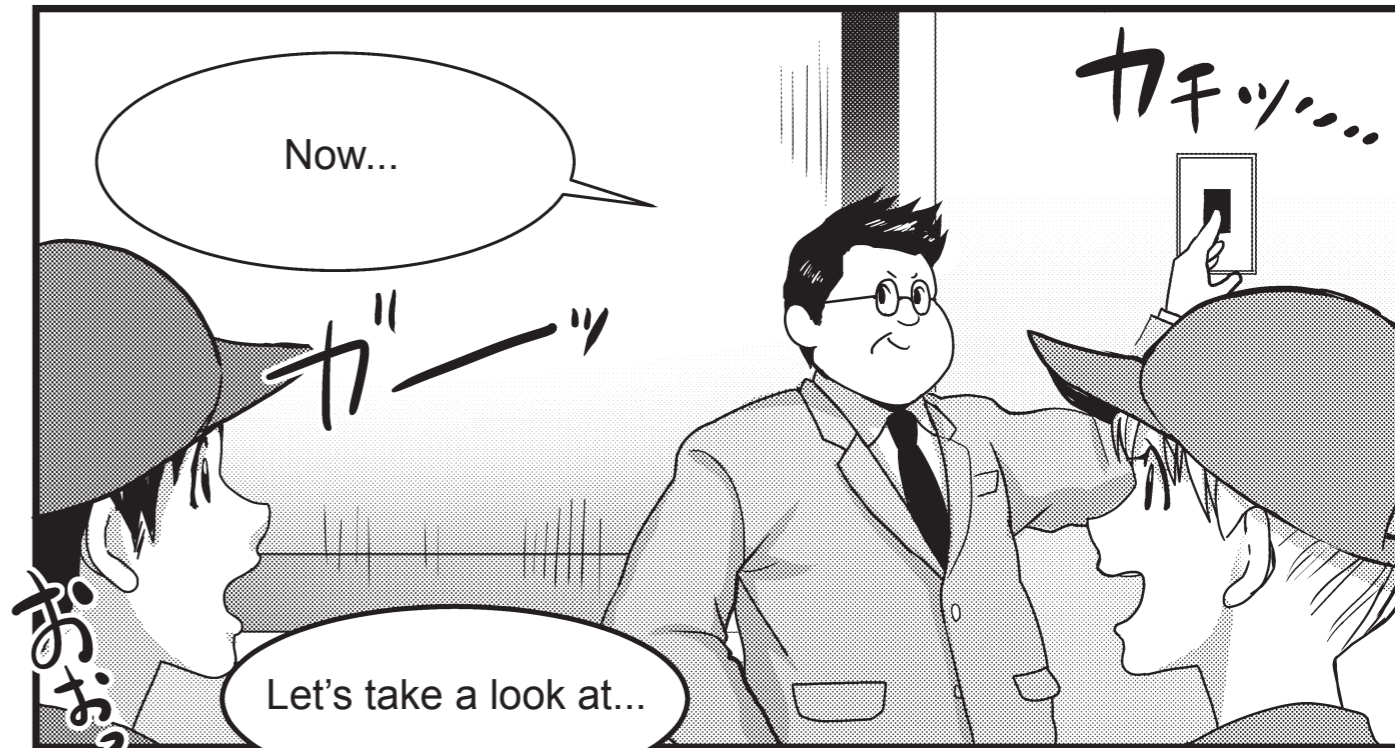


Seiso (shiny)



Seiketsu (spotless)

Now...

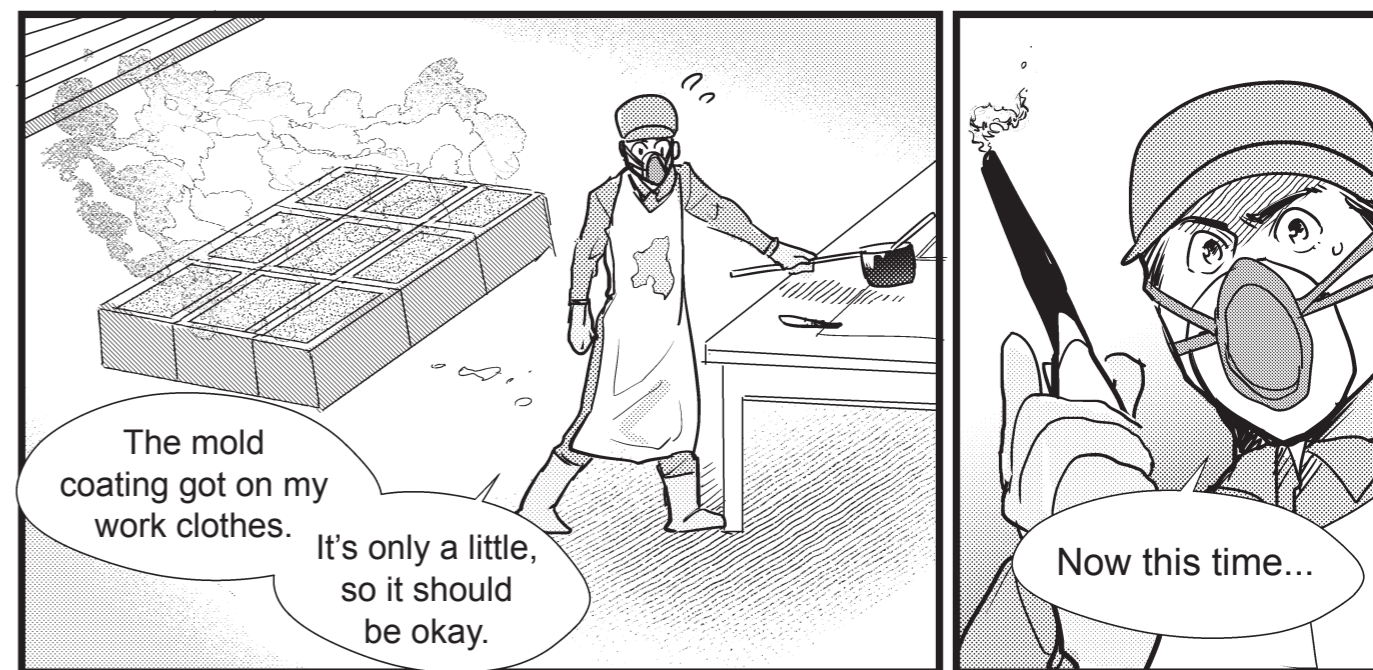
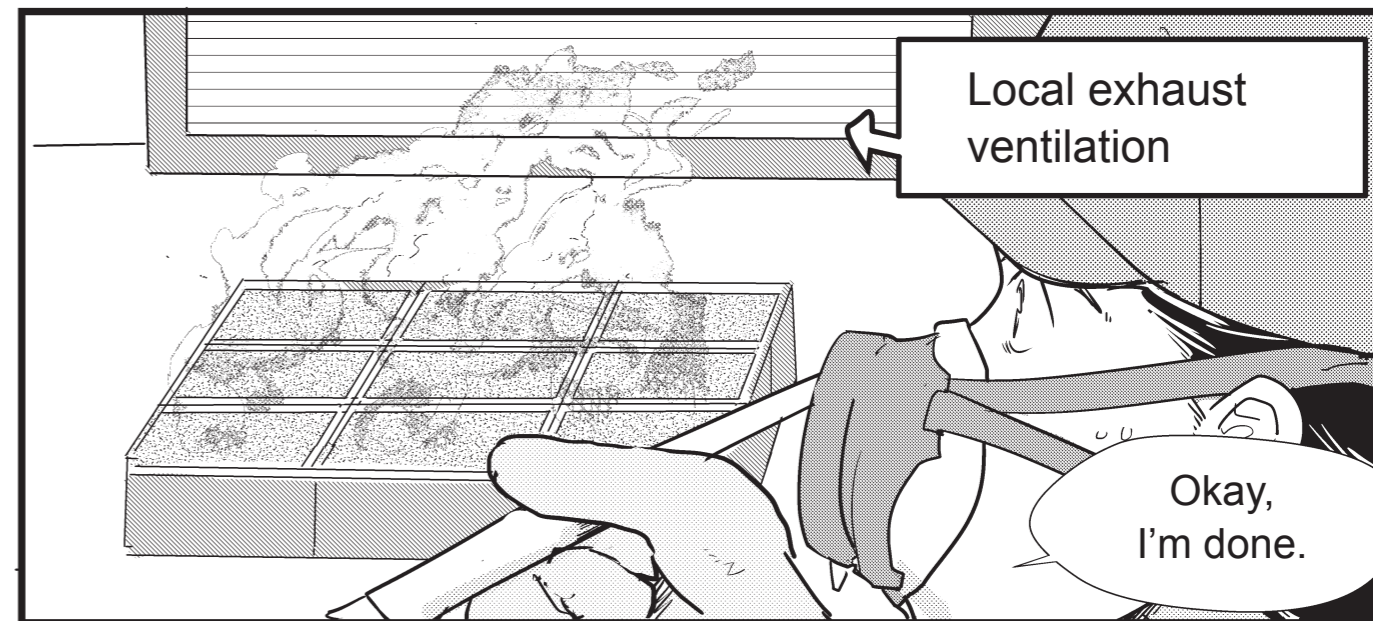
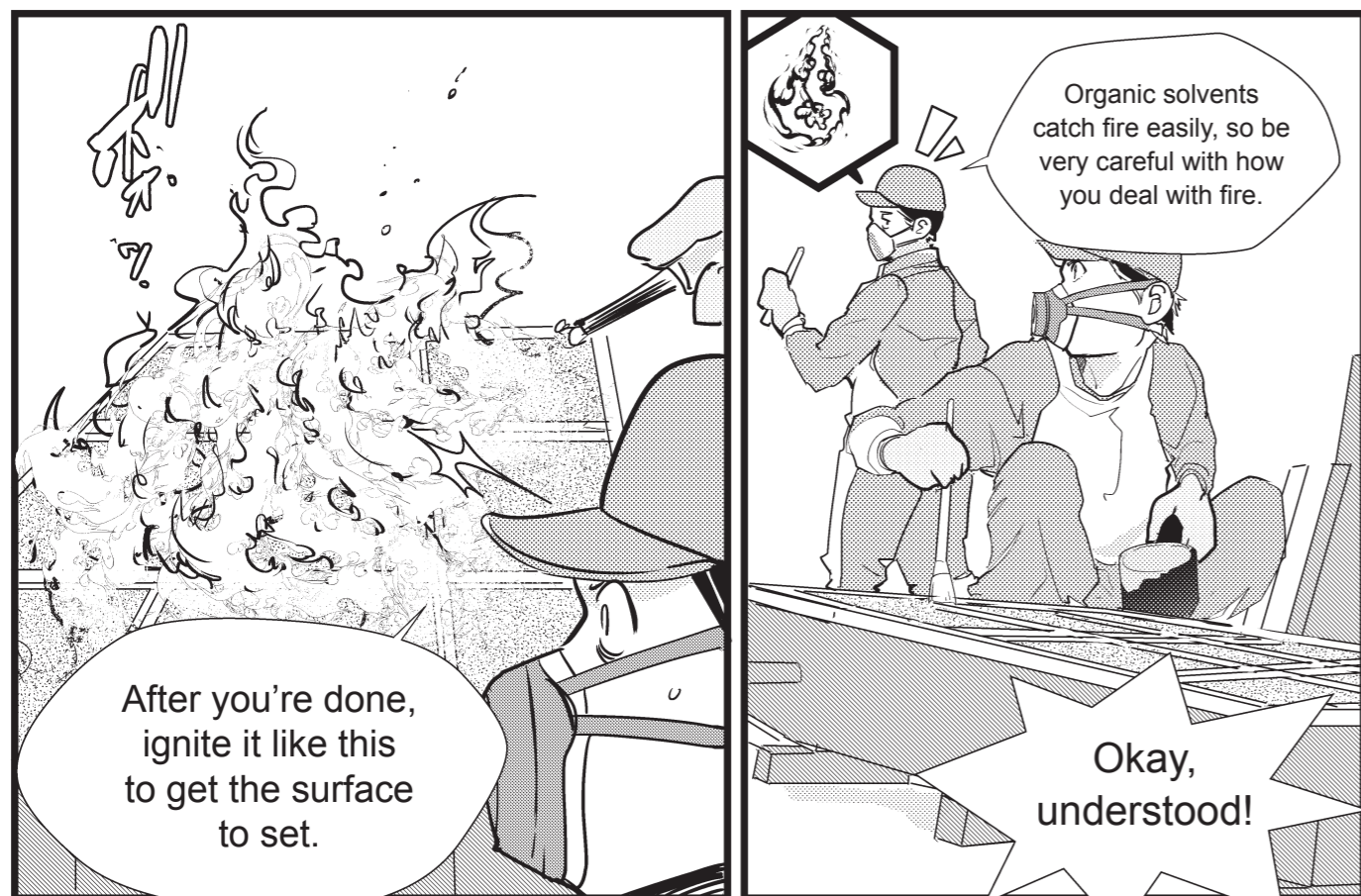
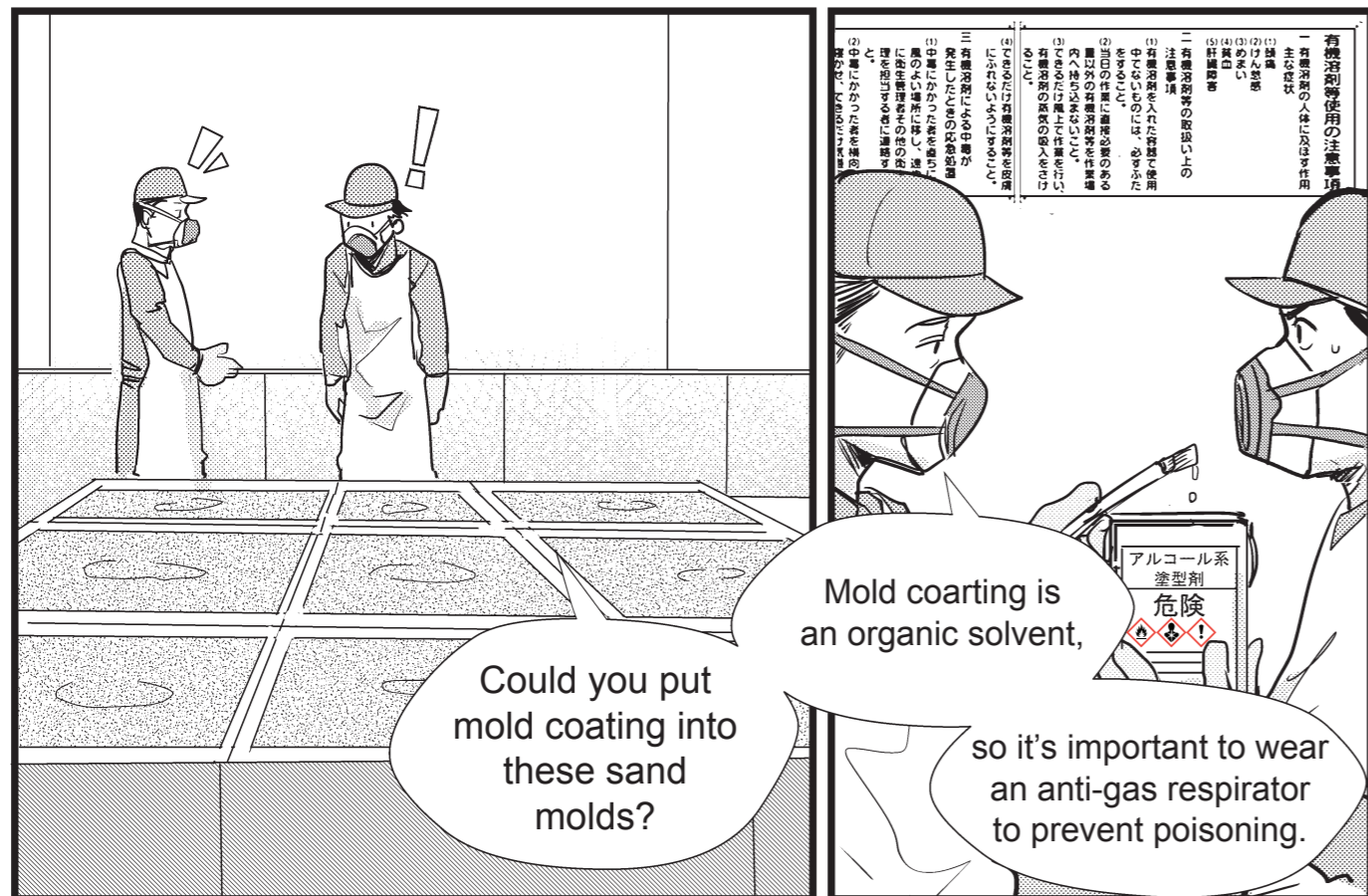


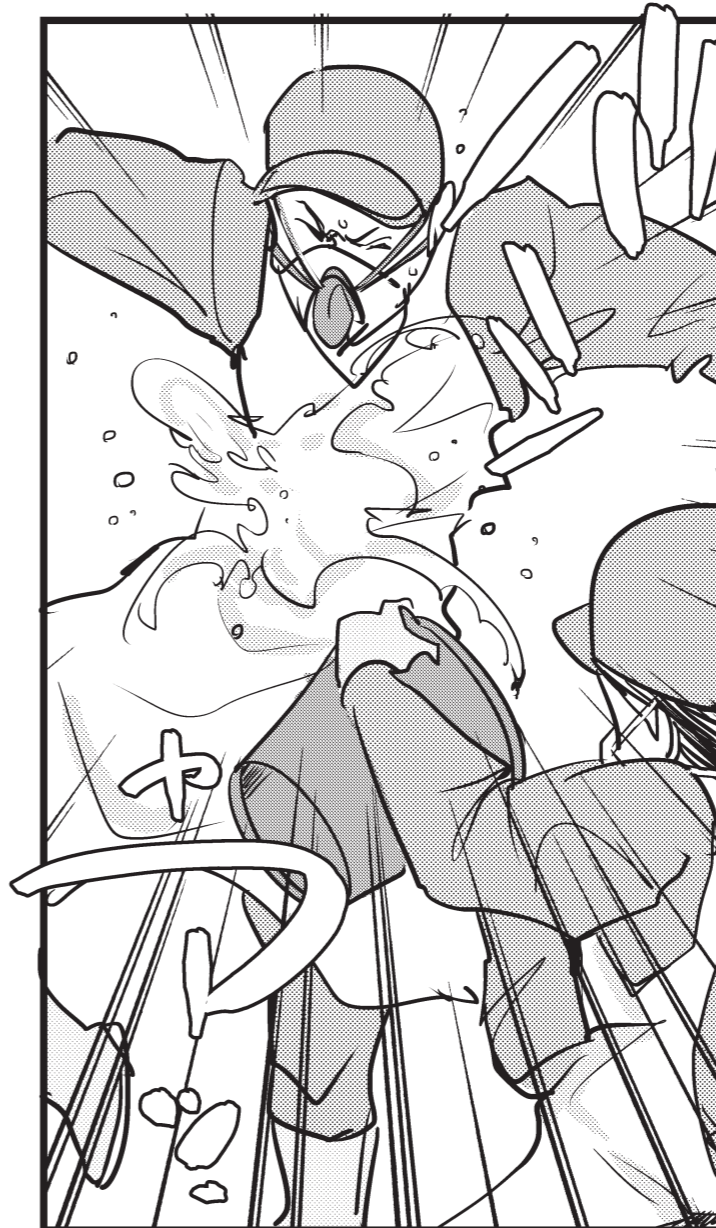
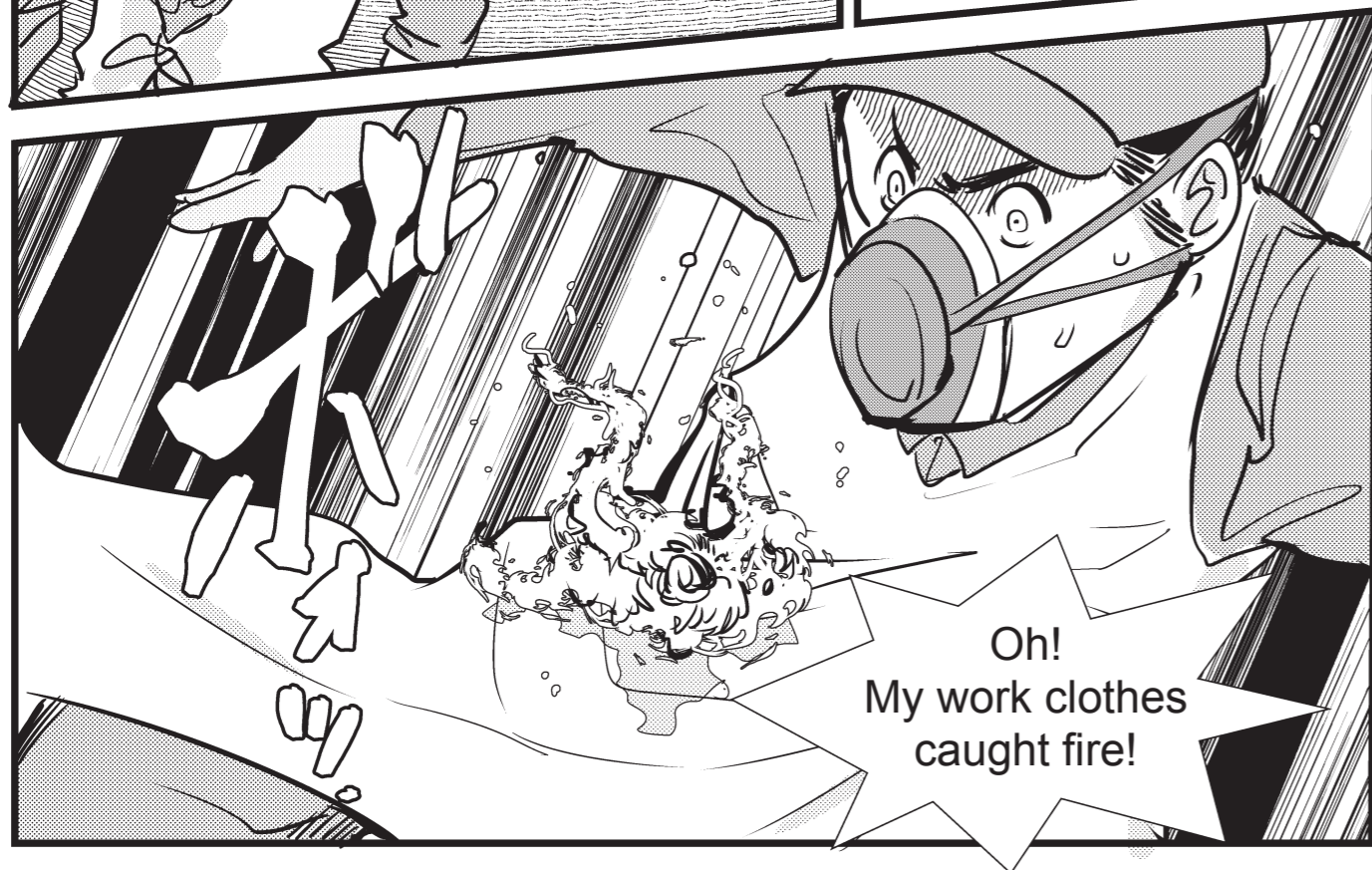
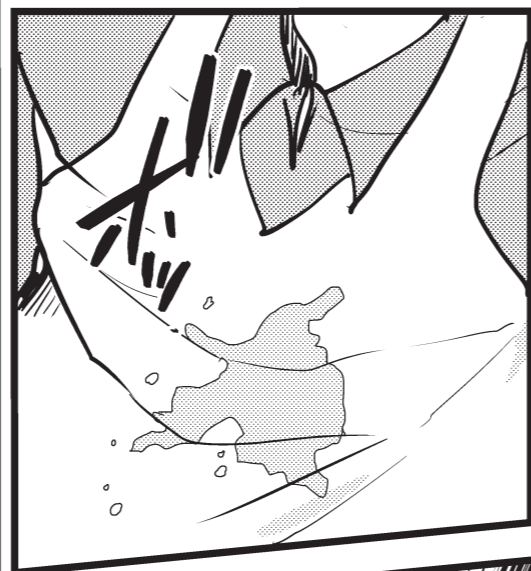
Let's take a look at...

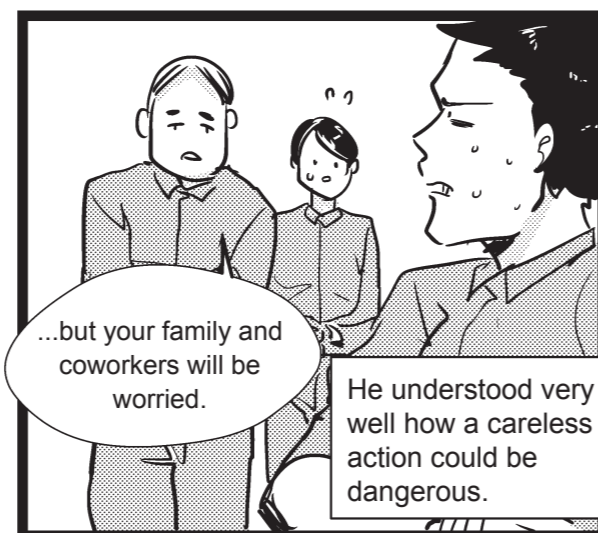
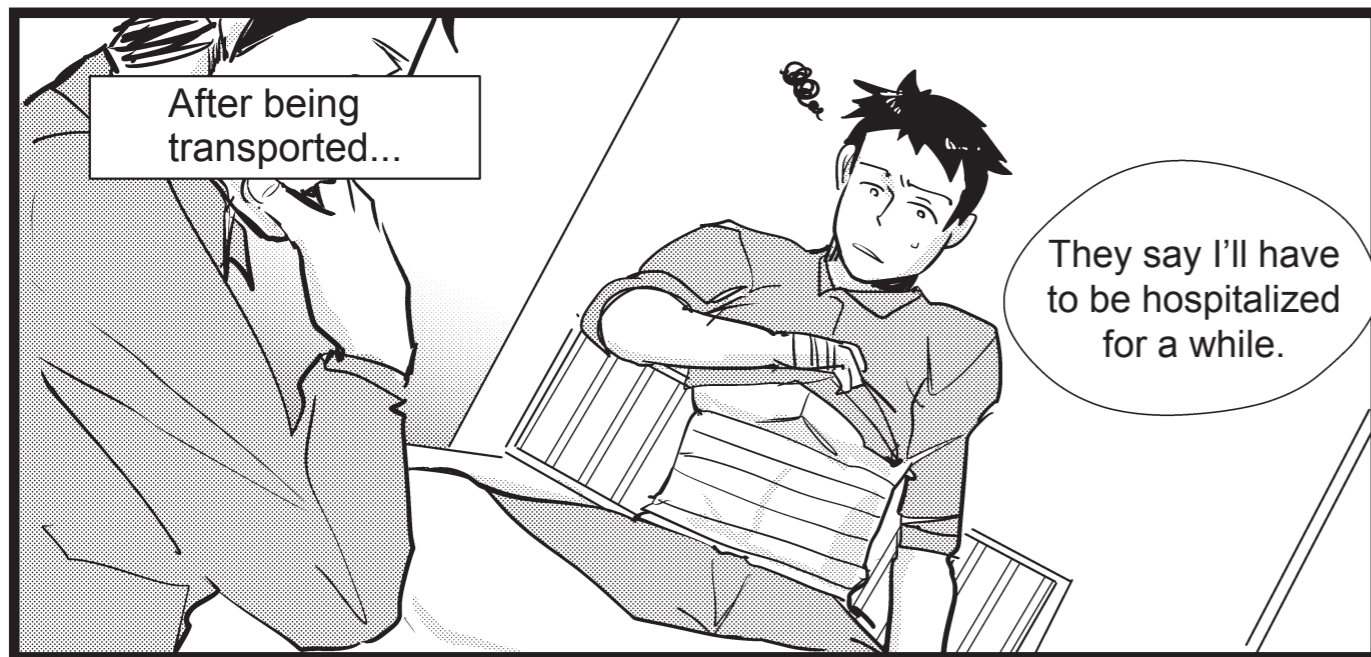
...some actual cases!



Case 1 A burn injury

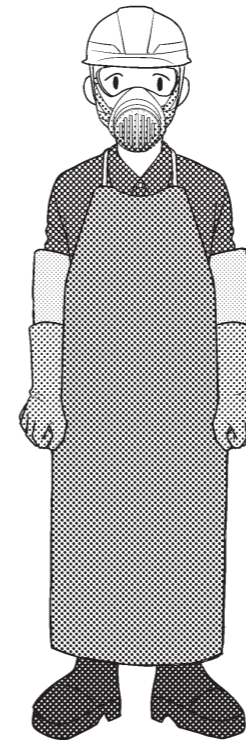




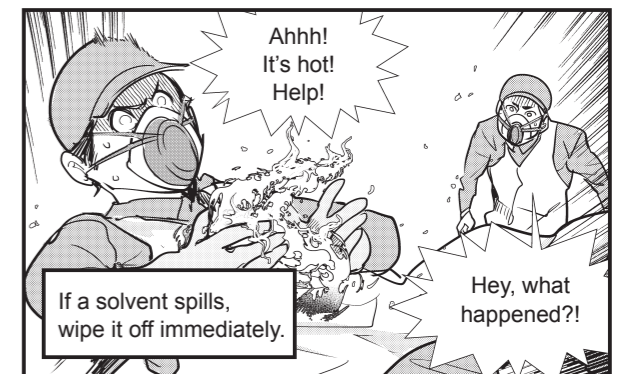
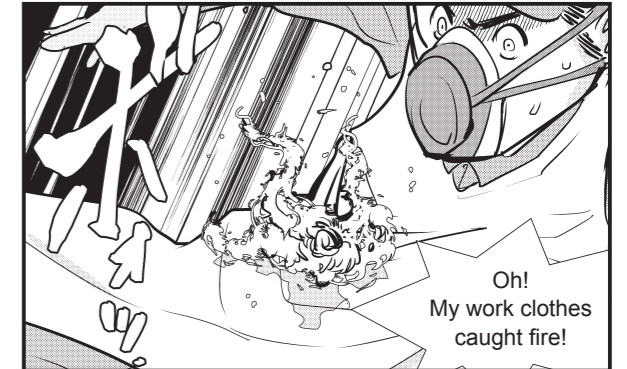


Case 1 summary

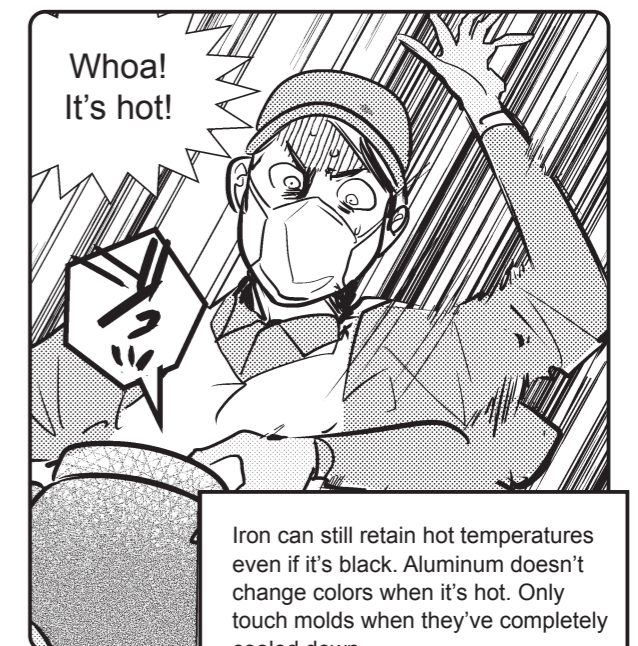
1 Wear correctly rated protective gear!



2 Organic solvents catch fire easily, so extra care is necessary!

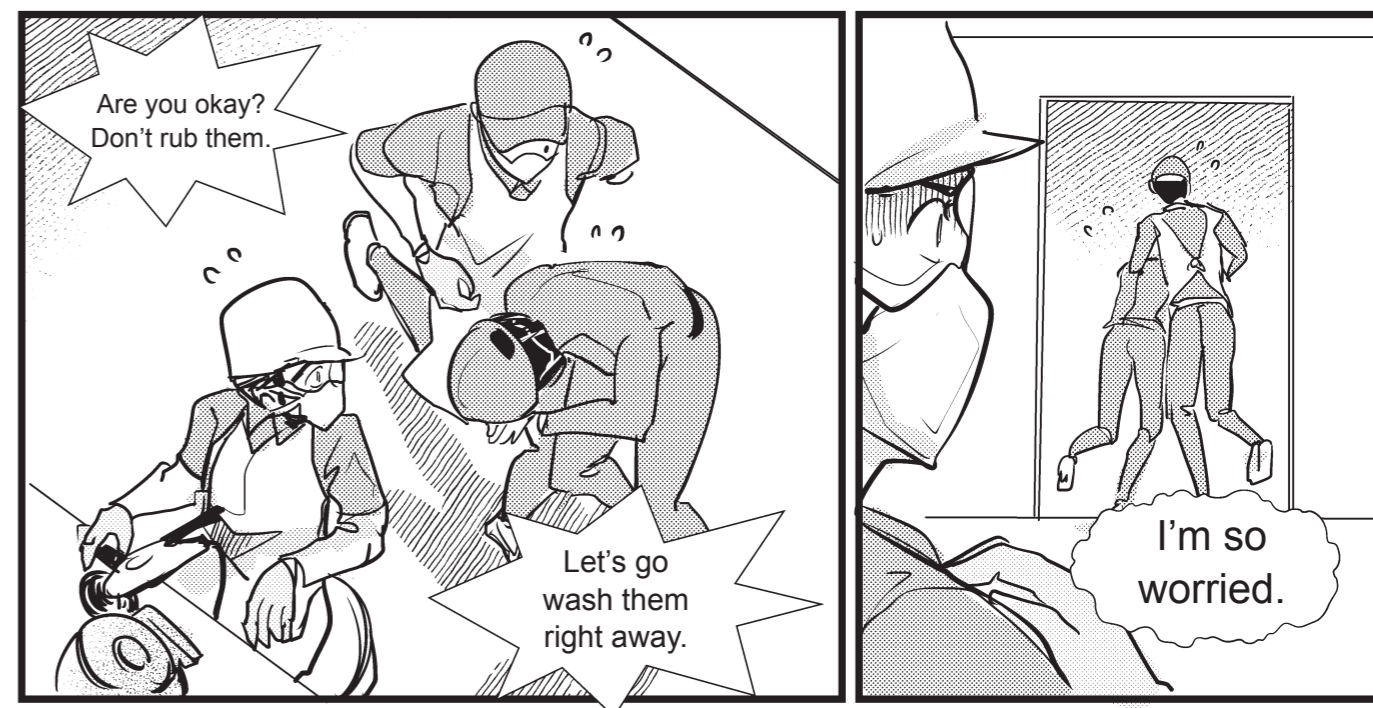
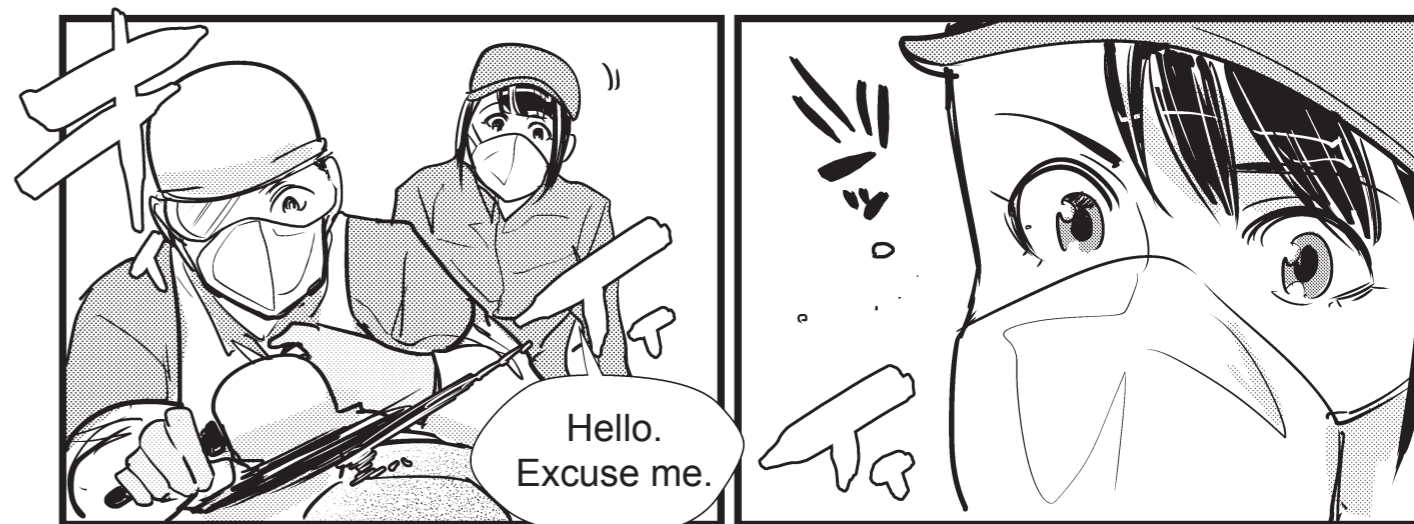
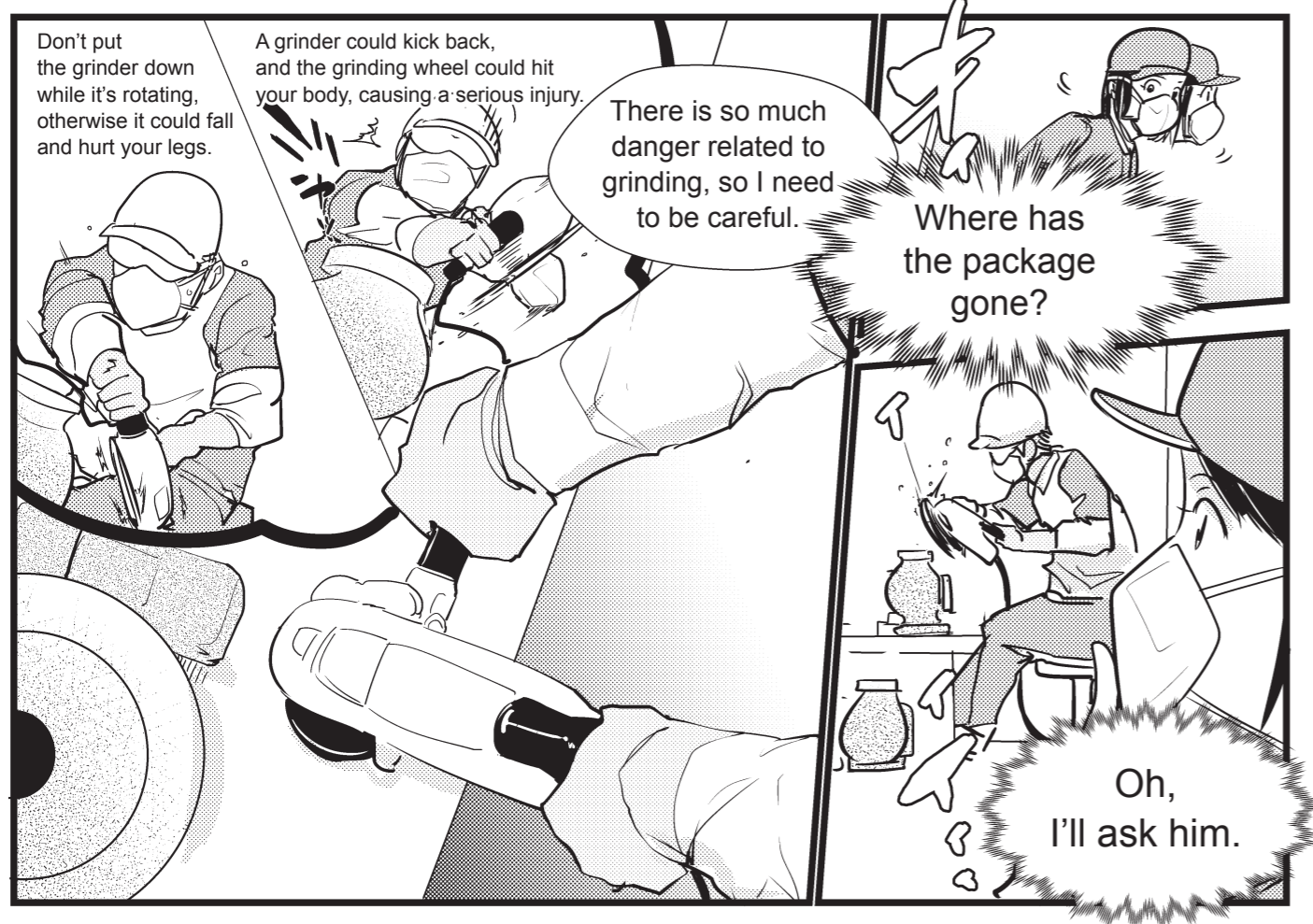


TIPS When touching molds, wear leather gloves!



Case 2

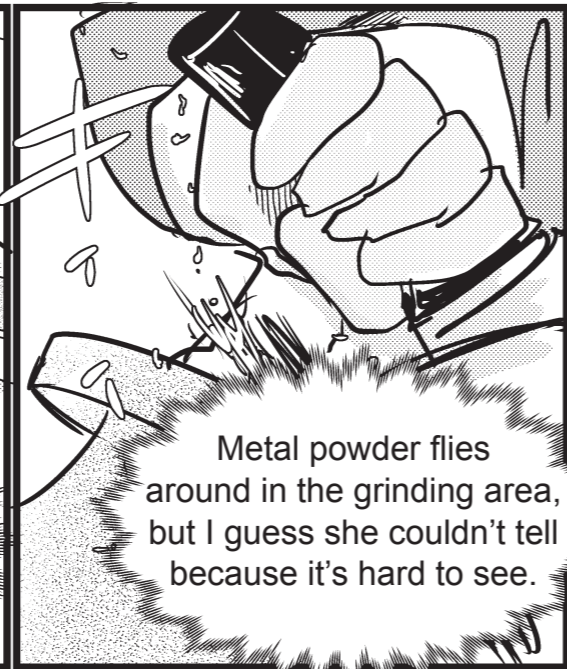
An injury from grinding



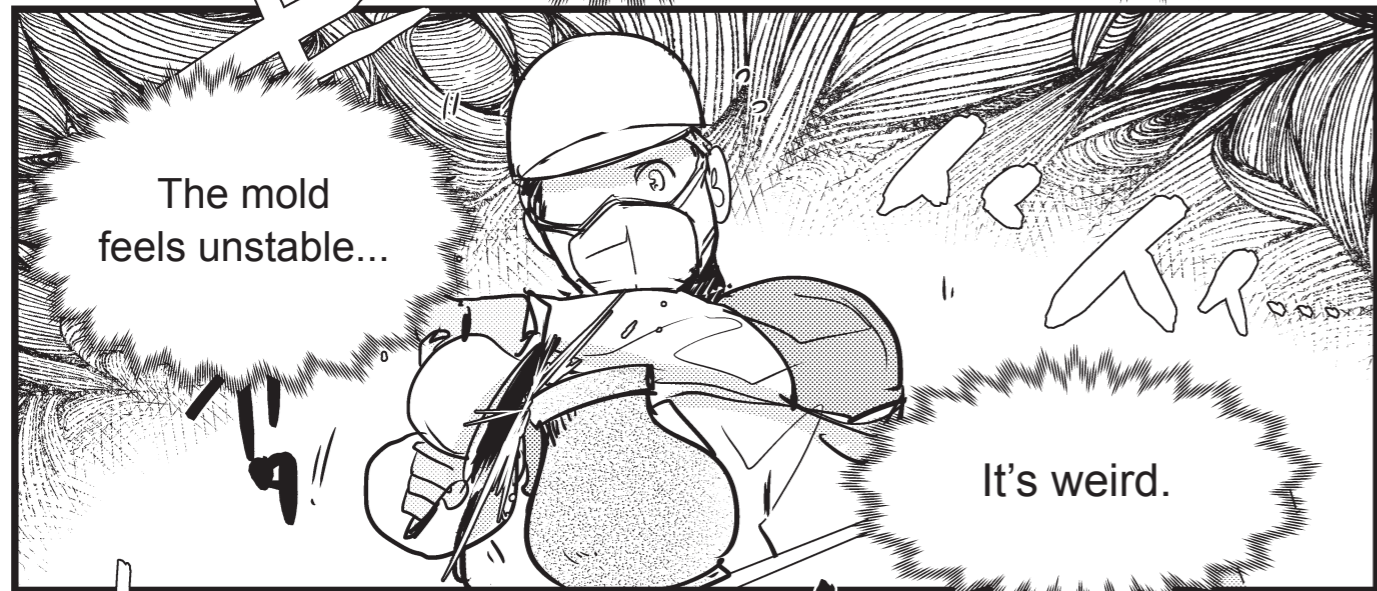


Let's start on the next one quickly.

But...it looked like her eyes were really hurting.



Metal powder flies around in the grinding area, but I guess she couldn't tell because it's hard to see.



The mold feels unstable...

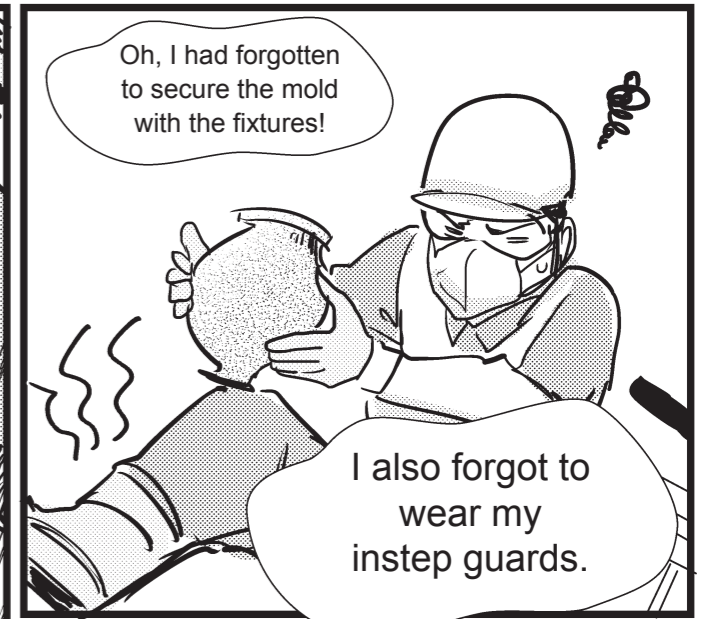
It's weird.



Whoa!



Ow!
The mold fell on my foot!

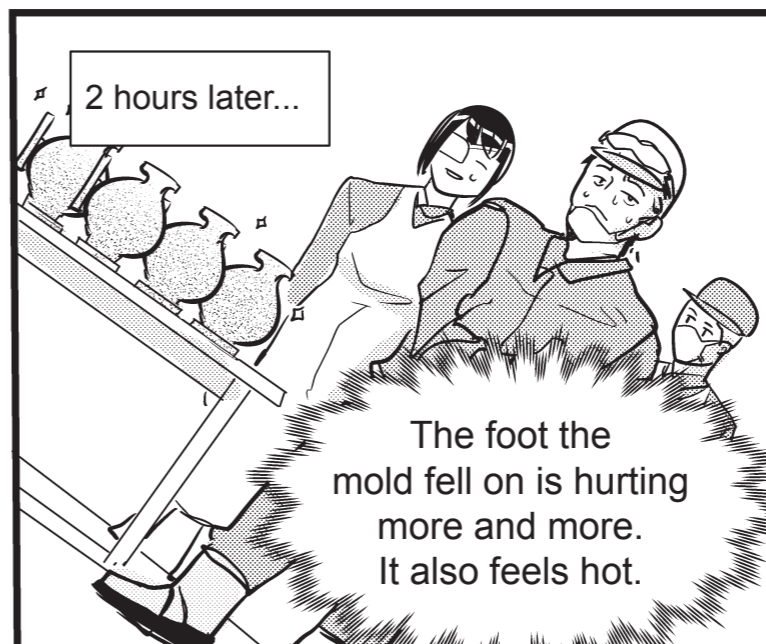


Oh, I had forgotten to secure the mold with the fixtures!

I also forgot to wear my instep guards.



It hurts a little, but I think I can keep working.



2 hours later...

The foot the mold fell on is hurting more and more. It also feels hot.

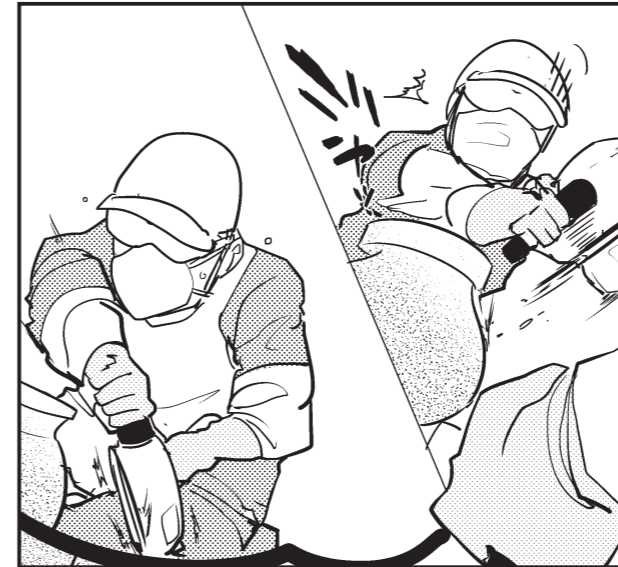


I should take a look at it.



Case 2 summary

1 Be careful when dealing with a grinder!



Don't put the grinder down while it's rotating, otherwise it could fall and hurt your legs. A grinder could kick back, and the grinding wheel could hit your body, causing a serious injury, so be careful.

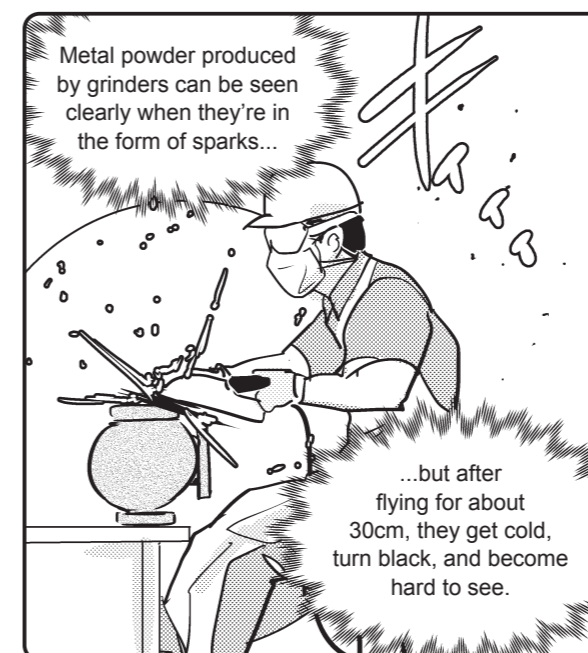
* Replacing grinding wheels and doing test runs after grinding wheels are replaced should only be done by those who have taken the Special Training for Health and Safety under the Industrial Safety and Health Act.

2 Follow the specified procedures when starting your work!

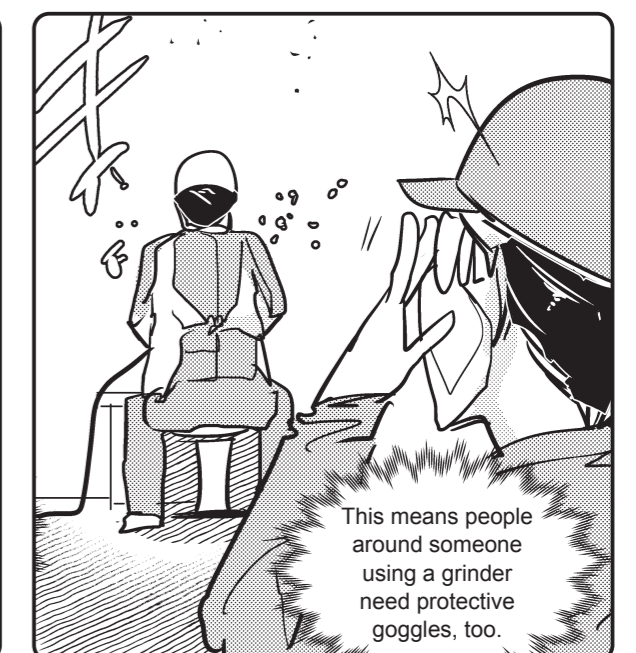


When you resume your work, confirm again that your procedures are correct and there is no danger.

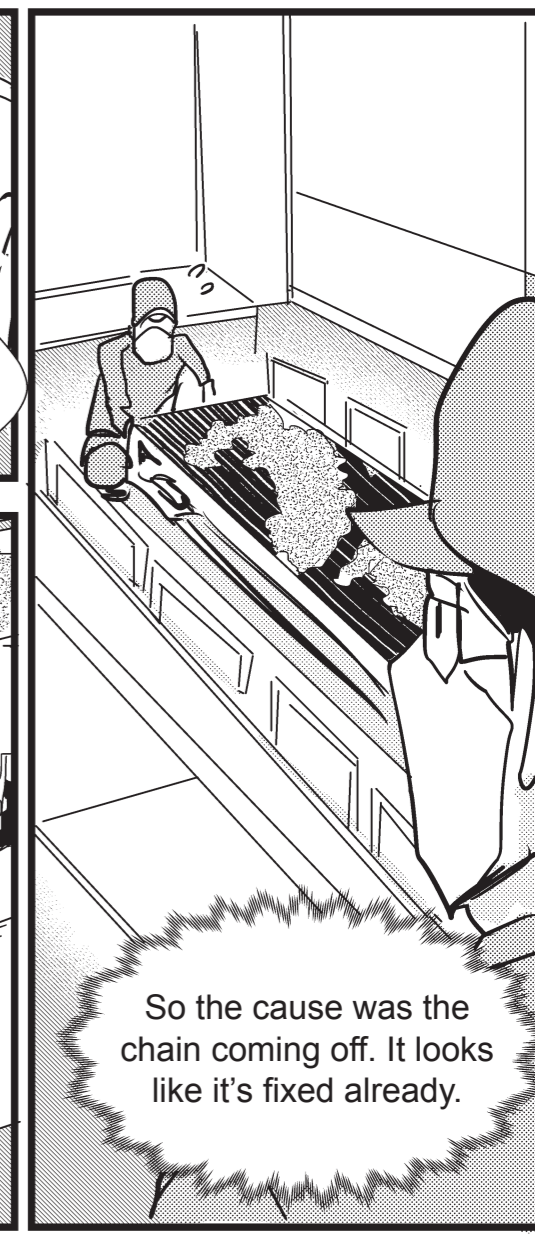
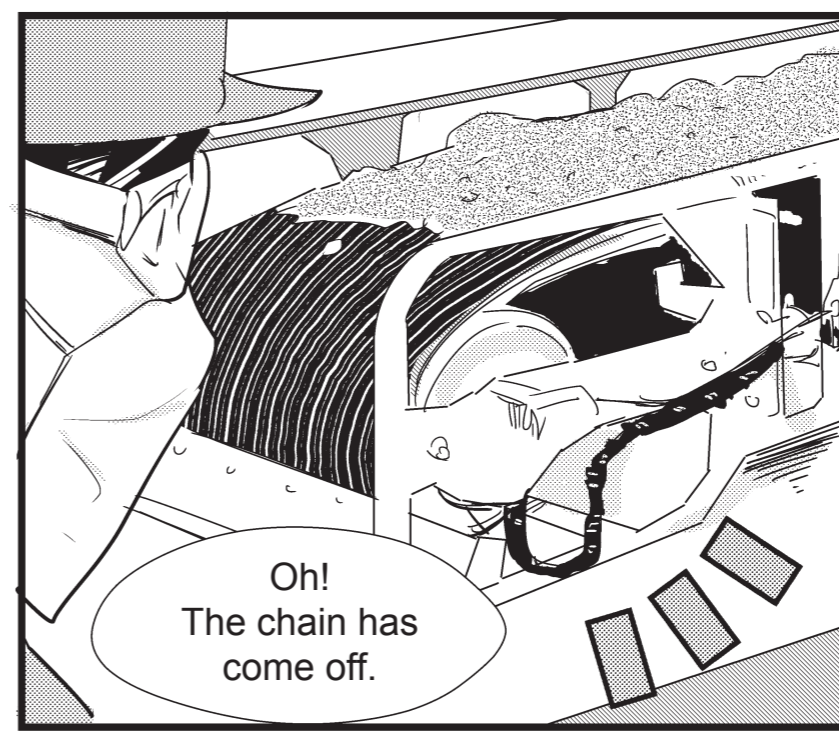
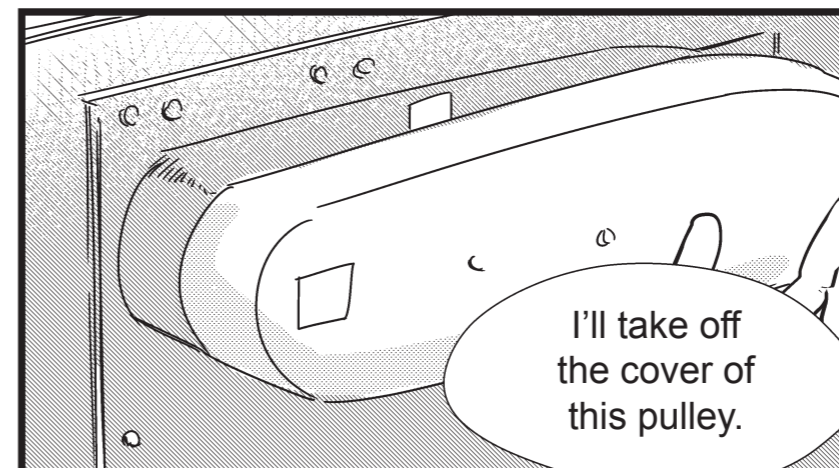
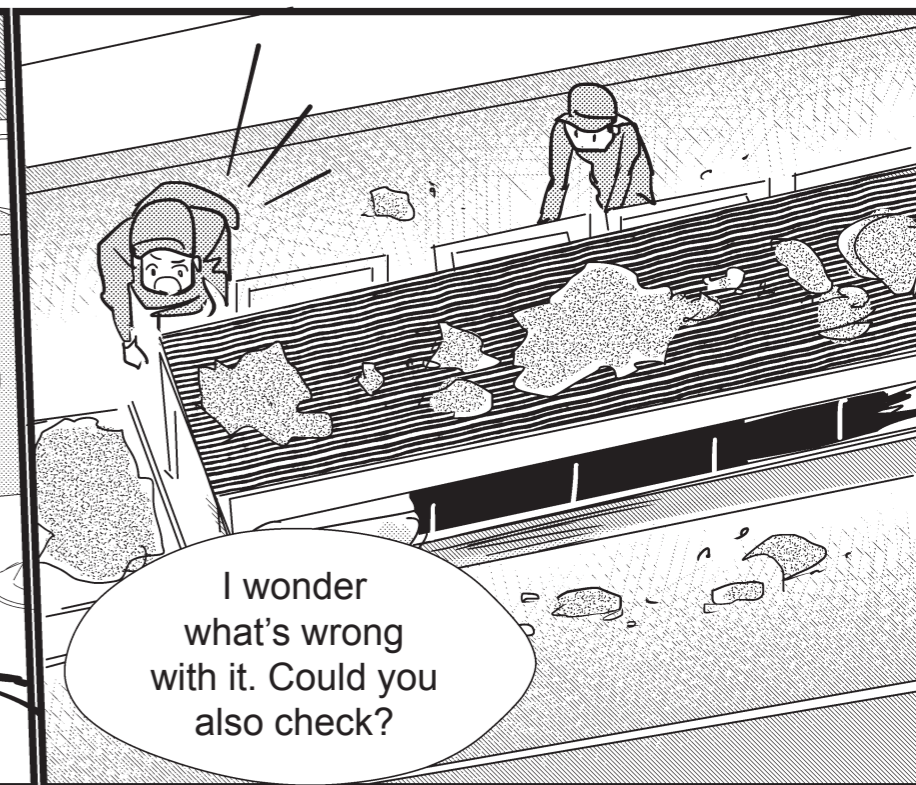
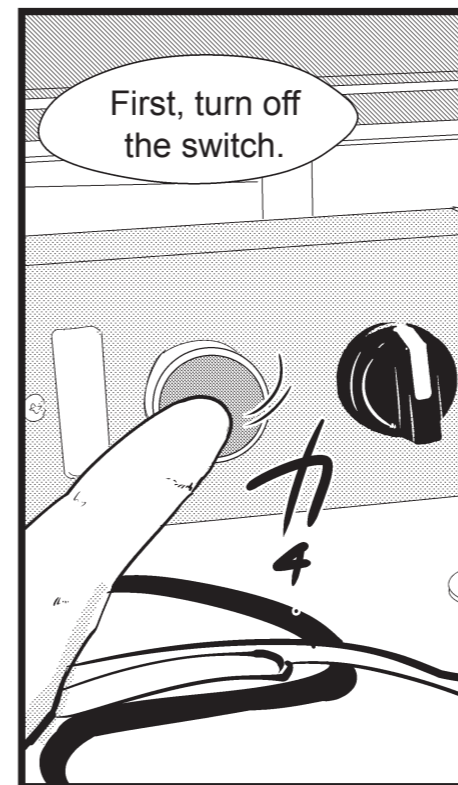
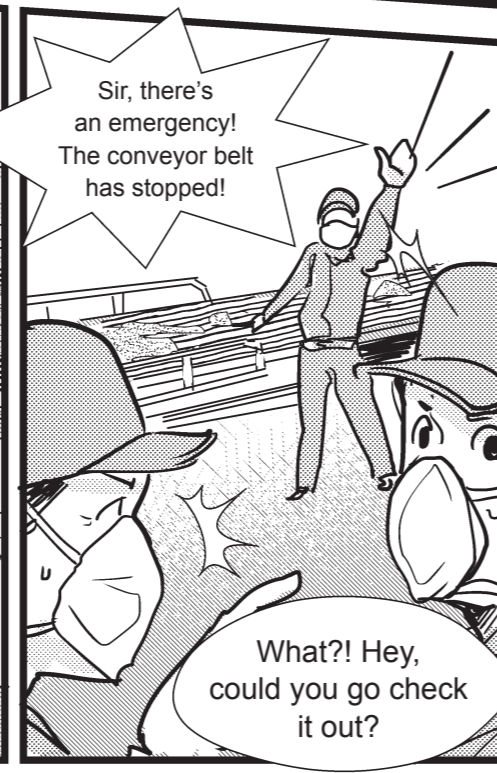
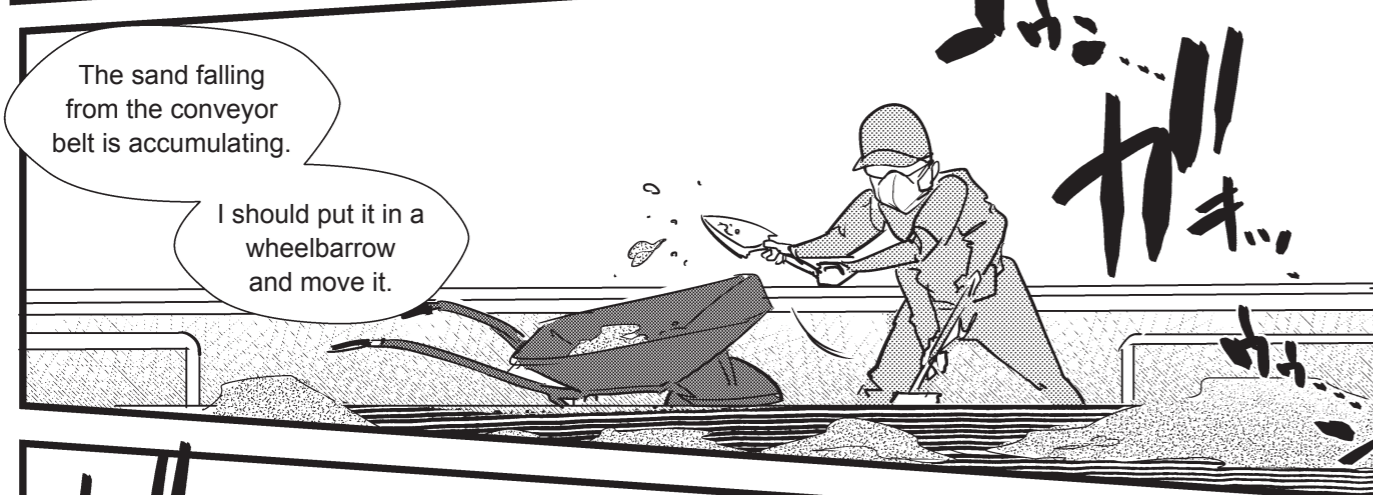
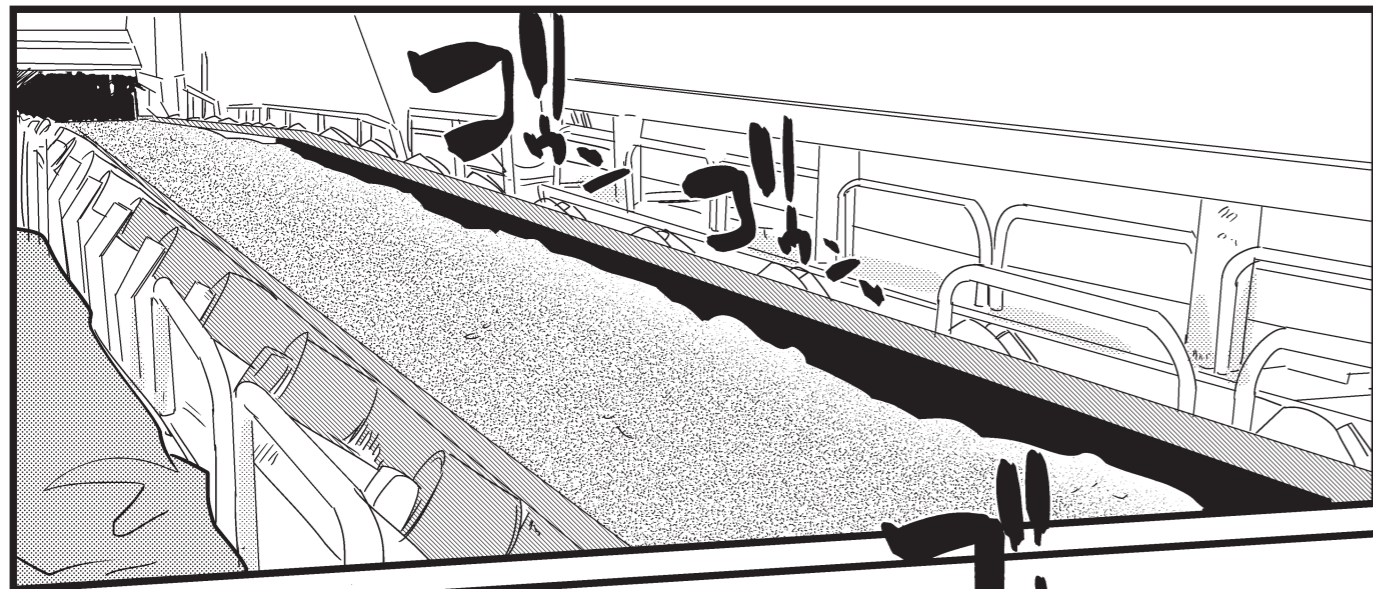
TIPS Wear protective goggles when working with a grinder!

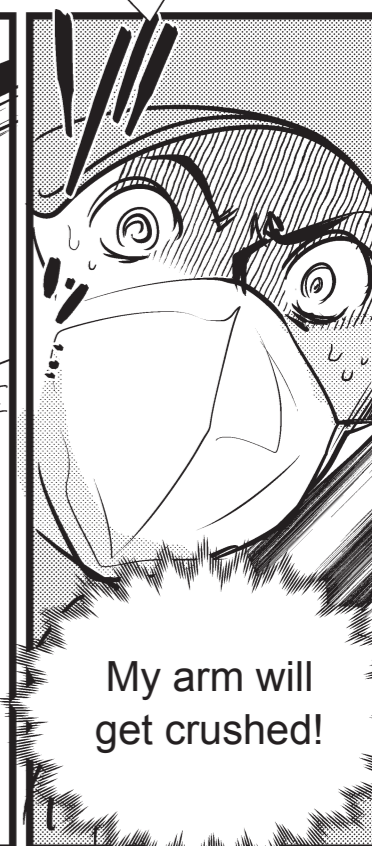
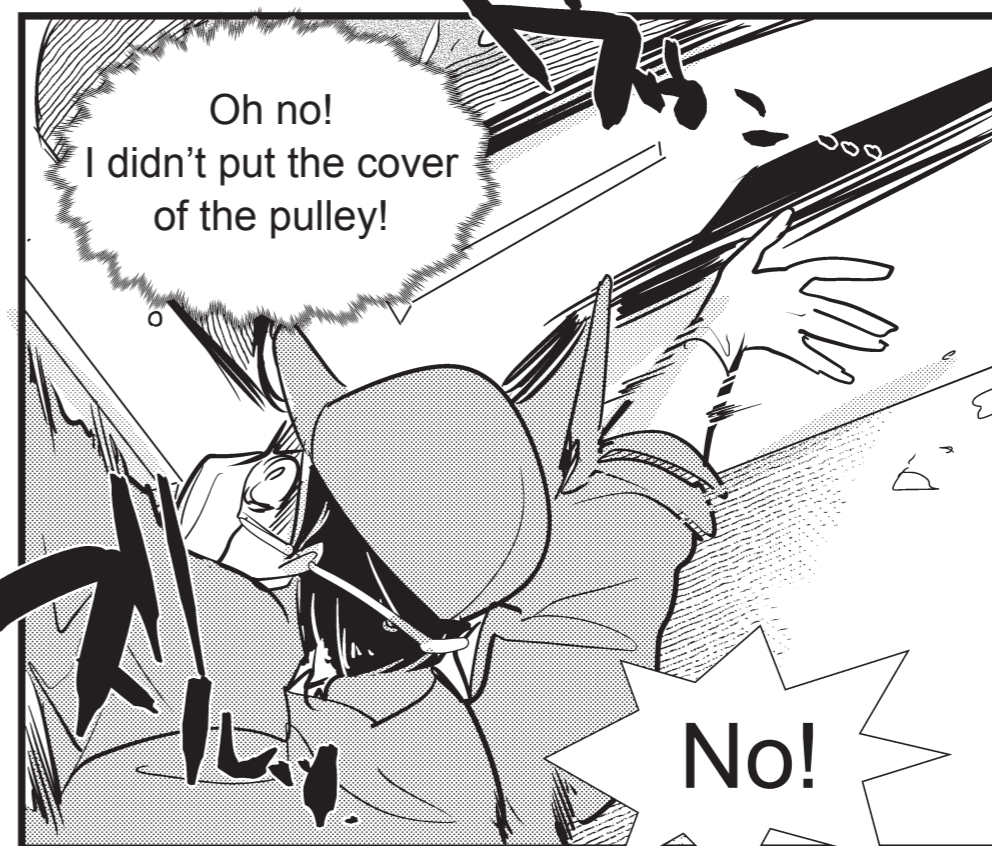
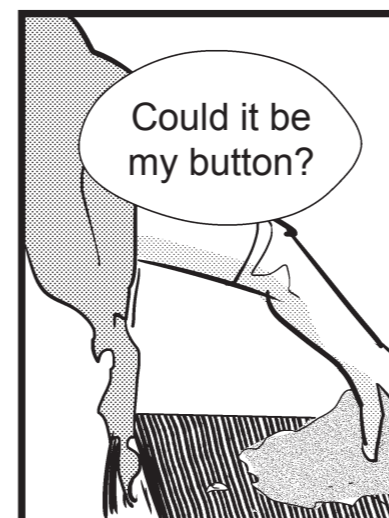
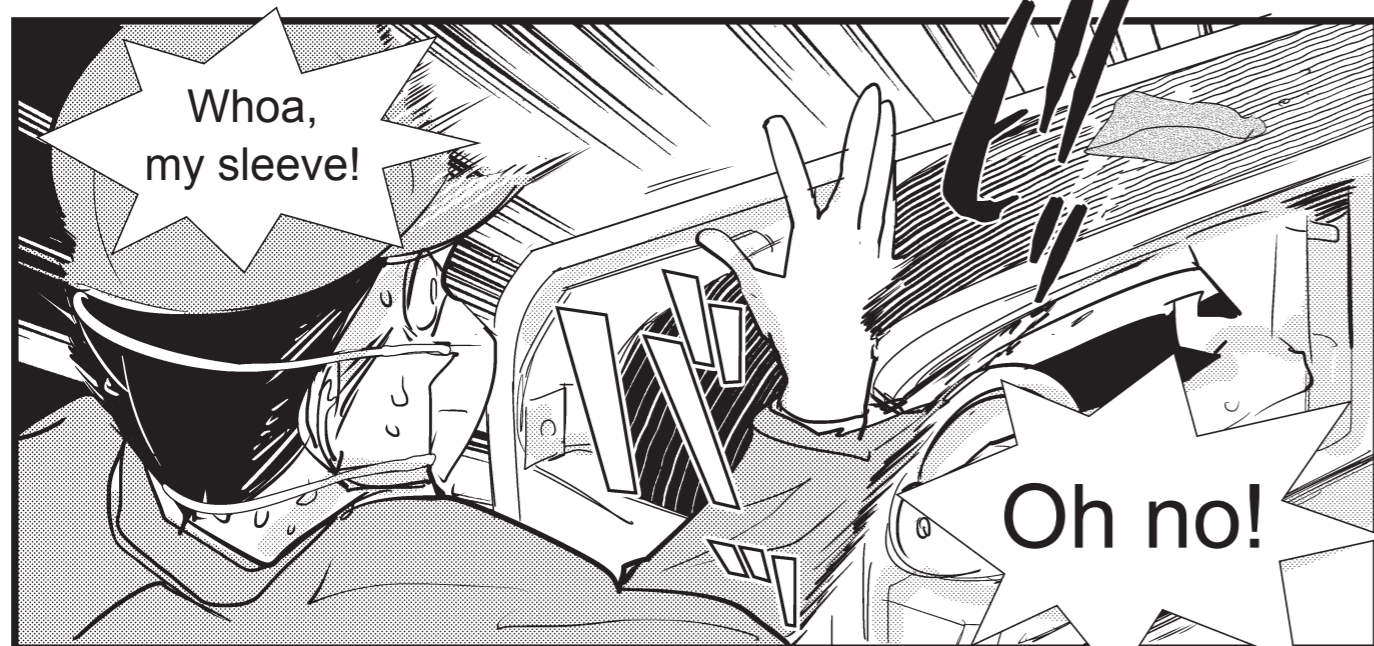
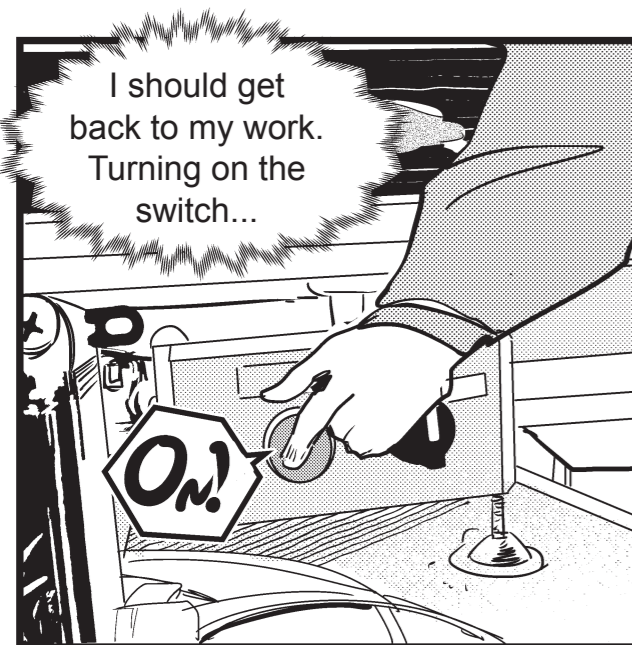


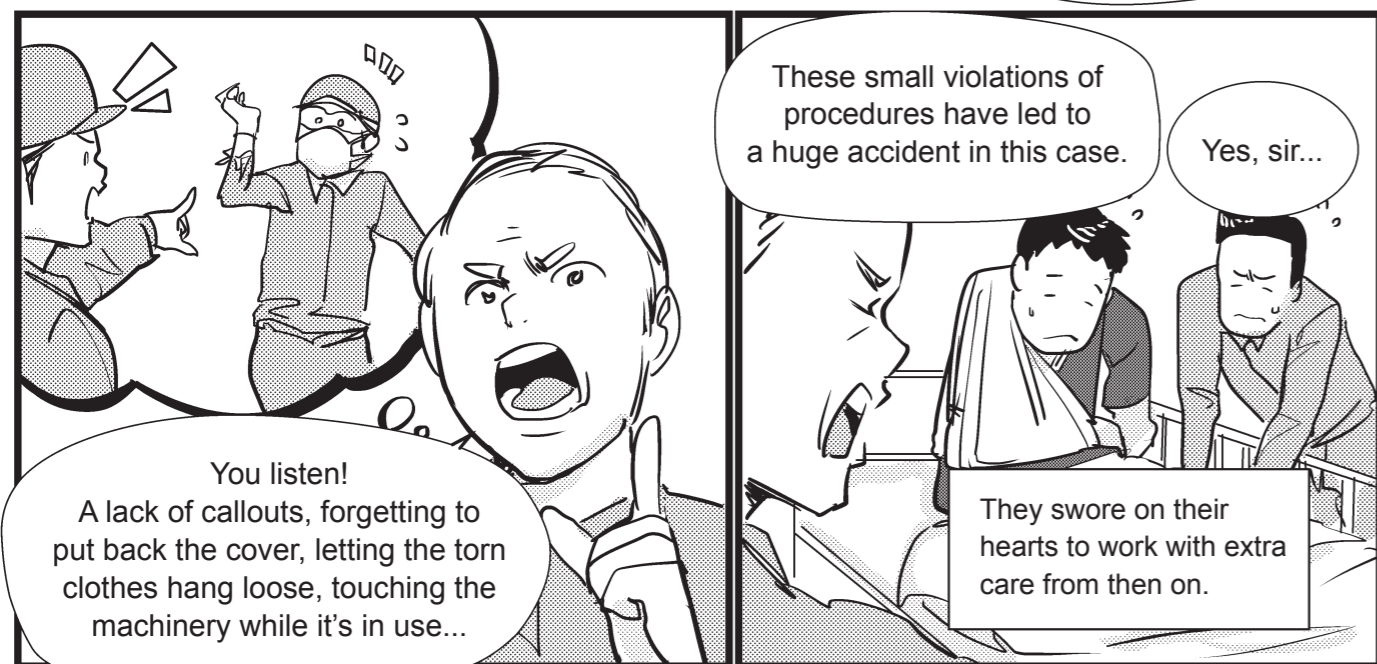
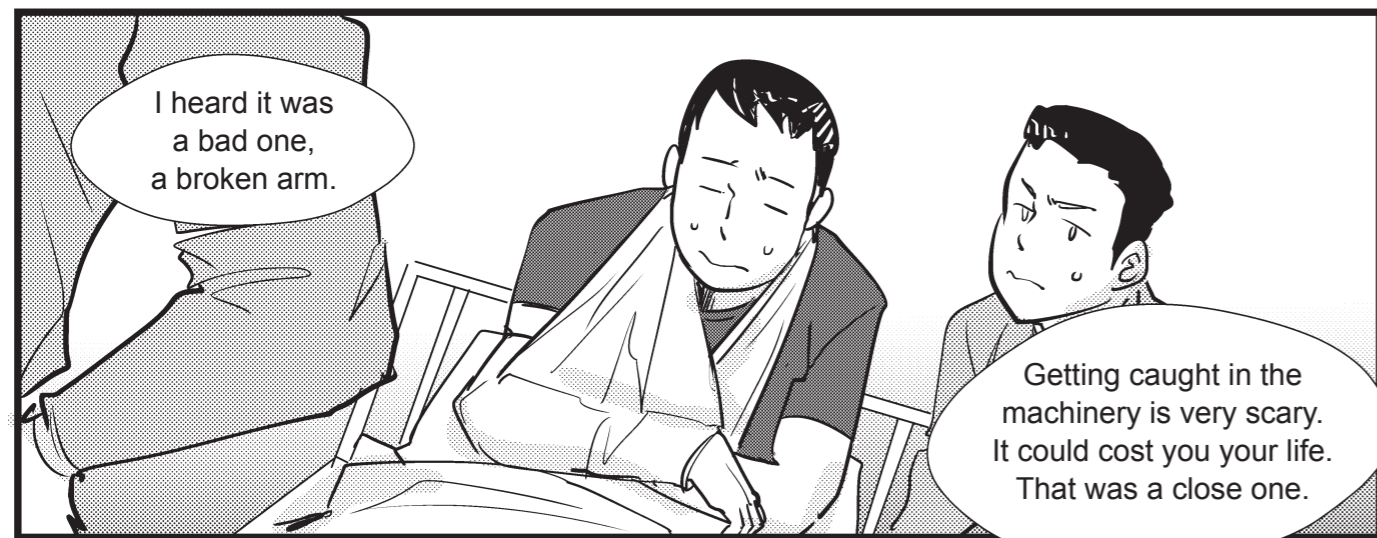
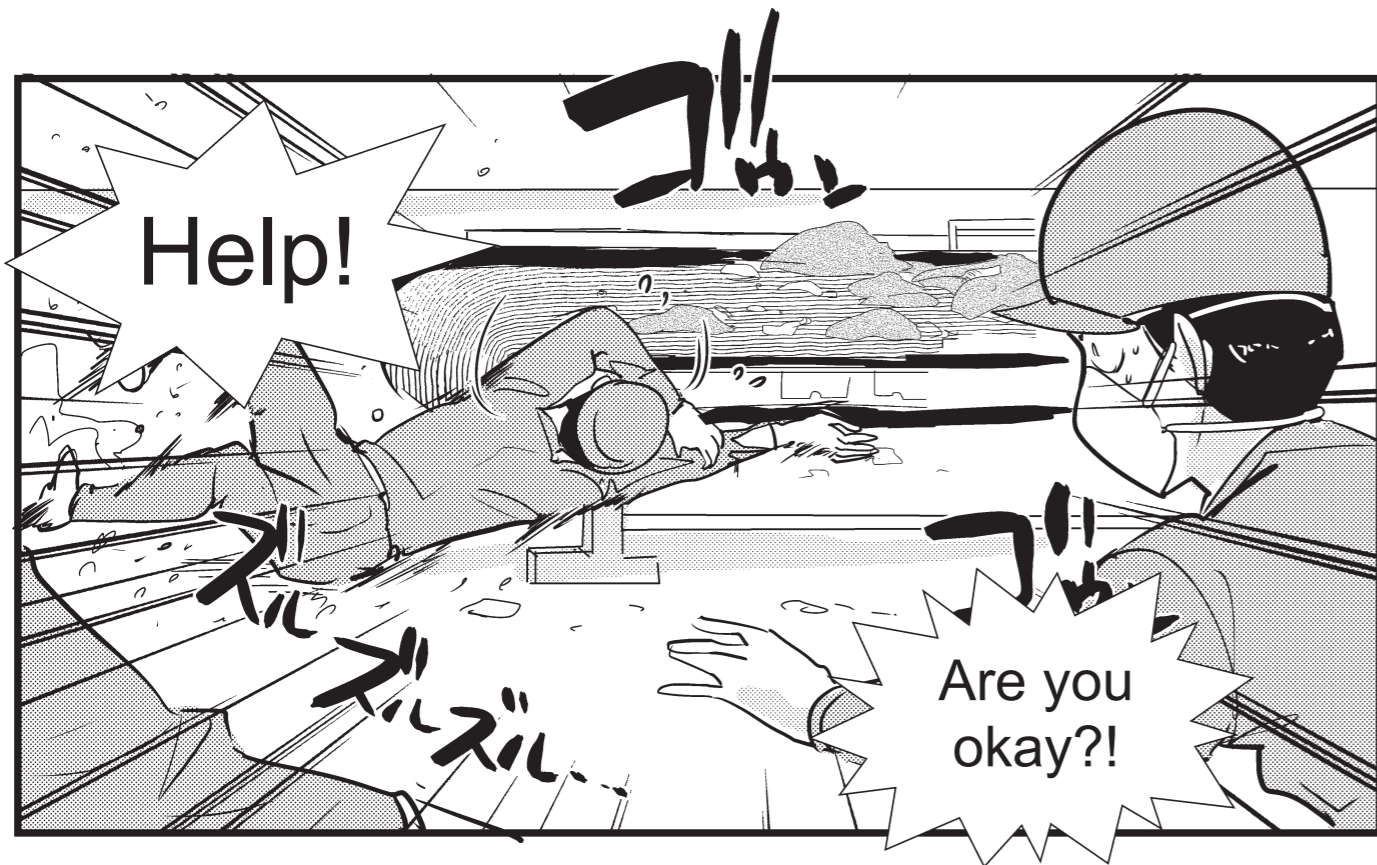
...but after flying for about 30cm, they get cold, turn black, and become hard to see.



Case 3 Getting caught in a conveyor belt







Case 3 summary

1 Check once again before resuming the machinery!

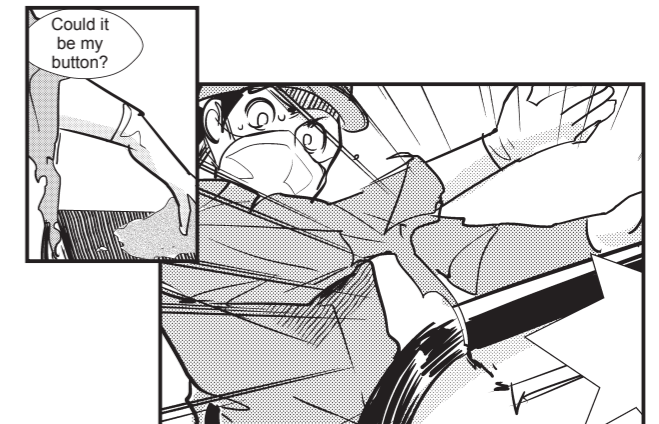


When a cover or safety device has been taken off due to an inspection...

1. Make sure to put it back.
2. Check for any misalignment.
3. Call out to others around you to confirm no one's working on the machinery before turning on the switch.

During an emergency, work as a team when responding!
Report to your supervisor!

2 Do not touch the machinery in use!



Watch out for work clothes and tools getting caught.

Examples:

- sleeves of work clothes,
- gloves, shovels, long hair,
- straps, etc.

TIPS The 4S principle is the basic of safety!

Seiri (sorted)

- Sort out things to use, to repair, and to discard.
- Discard unnecessary items.

Seiton (set in order)

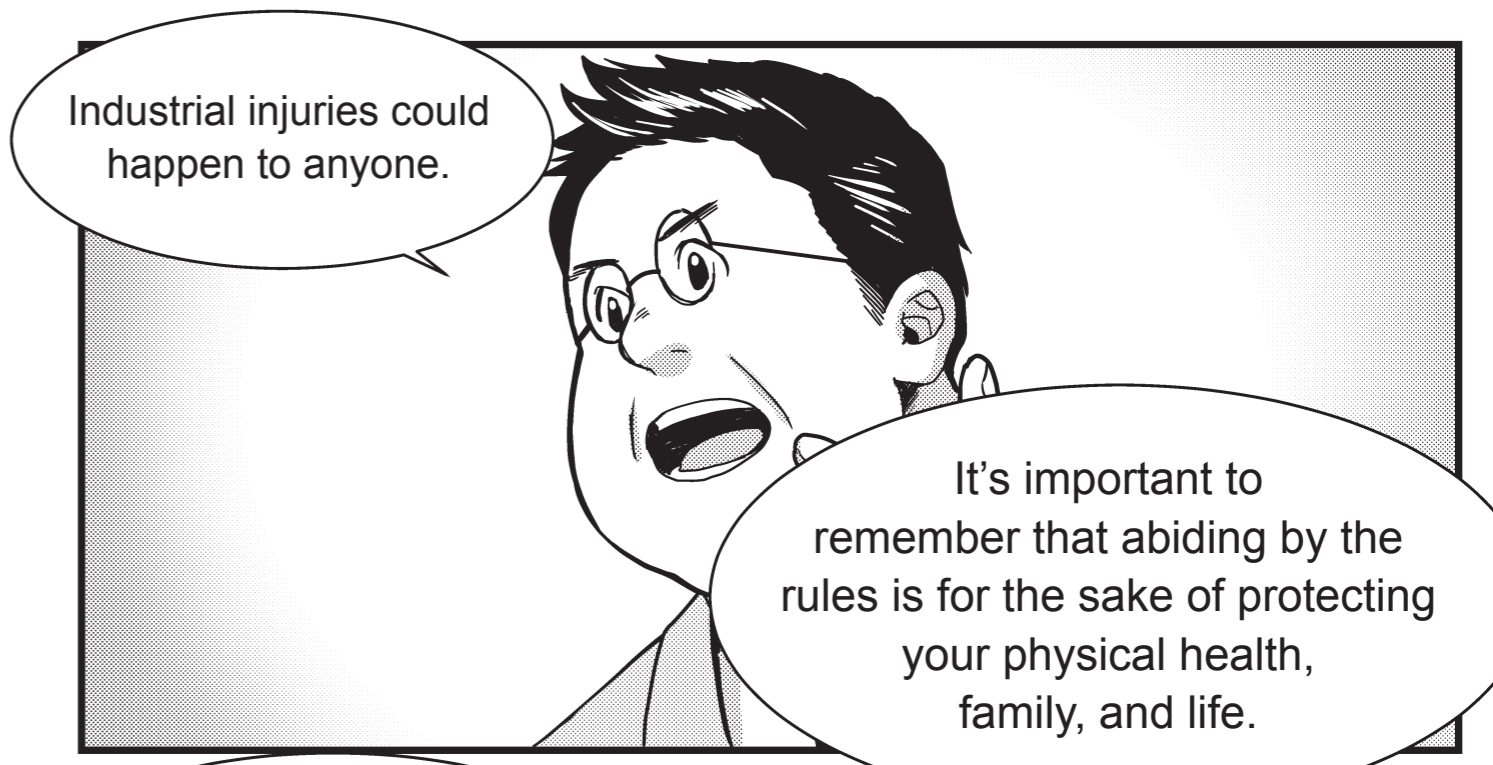
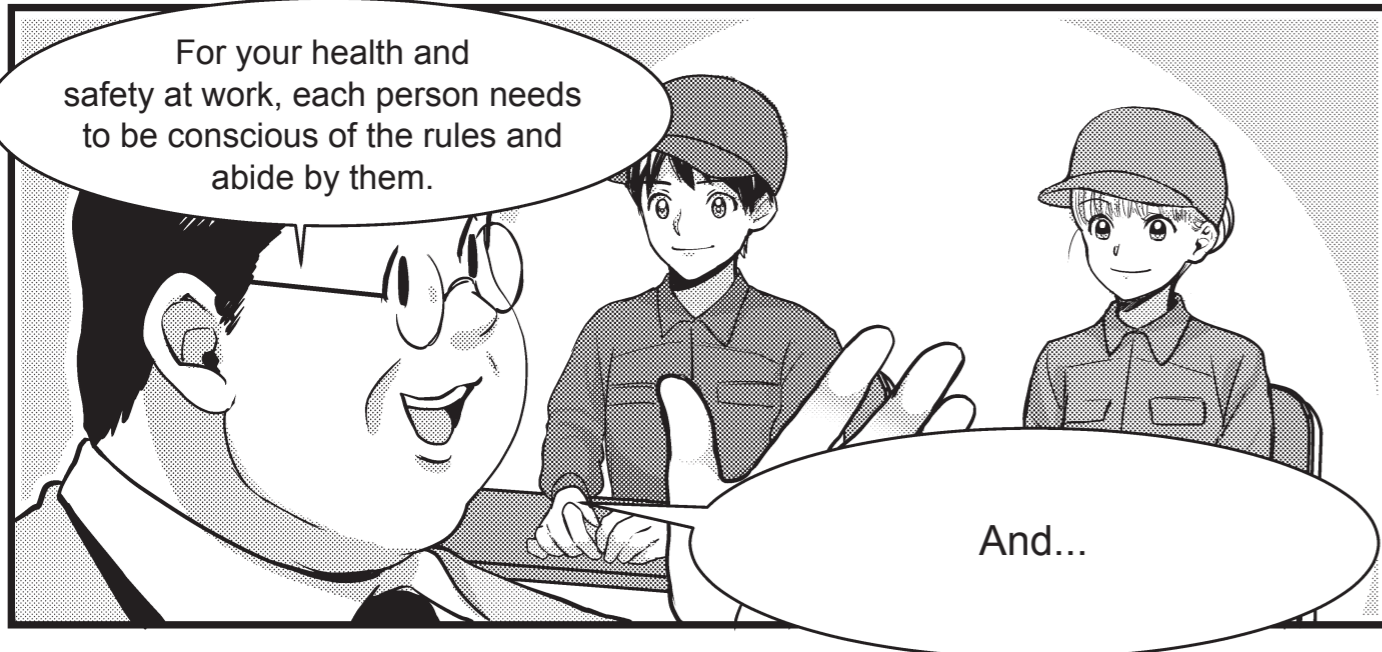
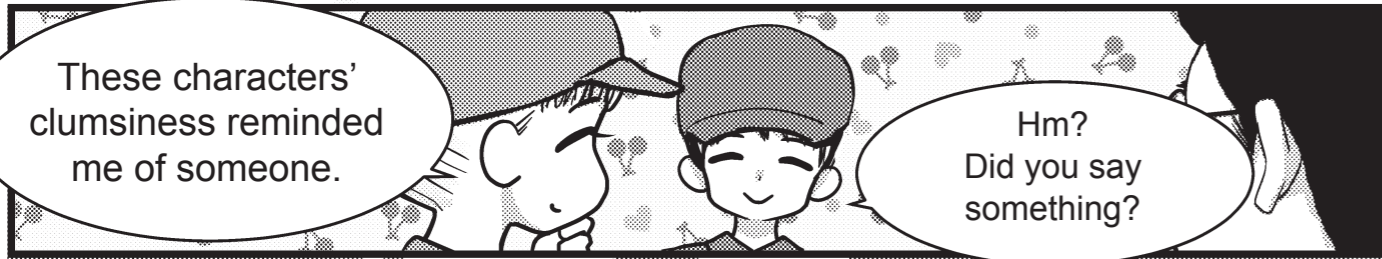
- Put all the tools back in their specified places.
- Do not put items in paths.

Seiso (shiny)

- When the workplace gets dirty, clean right away.
- Do not throw away things on the floor.

Seiketsu (spotless)

- Wear your work clothes correctly.
- Do not leave your work clothes dirty or torn.
- Take care of the tools and protective gear.



Industrial injuries could happen to anyone.

It's important to remember that abiding by the rules is for the sake of protecting your physical health, family, and life.

Daily communication at a workplace is also important in case something happens.

Okay!
I'll follow the rules and work hard every day!

Now you understand that danger can be everywhere.

These characters' clumsiness reminded me of someone.

Hm?
Did you say something?

For your health and safety at work, each person needs to be conscious of the rules and abide by them.

And...

Protective gear

Use equipment that fits your task.

Helmets

A helmet protects your head from impact.

Adjust the chin strap and fasten it so that the helmet will not move around. If a helmet takes an impact even once, replace it.

Aprons

An apron protects your body from heat.

Wear it so that it completely covers your chest.

Safety goggles

Safety goggles protect your eyes from strong lights.

Make sure that they fit your face perfectly.

Protective goggles

Protective goggles protect your eyes from flying objects, powder dust, and heat.

Make sure they are correctly rated for the hazards you will encounter.

Respiratory protective gear

- Use a respirator that is rated for the hazards you will encounter.
- Perform a fit check.
- Replace filters and cartridges when needed.
- Do not use a disposable respirator beyond its rated service life.

Respirators (anti-dust)
A respirator (anti-dust) prevents you from inhaling powder dust.

Respirators (anti-gas)
A respirator (anti-gas) prevents you from inhaling toxic gas.

Inhaling powder dust for an extended period of time can lead to developing pneumoconiosis.

Gloves

Gloves protect your hands from heat and sharp objects.

Use ones that fit your task, that have long sleeves and five fingers.

Sleeve protectors

Sleeve protectors rid of any gaps for hot objects such as spatter to get in.

They cover your skin completely.

Safety shoes

Safety shoes protect your feet from heavy objects.

Wear safety shoes that match your size. Wear instep guards.

Leg guards

Leg guards prevent spatter from getting in.

Wear them tightly fitted.

Choose protective gear correctly rated for your task and wear it properly for it to be effective!

Instructional Point 1

Put on correctly and use correctly!

Make sure that there is no gap!

Instructional Point 2

Wear protective gear that matches your size!

If the size doesn't fit, have it replaced immediately.

Instructional Point 3

Don't leave it dirty or damaged!

Wipe off any dirt or stains.

If it breaks or is torn, replace them.

Store in a clean place.

Learn through Manga

Health and Safety for Foundry Work

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Contact information regarding this material

Safety Division,
Industrial Health and Safety Department,
Labor Standards Bureau,
Ministry of Health, Labor, and Welfare