

K S Sheet [Sheet for sensing danger]

~Glassware edition~

Five minutes before working or experimenting, sense (Imagine and anticipate) as many dangers and accidents as you can think of.

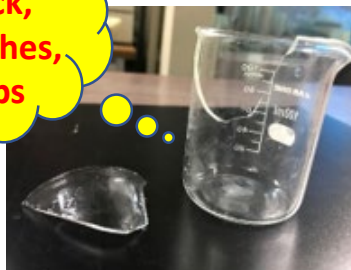
From preparation and inspection to cleanup

During freeze degassing, the flask bursts.

Glass vs. Metal
(Centrifuge tube) (Spatula)



Crack, scratches, chips



Cracked beaker cracks during cleaning after use.

The bottom of the tool cracks when removing adhered material from the bottom.

Too much force



Cracking the flask, glass funnel while cleaning.

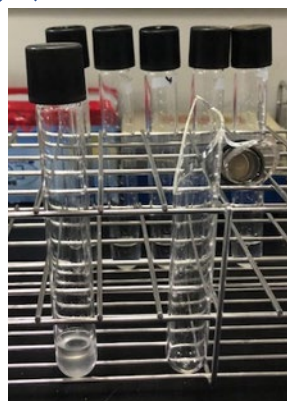
Undue force



Glass

when it breaks..

Blade



Cracked when tightening the cap of a test tube.



With bare hands



When filling the trap tube with cotton wool using a long and thin glass rod, the rod breaks.

Make a cut groove in the glass tube and then break it.

Undue force



Cracked when removing tubing from glass cap.



Rapid expansion

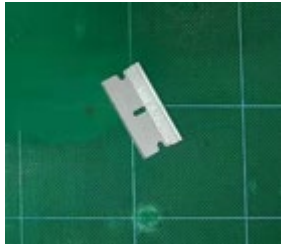


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~Knives and Tools edition~

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From preparation and inspection to cleanup



Accidentally cut your hand while cutting a sample with a razor blade.

How to apply force
Direction of force

Keep my hands safe

Hand holding a knife
Receiving hand



Accidentally stabbed fingers while changing scalpel blades with pliers.



Cut your hand while carving a spoon out of wood using a small knife.



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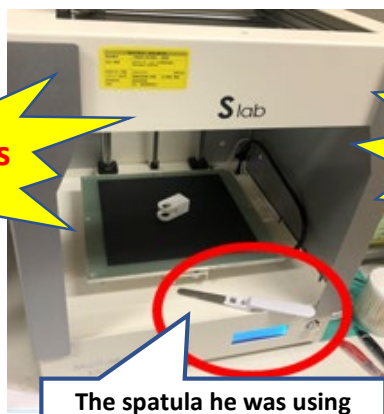


When you suddenly push the switch of an electric drill, the shaft of the tip breaks off and hits the back of your hand.



How to use tools
Applying force

When you use a flathead screwdriver to open the eighteen litre drum, it hits your hand.



The spatula he was using

Hitting your hand when you use a spatula to peel off a part made with a 3D printer.

Sudden movements, recoil



When using a wrench to open the cap of a gas cylinder, the wrench slips and hits your head.

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~Liquid splash and chemical injury edition~

Five minutes before working or experimenting, sense (Imagine and anticipate) as many dangers and accidents as you can think of.

From preparation and inspection to cleanup



When you remove the syringe, the liquid inside flies into your face.



Holding a bottle of reagent with bare.

Keep my hands safe

Reagent adhesion



Putting your elbow on the edge of a draft chamber that has sulfuric acid on it.

How to apply force
Applying force



Protecting my eyes

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While dispensing chloroform from the eighteen litre drum, I pushed the pump so hard that it overflowed the bottle and splashed my face.



While dispensing chloroform from the eighteen litre drum, I pushed the pump so hard that it overflowed the bottle and splashed my face.



Unintentional



Falling down the stairs while carrying a beaker filled with solution. The beaker broke and the solution inside flew into my eye.



While cleaning a tube, the remaining solution in the tube popped out and entered my eye.

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~burn, electric shock, smoke emission edition~

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From preparation and inspection to cleanup

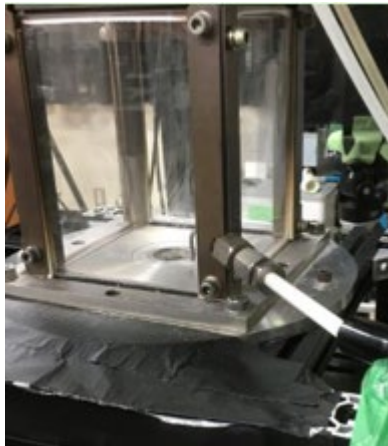


Grabbing a hot crucible with heat-resistant gloves right after casting, I got burned.

Putting out your hand, grabbing with hands without thinking



While using a burner to make a glass container, the clamp that was holding it in place rotated, so I quickly put out my hand and was burned by the burner.



During ignition by spark discharge, the spark rod was held and switched on, resulting in electric shock.



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Fixing points

1 place

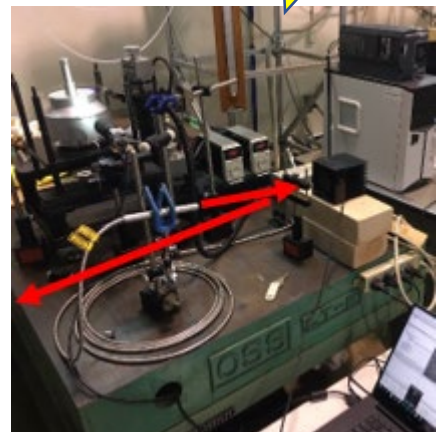
Rotate

Reflected light path

After use Cleaning



During the baking process in a constant-temperature oven at 180° C, the resin inside the container burned and smoke was emitted.



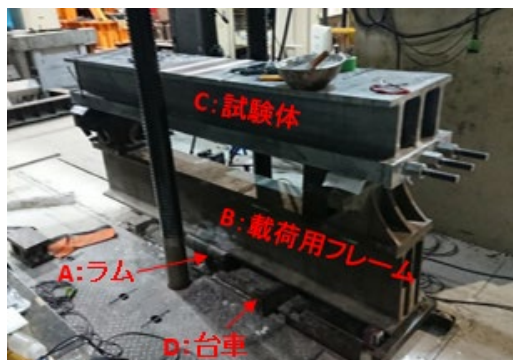
The reflected light of the laser hit the dark curtain behind me and burned it.

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～be pinched, fall down, be bruised edition～

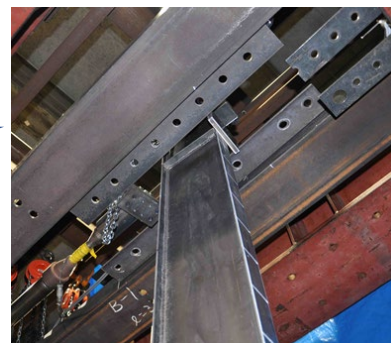
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From preparation and inspection to cleanup



One-man operation

During the descent of the ram, the hand was caught between the descending loading frame and the cart.



When removing the steel fixture from the steel test piece on the loading frame, the test piece moves and pinches my hand.

How to hang



When removing the steel test piece, one of the suspended slings came off and fell.



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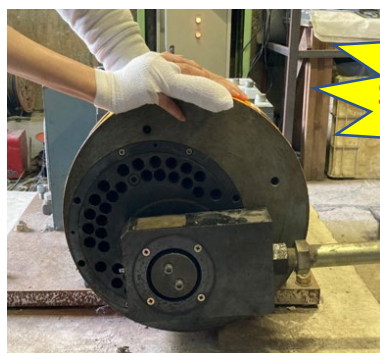
Protecting my head

Without helmet



When attaching the jig to the steel specimen, the specimen rotated and hits my head.

Finger Sticking out



Your hand got caught in a crank while turning a disk on a vibration table for seismic evaluation.

Sleeper Sticking out



Underfoot

While transporting lumber with two other people, he caught his foot on a sleeper and fell.

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~smoke emission, ignition edition~

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What is proper way, procedure

Others

When deactivating sodium hydride that was no longer in use, I took it out of the plastic bag inside a metal bottle and it spontaneously ignited.

When quenching a lithium reagent with ice water in a beaker, it ignited when I continued despite the ice melting.



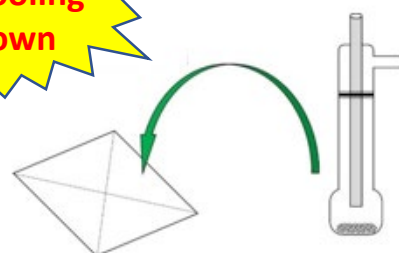
After distilling n-pentane, I tried to post-treat the metallic sodium desiccant left in the glass container, and it ignited when I added methanol.

Unscheduled reactions

Others

When trying to deactivate sodium hydride purchased more than 10 years ago, I took it out of a plastic bag inside a metal can and it ignited.

Cooling down



When the iridium media powder reduced to zero-valence was taken out on the medicine paper, it became red hot and ignited.

Just exposed to air



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Unintentional Easy

Disposal



When a complex containing ruthenium and indium was wrapped in paper and thrown in the trash, it reacted with oxygen and ignited, setting the trash inside on fire.



When hydroiodic acid (0.1ml) was inhaled by a kim-towel in a trash can and disposed of, it started to smoke.