HYGIENE AND SAFETY IN SOAPMAKING

Prevent accidents, protect health and organize a safe workshop

A GUIDE FOR EVERY WORKSHOP
Whether you are a beginner, artisan soapmaker, professional or trainer, safety should not rely on habit. It relies on coherent organization, controlled procedures, suitable equipment and emergency measures known before an accident occurs.

This guide covers: chemical hazards • splashes • burns • cuts • machinery • electricity • falls • manual handling • musculoskeletal disorders • fire • hygiene • storage • first aid • workshop organization.

Eric Bertrand for Apisara Free knowledge base for hobbyists, artisans, professionals and trainers.

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1. Safety begins before production

A soapmaking workshop brings together several types of hazards: corrosive substances, hot liquids and soap paste, slippery surfaces, cutting tools, electrical equipment, manual handling, repetitive work and the storage of many different materials. Risk therefore does not come from a single product. It often results from the combination of a hazardous substance, a poorly prepared action, a cluttered environment or an improvised response.

Prevention follows a simple hierarchy: identify the hazard, assess exposure, eliminate or reduce risk at source, organize the work, then supplement these measures with personal protective equipment (PPE). PPE is essential for some operations, but it never replaces good workstation design or a safe procedure.

> **CORE RULE**

Do not invent an emergency response during the emergency. Rinsing water, eyewash, telephone, safety data sheets (SDS), first-aid kit, exits and instructions must be accessible before work begins.

This is a general guide. For every chemical, the supplier's safety data sheet (SDS) remains the practical reference for hazards, incompatibilities, PPE, storage, first aid and spill response.

2. Quick risk map

Risk family	Examples in soapmaking	Priority prevention
Chemical	NaOH/KOH, alkaline solutions, fragrances, essential oils, cleaning products	SDS, labels, compatible storage, ventilation, procedures, suitable PPE
Thermal	Hot oils, hot-process soap paste, vessels and containers	Controlled temperature, stable containers, suitable gloves, clear work area
Mechanical	Knives, cutters, stick blenders, mixers	Guard moving parts, maintain tools, disconnect before intervention
Falls	Oil/water on floors, cables, boxes, narrow passages	Immediate clean-up, good housekeeping, clear walkways
Manual handling / MSD	Drums, bags, moulds, cartons, repetitive tasks	Reduce loads, use handling aids, suitable work height, rotate tasks
Electrical	Blenders, hot plates, extension leads, damp areas	Sound suitable equipment, dry hands, protected outlets, maintenance
Fire	Heating equipment, electrical faults, combustible materials	Control heat sources, suitable extinguishers, clear evacuation routes

3. Chemical hazards: control before handling

Sodium hydroxide (NaOH) is corrosive and can cause severe skin burns and serious eye damage. Alkaline solutions and fresh soap paste can also be hazardous. Other ingredients may be irritant, sensitising, flammable or otherwise hazardous depending on their concentration.

Before first using any material: read the label and SDS, inspect the container, identify incompatibilities, plan storage and determine the required protection. Any transferred product must remain clearly identified. Food or drink containers must never become anonymous containers for hazardous chemicals.

Preparing an alkaline solution

- Prepare the workstation before opening the product: stable scale, compatible container, measured water, tools ready, clear work area.

- Add the alkali gradually to the water according to the formulation procedure; do not pour water onto a mass of solid alkali.
- Work in a properly ventilated area and avoid placing your face above the container.
- Use a chemically and thermally compatible, stable container with sufficient capacity.
- Keep children, animals and uninvolved persons away from the production area.
- Never leave a hazardous solution unidentified or unprotected against overturning.

AVOID IMPROVISED 'NEUTRALIZATION'

Do not neutralize sodium hydroxide splashed on skin or in the eye with vinegar or another acid. Immediate, copious rinsing with water is the priority. Improvised neutralization can generate heat and delay decontamination.

4. PPE: choose it for the actual hazard

PPE selection depends on the operation and the SDS. Where corrosive splashes are possible, eye protection is fundamental. Depending on the risk, sealed goggles or additional face protection may be required. Gloves must be compatible with the chemical: material, thickness and breakthrough time matter. Consult the SDS and glove manufacturer's data.

Protection	Check	Common mistake
Eyes/face	Suitable splash protection, proper fit, clean condition	Ordinary spectacles or raised protection during handling
Hands	Chemical compatibility, size, integrity, length	Assuming every glove protects against every chemical
Body	Covering clothing, apron where required, closed footwear	Exposed skin, loose sleeves, open footwear
Respiratory	Prioritize source control and ventilation; respiratory protection only when risk assessment/SDS requires it	Using an unsuitable mask instead of adequate ventilation

ALUMINUM — ADDITIONAL SAFETY GUIDANCE (17 NOV 2026)

Never use aluminum or aluminum-alloy containers or utensils with NaOH or KOH solutions. These alkalis attack the metal and can release flammable hydrogen. (INRS FT 20 and FT 35.)

5. Burns, splashes and immediate first actions

A rapid response reduces contact time. For chemical splashes, water must be immediately available. The product SDS takes precedence for specific instructions.

Situation	Immediate action	Avoid / follow-up
Corrosive product in the eye	Begin copious water irrigation immediately, keeping the eye open, for at least 15 minutes. Remove contact lenses if easy and without delaying rinsing.	Do not wait for pain. For sodium hydroxide, seek immediate medical advice/emergency assistance and urgent ophthalmic assessment.
Sodium hydroxide on skin	Carefully remove contaminated clothing and rinse immediately and copiously with water for at least 15 minutes.	Do not neutralize with acid. Obtain medical advice for caustic exposure.
Major chemical splash on body	Use a safety shower if available; rinse copiously and remove contaminated clothing during rinsing.	Protect the rescuer from contamination.

Situation	Immediate action	Avoid / follow-up
Thermal burn	Cool promptly with plenty of cool or lukewarm running water for at least 15 minutes.	Do not tear away material stuck to the burn; seek medical advice according to severity and location.
Inhalation of corrosive mist/aerosol	Move away from exposure without endangering the rescuer; keep at rest.	Seek urgent medical advice for significant exposure or symptoms.
Ingestion of a chemical	Follow the SDS and contact emergency/poison services immediately as appropriate.	Do not induce vomiting; do not improvise treatment.

EMERGENCY NUMBERS In the European Union, 112 is the common emergency number. Display the appropriate local emergency and poison-centre numbers for the country where the workshop operates, together with the workshop's exact address.

6. Thermal hazards

Heat is involved when melting fats, using hot-process methods, cleaning and sometimes packaging. Hot alkaline soap paste combines chemical and thermal hazards.

- Know the temperature before grasping or moving a container.
- Avoid manually carrying a large hot volume when the task can be organized differently.
- Place containers on stable, heat-resistant surfaces away from edges.
- Position handles and cables so they cannot be snagged.
- Do not overfill mixing containers; leave adequate headspace against splashing and overflow.

7. Cuts, machines and tools

Mechanical accidents are often underestimated because the tools are familiar. A soap cutter, knife, stick blender or mixer does not become harmless through experience.

- Cut away from the body and stabilize the item before cutting.
- Keep blades clean, suitable and in good condition; a blunt blade may require more force and encourage slipping.
- Never clear, clean or repair a moving part while the machine can start.
- Disconnect equipment before cleaning, changing accessories or working near a blade.
- Keep loose jewellery, sleeves and hair away from rotating parts.
- Replace damaged cables, plugs and appliances rather than relying on temporary repairs.

8. Electricity, water and damp conditions

Soap workshops frequently combine water, cleaning and electrical appliances. Keep electrical connections away from splash zones, use equipment suitable for the environment and never handle plugs with wet hands. Extension leads should not become permanent wiring or cross walkways without appropriate protection.

9. Slips, trips and circulation

A small quantity of oil, soap or water can make a floor hazardous. The most effective rule is simple: deal with a spill immediately, and mark or restrict the area while it remains slippery.

- Keep aisles, doors and exits clear.
- Keep cables, boxes, buckets and packaging out of walkways.
- Assign fixed places to materials, tools and waste.

- Provide adequate lighting, particularly in storage areas.
- Never stand on a chair, box or container to reach a shelf.

10. Manual handling: drums, bags, moulds and boxes

Good lifting technique is not enough when the load or task is poorly designed. Prevention starts by reducing the weight to be moved, bringing storage and work areas closer together, using a trolley or mechanical aid and limiting height differences.

Situation	Improvement	Principle
Heavy drum on floor	Store at an accessible height or use a pump/trolley	Avoid combining bending with a heavy load
Large filled mould	Reduce mould size or move it on a wheeled support	Reduce handled mass
Boxes stored high	Keep heavy loads between roughly knee and shoulder height where possible	Avoid overhead handling and loss of visibility
Frequent carrying	Redesign workshop flow	Eliminate unnecessary handling

11. Musculoskeletal disorders and ergonomics

Musculoskeletal disorders (MSDs) may be promoted by repetition, force, awkward posture, work with raised arms or a bent back, duration and insufficient recovery. In soapmaking, weighing, blending, unmoulding, cutting, labelling, packing and handling can accumulate.

- Adapt work-surface height to the task and the person.
- Keep frequently used items within easy reach.
- Alternate preparation, cutting, packing and administrative tasks where organization allows.
- Use tools that reduce grip force and repetitive movement.
- Introduce short recovery pauses and redesign the task when repeated discomfort appears rather than waiting for persistent pain.

12. Fire and evacuation

Sodium hydroxide itself is not combustible, but a workshop contains combustible materials, packaging and heating or electrical equipment. Some ingredients, solvents or fragrance materials may have specific fire hazards: consult their SDS.

- Identify heat and ignition sources.
- Keep hazardous-product quantities in the work area to the minimum needed.
- Select firefighting equipment for the actual hazards and train users.
- Keep extinguishers, alarms, electrical panels and exits accessible.
- Never fight a fire if doing so compromises evacuation; raise the alarm and leave.

13. Personal and workshop hygiene

Hygiene protects people, raw materials and product quality. It should be organized as a routine rather than treated as an occasional cleaning operation.

- Do not eat, drink, smoke or vape in areas where hazardous chemicals are handled.
- Wash hands thoroughly after handling and before leaving the workshop.
- Separate work clothing from street clothing where appropriate.
- Clean surfaces according to a defined procedure using identified products.

- Avoid ambiguous utensils: clearly separate production equipment from food-use equipment.
- Dispose of waste in identified, compatible containers.
- Maintain a cleaning plan stating what is cleaned, with what, how and how often.

14. Safe storage: prevent the silent accident

Good storage prevents falling containers, mix-ups, incompatibilities and unnecessary exposure. Chemicals should remain in compatible, closed, labelled containers and be stored according to their SDS.

- Segregate incompatible products according to their SDS.
- Avoid heavy or corrosive containers on unstable or very high shelving.
- Provide secondary containment where leakage risk justifies it.
- Rotate stock and periodically inspect packaging, closures, corrosion, leaks and labels.
- Restrict access to hazardous products to informed persons.
- Never store hazardous chemicals in drink bottles or containers that could be mistaken for food or beverages.

15. Twenty habits that prevent many accidents

No.	Habit	Why it matters
1	Read the SDS before first use	Know hazards, incompatibilities, PPE and first aid
2	Prepare the workstation before opening a product	Avoid improvisation
3	Put PPE on before handling	A splash gives no warning
4	Label every transfer immediately	Avoid mystery products
5	Keep your face out of the line of containers	Reduce exposure
6	Do not work in a passageway	Avoid collisions and spills
7	Clean or secure contaminated floors immediately	Prevent falls
8	Put things away after each operation	Keep the workstation readable
9	Disconnect before working on equipment	Prevent unexpected start-up
10	Do not carry an avoidable heavy load alone	Reduce injury and MSD risk
11	Use a trolley when possible	Remove unnecessary effort
12	Keep exits clear	Enable evacuation
13	Inspect cables and plugs	Prevent electrical accidents
14	Separate work from eating/drinking	Prevent ingestion and contamination
15	Keep water/eyewash accessible	Reduce decontamination delay
16	Know the workshop's exact address	Help emergency services reach you
17	Display emergency numbers	Save time
18	Report near misses	Correct weaknesses before injury
19	Train every new person before independent work	Share the same safety rules
20	Stop when conditions are unsafe	Production can wait

16. What if…? Emergency response table

Event	Immediate response	After the emergency
Alkaline splash in the eye	Rinse immediately and copiously, eye open, for ≥15 min; remove lenses if easy without delaying; obtain immediate emergency/medical help for NaOH.	Urgent medical/ophthalmic assessment; investigate the cause and make the workstation safe.
Sodium hydroxide on skin	Carefully remove contaminated clothing; rinse with plenty of water for ≥15 min.	Obtain medical advice; replace contaminated PPE where necessary.
Chemical spill	Keep people away; identify the product; follow the SDS; intervene only with suitable means and PPE.	Dispose of waste according to procedure; document the incident.
Hot oil/soap paste on skin	Cool with running water for ≥15 min; protect afterwards without tearing away adhered material.	Medical assessment according to extent, depth and location.
Cut	Stop work; provide appropriate first aid; protect against contamination.	Assess the tool, method and need for medical care.
Fall	Secure the area; do not rush to move an injured person; call emergency services when needed.	Remove the cause: floor condition, obstacle, lighting or organization.
Illness/inhalation	Move away from danger without exposing the rescuer; fresh air where appropriate; rest; seek urgent help according to product/symptoms.	Consult the SDS and identify the product to medical responders.
Fire	Raise alarm, isolate energy only if safe, evacuate; use an extinguisher only if trained and escape remains assured.	Do not re-enter until authorized; investigate the event.
Electrical fault/accident	Isolate power without directly touching a person who may be live; call emergency services if needed.	Take equipment out of service until inspected/repaired.
Leaking container	Isolate area, identify contents, use containment/PPE according to SDS.	Repackage compatibly and label; manage waste correctly.

17. Workshop opening checklist

✓	Checkpoint	Question
□	Circulation	Are aisles, doors and exits clear?
□	Floor	Is it clean, dry and non-slip?
□	Emergency rinsing	Is eyewash/shower or suitable rinsing provision accessible?
□	First aid	Are phone, emergency numbers, address, first-aid kit and SDS accessible?
□	PPE	Is it present, clean, intact and suitable?
□	Products	Are all containers closed and labelled?
□	Electricity	Do cables, plugs and appliances appear sound and dry?
□	Tools	Are blades, blenders and equipment in good condition?
□	Ventilation	Is required ventilation operating?
□	Work surface	Is it stable, clean and sufficiently clear?
□	Handling	Is the required trolley/handling aid available before moving loads?
□	People	Does everyone present know the applicable rules?

18. Closing checklist

✓	Checkpoint	Question
□	Products	Are they closed, labelled and stored in the correct place?
□	Waste	Is it identified and correctly stored/disposed of?
□	Surfaces	Has scheduled cleaning been completed?
□	Floor	Are there no remaining slippery areas or leaks?
□	Equipment	Are appliances that should be stopped/disconnected safely shut down?
□	Heat	Are heat sources off or secured?
□	Stock	Are all containers intact and stable?
□	Incident	Has every incident or near miss been recorded?
□	Access	Are hazardous products protected against unauthorized access?

19. Train, report, improve

A useful safety culture is not punitive. It makes problems visible before they become accidents. Every new operator should know the workstation hazards, instructions, PPE, SDS, emergency equipment and alert procedure before working independently.

Near misses are valuable: a drum that almost falls, a splash stopped by goggles, a cable that someone trips over without falling. They reveal a weakness in the system. Recording them and correcting the cause allows action before someone is injured.

20. A simple method for analysing a task

For every operation — receiving, storage, weighing, preparation of alkaline solution, mixing, moulding, cutting, curing, packing and cleaning — ask five questions:

- What is the hazard? Chemical, thermal, mechanical, electrical, ergonomic…
- Who may be exposed, and how?
- Can the hazard be eliminated or reduced at source?
- What technical and organizational measures should be added?
- What PPE and emergency measures are still required?

> **KEY MESSAGE**
>
> Workshop safety is not simply a matter of 'wearing gloves'. It is a chain: workstation design → procedures → training → equipment → housekeeping → protection → emergency response → learning from experience.

21. References and verification resources

INRS — Sodium hydroxide and aqueous solutions, Toxicological Sheet FT 20. Classification, prevention, storage and actions following exposure.

INRS — Chemical risks: emergency measures. Emergency organization, safety showers, eyewash, chemical splashes and thermal burns.

EU-OSHA — OiRA. Risk-assessment approach for small organizations: hazard identification, preventive actions and follow-up.

For professional use, supplement these references with the national regulations that apply, the establishment's risk assessment, current supplier SDS, and guidance from occupational-health and prevention bodies in the relevant country.

Disclaimer

This guide is an educational resource. It does not replace laboratory analysis, an SDS, supplier specifications, a cosmetic safety assessment, a professional workplace risk assessment, medical advice, or the regulatory obligations applicable to the product, workplace and country concerned.

APISARA RESOURCES

In addition to the soap recipe calculator, apisara.org provides Apisara technical guides and reference sheets. Additional educational articles are also published on Substack and Facebook.

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