SAFE SYSTEM OF WORK (SSOW)

CHEMICAL MIXING, DILUTING, AND DECANTING

Early Childhood Education and Care Services

DOCUMENT INFORMATION

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Table of Contents

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SECTION 1

1. PURPOSE AND SCOPE

This Safe System of Work (SSOW) applies to all workers who measure, dilute, mix, decant, or transfer cleaning chemicals and sanitisers in early childhood education and care (ECEC) services. It covers concentrates, working-strength solutions, spray bottle refills, bucket solutions, and any other chemical preparation required for the service's cleaning program.

This SSOW governs the preparation phase that precedes all zone-specific cleaning tasks. Every chemical used in SSOW-IC-001 through SSOW-IC-007 must be prepared in accordance with this document.

⚠ Incorrect dilution, unlabelled containers, and incompatible chemical mixing are direct hazards to children, staff, and the service's regulatory compliance.

This SSOW is designed to be used alongside the service's chemicals register, all relevant Safety Data Sheets (SDS), and Infection Control Module 3 training materials.

SECTION 2

2. TASK DESCRIPTION

This Safe System of Work covers the following chemical preparation and handling tasks.

1 Reading Product Labels and SDS

Before handling any chemical, workers must read the product label and Safety Data Sheet (SDS) to understand hazards, correct dilution ratios, and required PPE.

2 Measuring Chemical Concentrates Accurately

Chemical concentrates must be measured using calibrated measuring equipment to the exact volume specified on the product label or SDS.

3 Adding Water First, Then Chemical

Water must always be added to the container before the chemical concentrate to prevent violent reactions, splashing, and excessive foaming.

4 Mixing and Agitating

Solutions must be gently mixed or agitated after combining water and chemical concentrate to ensure even dilution and consistent concentration throughout.

5 Decanting into Approved Containers

Mixed solutions must only be transferred into approved, purpose-designated containers that are compatible with the chemical being decanted.

6 Labelling Every Container

Every container holding a mixed or decanted solution must be labelled immediately with the product name, dilution ratio, date of mixing, and zone of use.

7 Storing Concentrates Securely

Chemical concentrates must be returned to and stored in the designated locked chemical storage area, upright, and segregated by compatibility group.

8 Cleaning Measuring Equipment

All measuring jugs, syringes, and dispensing equipment must be rinsed thoroughly with clean water after each use and dried before storage.

9 Recording in Chemical Mixing Log

Each mixing event must be recorded in the chemical mixing log, including the product name, quantity prepared, dilution ratio, date, time, and name of the person who prepared it.

10 Disposing of Expired Solutions

Mixed solutions that have exceeded their use-by period must be safely disposed of in accordance with the SDS and local waste disposal requirements.

SECTION 3

3. HAZARD IDENTIFICATION

The following hazards have been identified for this task.

Chemical Burns and Irritation

Direct contact with undiluted or improperly diluted cleaning chemicals can cause burns, skin irritation, or eye damage. Risk increases with damaged PPE, incorrect handling, or failure to follow product safety data sheet guidance.

Toxic Gas Release from Incompatible Mixing

Mixing incompatible chemicals (e.g. bleach with acid-based cleaners or ammonia products) produces toxic gases including chlorine and chloramine. This poses an immediate inhalation hazard and can be life-threatening in enclosed spaces.

Ingestion Poisoning from Unlabelled Containers

Chemicals stored or decanted into unlabelled, incorrectly labelled, or food-grade containers risk accidental ingestion by staff or service users. All containers must be clearly labelled at all times.

Respiratory Irritation and Vapour Exposure

Volatile cleaning agents, aerosol sprays, and concentrated solutions release vapours that irritate the respiratory tract. Prolonged or repeated exposure in poorly ventilated areas can cause chronic respiratory conditions.

Fire, Explosion, and Thermal Hazard

Flammable solvents, alcohol-based products, and aerosol canisters present fire and explosion risks if stored near heat sources, ignition points, or in direct sunlight. Improper disposal of flammable waste compounds this risk.

Spill, Slip, and Environmental Contamination

Chemical spills create slip hazards for staff and visitors and may contaminate drains or surfaces. Inadequate spill response procedures risk environmental harm and regulatory non-compliance.

Chemical Degradation and Loss of Efficacy

Expired, improperly stored, or contaminated chemicals lose disinfecting and cleaning efficacy. Use of degraded products creates a false assurance of cleanliness, allowing pathogens to persist on surfaces.

Incorrect Dilution and Contact Time Failure

Under-dilution or over-dilution of disinfectants, or failure to maintain the required contact time, results in ineffective pathogen kill. Surfaces may appear clean while remaining microbiologically contaminated.

Infection Pathway from Role Switching

Staff moving between clean and dirty zones, or switching between clinical and domestic cleaning roles without changing PPE and equipment, create direct infection pathways that compromise the entire cleaning protocol.

⚠ Toxic gas release from incompatible chemical mixing and infection pathways from role switching represent the highest-risk failure modes. Strict chemical segregation and role discipline must be enforced at all times without exception.

SECTION 4

4. RISK ASSESSMENT (BEFORE CONTROLS)

Hazard	Who is at Risk	Risk Before Controls
Cross-contamination from dirty or misused equipment	Children, staff	**High**
Microbial growth on damp or improperly stored equipment	Children, staff	**High**
Chemical contact and container degradation	Cleaning staff	**Medium**
Equipment damage and structural failure	Children, staff	**Medium**
Zone mixing and colour-code breakdown	Children, staff	**High**
Incorrect dilution or mixing of cleaning chemicals	Cleaning staff, children	**High**
Slips and falls from wet or freshly cleaned floors	Children, staff, visitors	**Medium**
Inadequate cleaning of high-touch surfaces	Children, staff	**High**
Improper disposal of single-use cleaning materials	Cleaning staff	**Medium**

⚠ Hazards rated **High** prior to controls require immediate mitigation measures and must not be deferred. Risk ratings are to be reviewed following any incident or change in procedure.

SECTION 5

5. CONTROL SELECTION — HIERARCHY OF CONTROLS

For each identified hazard, controls are selected starting from the highest level of the hierarchy (Elimination) and working down to the lowest (PPE). PPE is never used as a substitute for higher-order controls.

The hierarchy of controls is applied in descending order: **Elimination → Substitution → Engineering → Administrative → PPE.** Higher-order controls are always preferred and implemented first.

Hazard 1 — Cross-Contamination from Dirty or Misused Equipment

Elimination

- Use disposable or single-use cloths, wipes, and mop pads for high-risk tasks (biohazard, bathroom). Discard after one use.
- Immediately discard any equipment used on a biohazard spill (vomit, faeces, blood) if it cannot be effectively decontaminated.

Substitution

- Substitute reusable string mops and shared buckets with launderable microfibre flat mop systems that can be changed between rooms.
- Substitute reusable sponges with disposable or launderable microfibre cloths.

Engineering

- Separate, labelled storage stations for each zone (red, blue, green) with physical separation.
- Drying racks with open airflow for mop heads, cloths, and pads.
- Bucket wringers that remove excess water effectively.

Administrative

- Clean and rinse all equipment after every use.
- Colour-coded system strictly enforced. Red equipment never enters blue or green zones.
- Equipment audit schedule — supervisor checks weekly that equipment is stored correctly and not mixed.
- One-task-one-cloth rule: never reuse a cloth between rooms or tasks without laundering.

PPE (Last Line of Defence)

- Disposable gloves during equipment cleaning and maintenance.

Hazard 2 — Microbial Growth on Damp or Improperly Stored Equipment

Elimination

- Dry all equipment fully before storage. Damp equipment is removed from service until dry.
- Empty and rinse buckets completely after every use. No standing water is left in buckets.

Substitution

- Substitute moisture-retaining equipment (sponges, thick cotton mops) with quick-dry microfibre systems laundered at high temperature.

Engineering

- Drying racks with vertical airflow.
- Ventilated storage area with low humidity.
- Bucket racks that allow upside-down drainage.

Administrative

- Launder reusable cloths, mop heads, and pads at 60°C or above after each use.
- Store all equipment off the floor, hung vertically, and in designated zone areas.
- Weekly inspection of stored equipment for dampness or odour.
- Discard any cloth or pad that smells, shows mould, or has been left damp for more than 24 hours.

PPE (Last Line of Defence)

- Disposable gloves when handling mouldy or contaminated equipment.

Hazard 3 — Chemical Contact and Container Degradation

Elimination

- Use pre-mixed, ready-to-use products in manufacturer-approved containers to eliminate on-site mixing and decanting.
- Remove damaged, cracked, or leaking spray bottles and containers from service immediately.

Substitution

- Substitute glass or brittle containers with durable, chemical-resistant plastic bottles.
- Use closed-system dispensing where practicable.

Engineering

- Chemical-resistant storage shelving.
- Spill tray under chemical storage.
- Ventilated storage area.

Administrative

- Labels intact and legible on every container. Never use unlabelled bottles.
- SDS accessible at the storage station.
- Inspect containers for cracks, leaks, and trigger failures before each use.

PPE (Last Line of Defence)

- Chemical-resistant gloves.
- Eye protection if cleaning chemical residue from equipment.

Hazard 4 — Equipment Damage and Structural Failure

Elimination

- Remove damaged equipment from service immediately. Frayed mop heads, cracked buckets, broken handles, split triggers, and damaged vacuum components are discarded or tagged out.

Substitution

- Use durable, commercial-grade equipment designed for high-frequency use.
- Substitute single-component items with modular systems where only the worn part is replaced.

Engineering

- Regular maintenance schedule for vacuum cleaners, wringers, and trolleys.
- Equipment inspection checklist used before each shift.

Administrative

- Pre-use inspection before each shift.
- Tag-out and discard protocol for damaged items.
- Stock and replenishment system ensures replacement items are available immediately.
- Equipment register tracking purchase date, inspection date, and discard date.

PPE (Last Line of Defence)

- Closed-toe footwear to prevent injury from dropped or failing equipment.

Hazard 5 — Zone Mixing and Colour-Code Breakdown

Elimination

- Each zone has physically separate, dedicated, and labelled storage. Red, blue, and green equipment never share a storage container or station.
- Fixed equipment (mop handles, vacuum

Substitution

- Colour-coded equipment (red, blue, green) for all non-fixed items.
- Single-use pads discarded after one room use, eliminating cross-zone reuse tracking.

Engineering

- Physical barriers or separate cupboards for each zone.
- Colour-coded wall brackets and hooks at each storage station.

SECTION 6

6. RESIDUAL RISK ASSESSMENT (AFTER CONTROLS)

Following implementation of all selected controls, the residual risk level for each identified hazard has been assessed. All hazards have been reduced to **Low** risk. Ongoing verification is required to ensure controls remain effective.

Hazard	Residual Risk	Verification Method
1. Cross-contamination from dirty or misused equipment	Low	Single-use policy verified for biohazard tasks. Post-use cleaning log signed by operator. Weekly colour-code audit completed and passed.
2. Microbial growth on damp or improperly stored equipment	Low	Dryness of all equipment verified before storage. Laundry temperature log maintained at 60°C+. No odour or visible mould observed during weekly storage inspection.
3. Chemical contact and container degradation	Low	All containers confirmed labelled and legible. No damaged or cracked bottles in active service. SDS present and accessible at storage station.
4. Equipment damage and structural failure	Low	Pre-shift inspection checklist completed and signed. No tagged-out items found in active use. Equipment register current with purchase and inspection dates recorded.
5. Zone mixing and colour-code breakdown	Low	Weekly colour-coding audit passed by supervisor. Physical separation of zone storage verified. No mixed-use or cross-zone items observed.
6. Slip and fall from wet floors or spills during cleaning	Low	Wet floor signage deployment verified during all cleaning tasks. Non-slip footwear compliance checked at shift start. Incident log reviewed — no slip events recorded.
7. Musculoskeletal injury from manual handling of equipment	Low	Ergonomic equipment in use confirmed (adjustable handles, lightweight systems). Manual handling technique observed during induction and spot checks. No injury reports related to handling in current period.
8. Inadequate dilution or misuse of cleaning chemicals	Low	Pre-mixed or auto-dilution systems in use verified. No unlabelled or mixed bottles found in service. Staff chemical awareness training records current and on file.
9. Failure to decontaminate after biohazard spill	Low	Biohazard spill response procedure followed and documented. Disposable equipment discarded post-use and verified. Supervisor sign-off on biohazard incident decontamination log completed.

⚠ All residual risk ratings are conditional on full and consistent implementation of the controls specified in Section 5. Failure to maintain any control measure may elevate the risk rating and must be reported immediately to the supervising manager.

ⓘ Verification records, audit logs, and inspection checklists must be retained for a minimum of 12 months and made available upon request for regulatory review.

SECTION 7

7. BACKUP AND EMERGENCY PROCEDURES

The following emergency procedures must be followed immediately in the event of a chemical incident, exposure, or staffing shortfall. All staff must be familiar with these procedures prior to commencing cleaning duties.

7.1 Chemical Spill

In the event of a chemical spill, stop all nearby activity and follow these steps immediately.

Step 1 — Isolate the Area
Immediately cordon off the spill area. Keep children, staff, and visitors at a safe distance. Display wet floor signs and restrict access.

Step 2 — Identify the Chemical
Locate the Safety Data Sheet (SDS) for the spilled chemical. Confirm the correct clean-up procedure, required PPE, and neutralisation method before proceeding.

Step 3 — Don Full PPE
Put on gloves, eye protection, and any additional PPE specified in the SDS before approaching the spill. Do not attempt clean-up without appropriate protection.

Step 4 — Contain and Absorb
Use absorbent material (e.g., paper towels, spill kit granules) to contain the spill from the outside in. Avoid spreading the chemical further. Dispose of all absorbent material as chemical waste.

Step 5 — Clean and Decontaminate
Clean the affected surface with water and appropriate neutraliser as per the SDS. Rinse thoroughly. Ensure the area is safe before reopening.

Step 6 — Report and Record
Report the spill to the supervising manager immediately. Complete an incident report and record the event in the chemical incident log. Notify relevant authorities if required.

⚠ **SDS Access:** Safety Data Sheets for all chemicals must be accessible at the point of use at all times. If an SDS cannot be located, do not proceed with clean-up — contact your supervisor immediately.

7.2 Toxic Gas or Fume Exposure

If toxic fumes are detected (e.g., from accidental chemical mixing or concentrated product use in an enclosed space), act immediately.

1

Evacuate Immediately
Remove all persons from the affected area without delay. Do not re-enter the space under any circumstances.

2

Ventilate the Area
Open all windows and doors if safe to do so from outside the affected space. Activate ventilation systems remotely if available.

3

Call Emergency Services
Call **000** if anyone is affected or the area cannot be safely ventilated. Provide details of the chemical(s) involved.

4

Do Not Re-enter
The area must not be re-entered until cleared by emergency services or confirmed safe by a qualified person.

⊗ **Never mix chemicals.** Mixing bleach with ammonia-based products or acids produces toxic chlorine or chloramine gas. Always read SDS documents before use and store incompatible chemicals separately.

7.3 Ingestion or Eye Contact

In the event of accidental ingestion of a chemical or chemical contact with eyes or skin, follow first aid procedures immediately and contact the relevant emergency service.

👁 Eye Contact
Immediately flush the affected eye with clean running water for at least **15 minutes**, holding the eyelid open. Remove contact lenses if present and easy to do. Seek medical attention immediately. Do not rub the eye.

☠ Ingestion
Do **not** induce vomiting unless instructed by a medical professional. Rinse mouth with water. Call the Poisons Information Centre or emergency services immediately. Have the SDS or product label ready.

🖐 Skin Contact
Remove contaminated clothing immediately. Flush the affected skin with large amounts of running water for at least **15 minutes**. Apply no creams or neutralisers unless directed by medical advice. Seek medical attention if irritation persists.

🫁 Inhalation
Move the affected person to fresh air immediately. Loosen tight clothing. If breathing is difficult or the person is unconscious, call **000** without delay. Monitor and keep warm.

⊗ 🚨 **Emergency Contacts:**
Poisons Information Centre: **13 11 26** (24 hours, 7 days)
Emergency Services: **000**
Always refer to the product SDS for specific first aid instructions. Keep this number posted at all chemical storage and use points.

7.4 No Dedicated Cleaner On-Site

When a dedicated cleaner is not present, specific ratio verification requirements must be met before any cleaning or decontamination task is assigned to an educator.

1

Verify Ratios
The Nominated Supervisor must confirm that child-to-educator ratios are fully maintained across all rooms before any educator is redirected to a cleaning task.

2

Confirm Competency
The educator assigned must have completed cleaning induction training and be familiar with the relevant SDS and PPE requirements for the task.

3

Assign Supervision Cover
A second staff member must confirm they are covering the room during the educator's absence. Written acknowledgement is required in the supervision log.

4

Limit Task Scope
Educators must only perform low-risk, routine cleaning tasks. Biohazard decontamination and chemical spill clean-up must wait for qualified cleaning staff unless an immediate safety risk exists.

5

Notify Management
The absence of a dedicated cleaner must be reported to management immediately. A replacement or contractor must be arranged as a priority if cleaning needs cannot be safely met.

⚠ **Compliance Requirement:** Ratios must never be compromised to perform cleaning duties. The Nominated Supervisor is personally responsible for verifying and documenting ratio coverage before any educator is redirected. Non-compliance must be reported to the Approved Provider.

REFERENCES AND LEGISLATION

- Work Health and Safety Act 2011 (NSW) / WHS Regulations 2017
- WHS Regulation 36. Hierarchy of Control
- WHS Regulation 330. Safety Data Sheets
- WHS Regulation 335. Labelling of hazardous chemicals
- Education and Care Services National Law Act 2010 (National Law)
- Education and Care Services National Regulations 2011 (Regulation 113, 168)
- National Quality Standard (NQS). Quality Area 2. Children's Health and Safety
- Poisons Standard (SUSMP)
- Australian Dangerous Goods Code (ADG Code)
- Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- TGA-registered disinfectant product labels and SDS

DOCUMENT CONTROL

This SSOW must be reviewed under the following conditions:

- Every 12 months
- After any incident, near-miss, or regulatory visit
- When any new chemical is introduced to the service
- When the cleaning product, equipment, or procedure changes
- When legislation or guidance changes

DISTRIBUTION

All staff, cleaning contractors, and relief educators. Digital copy maintained in the service's WHS register and chemical register.

RELATED DOCUMENTS

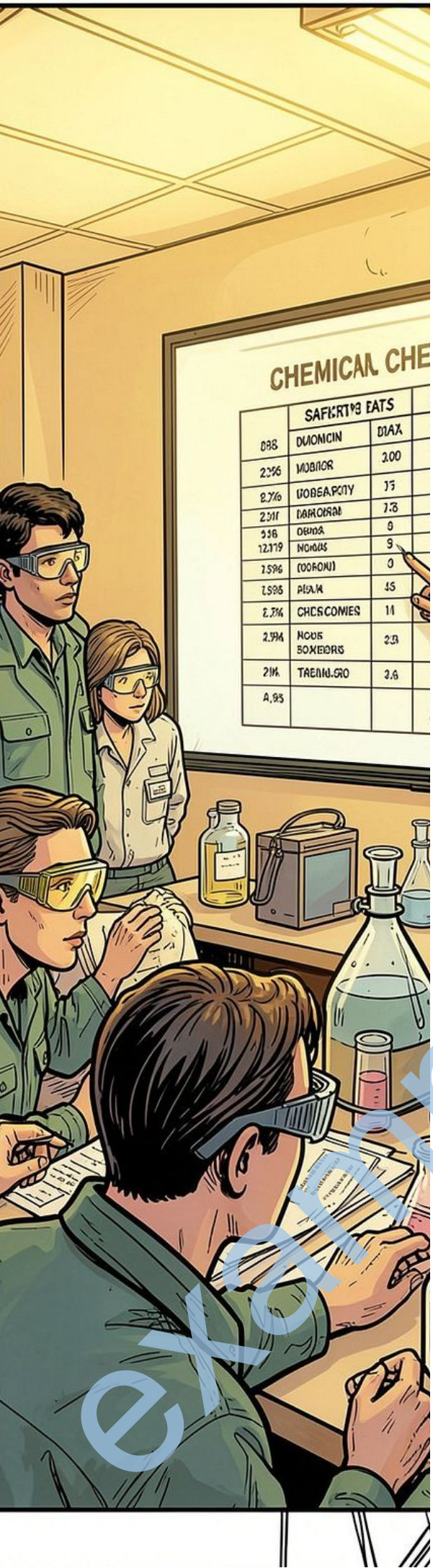
- SSOW-IC-001. Toilet and Children's Bathroom Cleaning and Disinfection
- SSOW-IC-002. High-Touch Surface Cleaning and Disinfection
- SSOW-IC-003. Toy Cleaning and Sanitisation
- SSOW-IC-004. Sleep Surface Sanitisation
- SSOW-IC-005. Kitchen and Food-Prep Surface Cleaning and Sanitisation
- SSOW-IC-006. Floor Cleaning and Sanitisation
- SSOW-IC-007. Cleaning Equipment Hygiene and Maintenance
- NCCS Framework v2.1
- Infection Control Module 3. Cleaning and Biohazard Management

APPROVED PRODUCTS

The following table lists all approved chemical products for use in this service. Only products listed below may be used. Any new chemical must be approved by the Nominated Supervisor and WHS Officer before introduction.

Product	Concentrate Strength	Target Dilution	Decant Container / Label	SDS Location
[Insert detergent concentrate]	[Insert]	[Insert]	[Insert approved bottle type]	[Insert]
[Insert sanitiser concentrate]	[Insert]	[Insert]	[Insert approved bottle type]	[Insert]
[Insert disinfectant concentrate]	[Insert]	[Insert]	[Insert approved bottle type]	[Insert]
[Insert outbreak-strength product]	[Insert]	[Insert per outbreak protocol]	[Insert approved bottle type]	[Insert]
Pre-mixed ready-to-use (if applicable)	n/a	n/a	Manufacturer container	[Insert]

Note: Pre-mixed, ready-to-use products are the preferred elimination control where practicable. Concentrate mixing is only performed when pre-mixed products are not economically or operationally viable for the specific application.



Section 8: TRAINING AND COMPETENCY

This SSOW must be read and understood before any worker performs this task unsupervised. All workers must complete the following items:

- Infection Control Module 3 (chemical safety and hazard awareness)
- Reading and interpreting SDS and product labels
- Practical demonstration of correct dilution using the service's approved measuring devices
- Practical demonstration of correct labelling procedure
- Incompatible chemical identification and hazard awareness
- Spill response and emergency eyewash use
- PPE donning and doffing for chemical handling
- Fire safety and chemical storage
- Supervisor sign-off on competency register

Refresher training occurs every 12 months, or earlier if incident or audit indicates skill degradation. Any worker who introduces a new chemical to the service must complete product-specific SDS training before first use.