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‘STUDENT 101’ Fume Cupboard and Fumeflow Fan USER MANUAL

CONTENTS:

FEATURES

1. Smoothflow Fume Cupboard Features
2. Sash Stop
3. Baffles

PREPARATION

4. Warning!
5. Guidelines for Safety

OPERATION

6. Operating Instructions
7. Faults
8. Trouble shooting

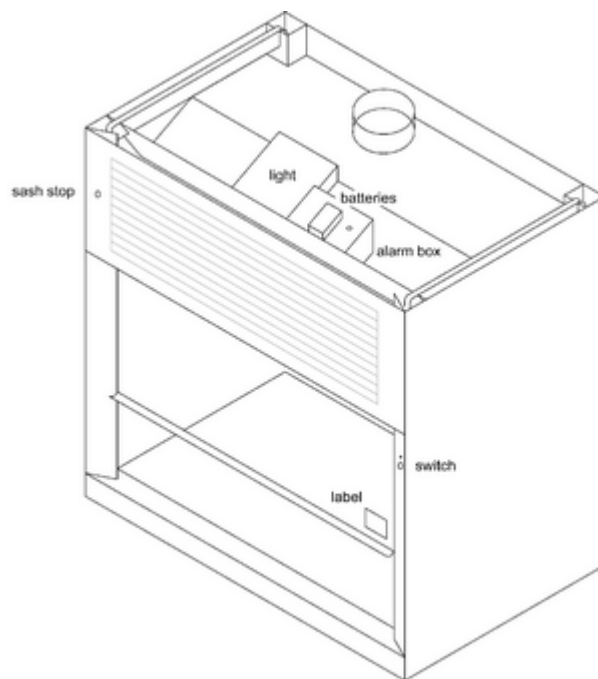
MAINTENANCE

9. Monthly
10. Six Monthly
11. Annually

DRAWINGS

COMMISSIONING & REPORTS

Smoothflow Fume Cupboard Features



Alarm box

the alarm box is located on top of the fume cupboard
It contains a delay off timer for the fan, and sensing for low airflow or power failure. The system is activated by the switch.
battery* energy for the alarm indication
*refer maintenance instructions

Light illuminates the work area
the light is located on top of the fume cupboard

Sash stop
limits the opening height of the sash in normal operation
releases the sash to full height for service access
located on the left front pillar

Label important user information
spillage capacity
warning notice
fume cupboard serial number
located on the right corner of the sash

SASH STOP

The sash stop is located on the left front pillar

The sash stop limits the sash opening height to about 450mm.

With the opening restricted, less air flow is required to achieve fume capture.

The sash can be released for maximum opening for cleaning inside the fume cupboard, or setting up equipment before the work starts.

ALWAYS lower the sash before commencing work

NEVER use the fume cupboard with the sash above the stop.

To release the sash:

1. Raise the sash until it reaches the upper stop position
2. Gently pull the ring on the spring bolt
3. Raise the sash above the stop

The stop will automatically reset when the sash is lowered

BAFFLES

There are three baffles in the fume cupboard. The baffles are easily removed to facilitate cleaning of the entire fume chamber. This should be done as often as the work requires, and at least monthly (refer maintenance instructions)

ALWAYS remove ALL chemicals and equipment from the fume cupboard.

ALWAYS wear personal protective equipment before handling baffles. Protective equipment must be suitable for the chemicals used inside the fume cupboard. Refer to Supervisor. Minimum requirements are overalls or coat with **long sleeves**; suitable **eye protection** - glasses, goggles or mask; and suitable **gloves**.

Front Baffle

The front baffle hangs just behind the bypass grille and sash (see drawing). The clear PVC baffle hangs from two hooks, one on each sash guide. Carefully lift the baffle off both hooks at once to avoid fracture of a hook.

Replace the baffle by reverse action. Carefully hang the baffle on both hooks at once to avoid fracture of a hook.

Rear Baffles

The rear baffles hang from screws in the counterweight tubes. The baffles have “keyholes”. Lift each baffle about 6mm to clear the screw heads, and take it out.

Replace the baffles by reverse action.

WARNING LABEL

The label located at the bottom right corner of the sash has important user information.

WARNING

Spillage volume 2L
Observe chemical limits
specified by Supervisor

NO IGNITION SOURCES IN SUMP

Student 101 serial # 101

Calibre Solutions Ltd, Kaipara, New Zealand

1. The spill containment volume of this fume cupboard is stated on the label. The Supervisor may use this volume to limit quantities of chemicals permitted in the fume cupboard.
2. ***BEFORE*** the fume cupboard is used, the **Supervisor** is responsible for carrying out a **RISK ANALYSIS** of the work. Consider the nature of chemicals and processes to be used, to determine limiting quantities of hazardous, flammable, oxidizing and corrosive substances allowed within the fume cupboard. Remember that all liquids within the fume cupboard (including water) may displace other substances during an incident. The supervisor is to make a list of chemical quantity limits, which is to be readily accessible to all persons using the fume cupboard.
3. Ignition sources are not to be placed within the sump of the fume cupboard.
4. The serial number of this fume cupboard may be requested when seeking technical support, available Toll Free in New Zealand: **0800 422 542**

GUIDELINES FOR USING FUME CUPBOARDS

The fume cupboard is a ventilated work space designed aerodynamically for the safety of the operator. It will not work properly if it is cluttered up with excess equipment or vessels, which affect the air flow.

Before starting work, clean out the fume cupboard. Remove everything which is not needed. All chemicals from the fume cupboard should be removed to a suitable store. Cleaning the internal surfaces will reduce the risk of contamination. It will also reduce the risk of mixing incompatible substances.

Before starting work, refer to the Laboratory Supervisor's risk analysis and schedule of chemical quantities permitted in the fume cupboard. Make sure that the fume cupboard is suitable for the intended use, and has enough space to do the work safely.

Adopt work methods that minimise the release of fumes. Consider appropriate

quantities of substances involved, the rate of reaction, and design of apparatus.

Make sure the fume cupboard is working. Start up the fume cupboard (see operating instructions), and check the status of all alarms, especially air flow. Look around the room and close any windows or doors which could cause cross-draughts

Set up all the equipment required for the work inside the fume cupboard, with sufficient quantity of reagents. Position apparatus and materials near the centre and rear of the work space. Ignition sources are not to be placed within the sump of the fume cupboard. Check that a suitable fire extinguisher is at hand.

The fume cupboard is now ready for use.

Wear protective equipment appropriate to the task.

Keep the sash lowered as much as practical during use.

After use, dispose of waste substances with due regard for their potential to create hazards, and within the rules of the local water authority. Refer also to the Laboratory Supervisor, and the laboratory risk analysis.

Maintain the fume chamber in clean condition to avoid chemical contamination and damage to the fume cupboard. Remove unused chemicals to a suitable store. Do not use a fume cupboard for storage of chemicals. Lower the sash.

Turn the fume cupboard off. The fan will continue to operate on a timer, then turn off automatically after 5 minutes.

Operation of STUDENT 101

Turn switch on to start fan and light

Alarm will sound and light up*

Wait for alarm to cease before starting chemical work

Turn switch off when finished work.

Fan and light continue for 5 minutes, then turn off automatically

* If alarm does not indicate at startup, **DO NOT USE** fume cupboard.
Replace 3 x AA batteries in alarm box.

* Alarm will indicate if airflow is low, or if power fails.

DO NOT USE fume cupboard. Turn switch off to mute alarm

MAINTENANCE

BEFORE undertaking any maintenance of the fume cupboard, obtain a summary of chemical or other hazards from the laboratory supervisor

BEFORE undertaking any maintenance of the duct or fan, isolate the power supply and tag the fume cupboard “system under maintenance - do not use”

Monthly Maintenance

Remove all chemicals and equipment from the fume chamber.
Remove the rear baffles as described in Section 3 of this manual
Clean the fume chamber with dilute detergent
Replace the baffles

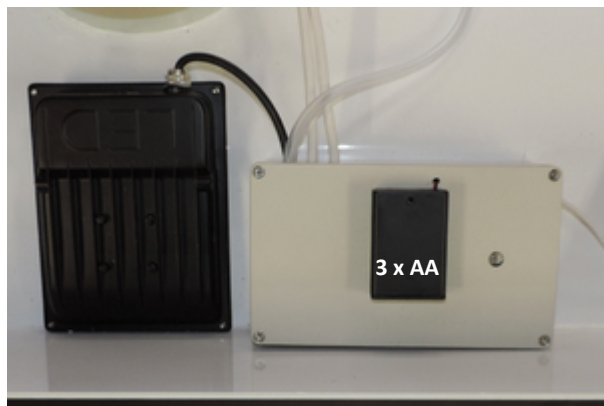
Six Monthly Maintenance

Inspect and maintain the fan
Check all fixings
Perform smoke and velocity tests as AS/NZS 2243.8 Appendices F and E
Submit a maintenance and test report to the laboratory supervisor

Annual Maintenance

In addition to six monthly tasks, carefully inspect the fume chamber for defects, and repair as required.
Check the sash counterweight cords for wear.
Replace 3 x AA batteries for airflow and power failure alarms

Inspect the exhaust duct from fume chamber to stack



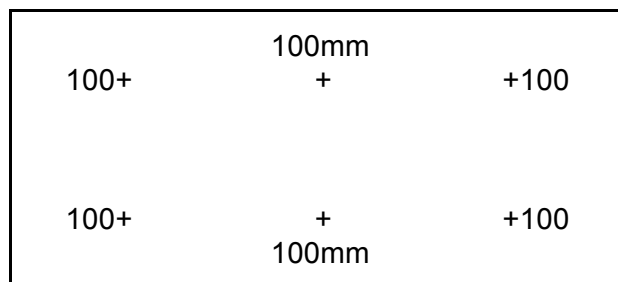
Assess the whole system for compliance with AS/NZS 2243.8
Perform smoke and velocity tests as AS/NZS 2243.8 Appendices F and E
Submit a maintenance, audit and test report to the laboratory supervisor.
Affix a label to the fume cupboard showing date of inspection and overall test result.

COMMISSIONING

Refer the operating instructions
Start the fume cupboard.

Measure the airflow

Raise the sash to the maximum operating position (sash stop)
Measure the air velocity in the plane of the sash at six (6) positions



The average velocity must be more than 0.5 m/sec. We recommend commissioning to 0.55 m/sec. Adjust the fan speed as below.
Record the velocity measurements in a commissioning report.
Conduct a smoke test (AS/NZS 2243.8) and record the observations.

Adjust the airflow alarm sensor (pressure switch):

The pressure switch is mounted in the lid of the fume cupboard controller.

Adjust the white plastic cross-head screw clockwise to raise the set point (more sensitive) or anticlockwise to reduce the set point (less sensitive).

A practical guide:

Turn the set point up until the Airflow alarm sounds

Turn the set-screw down until the alarm ceases.

To check the alarm, pull the clear PVC pilot tube out of the duct.

The alarm should sound after 2-3 seconds.

Ensure the pilot tube is re-fitted in the duct.