

Safe Work Procedure

Fume Hood Testing Safety

Program/Services Laboratory and Chemical Safety		Document ID RSS 18.08.4	Department: Risk and Safety Services
Personal Protective Equipment or Devices Used • Hearing protection (where noise exceeds 85 dB) • Splash goggles • Chemical-resistant gloves • CSA-approved protective footwear	Training Requirements • WHMIS Training • Classroom instruction on fume hood operation and testing • Practical training on use of thermal anemometer/VelociCalc	Applicable Documents • Personal Protective Equipment Program • WHMIS Program • Manufacturer Instructions for Thermal Anemometer/VelociCalc • Fume Hood Test Record	Creation Date: 07 Mar 2019
			Effective Date: 21 October 2026
			Next Review: October 2027
			Revision no.: 4 Reviewer: Safety Technician

HAZARD IDENTIFICATION — VISUAL SUMMARY

CHEMICAL/FUME EXPOSURE	HIGH SOUND LEVELS	FOOT INJURY	SLIPS / TRIPS
			
Review SDS and use required PPE and ventilation.	Wear hearing protection when noise may exceed safe exposure levels.	Wear CSA-approved protective footwear.	Keep walking and working surfaces clean and dry.

PURPOSE

To establish safe work requirements for the annual testing and verification of laboratory fume hood performance at Thompson Rivers University. This procedure provides operational requirements for evaluating face velocities, documenting results, identifying deficiencies, and ensuring fume hoods continue to provide effective engineering controls for worker protection.

This procedure applies to all TRU fume hoods that require performance testing and verification.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The following PPE shall be worn as required by the task and hazard assessment:

- CSA-approved protective footwear.
- Splash goggles when chemicals within the hood may need to be moved during testing.
- Chemical-resistant gloves appropriate to the materials being handled.
- Hearing protection where sound levels exceed 85 dB.
- Additional PPE identified through hazard assessment or SDS review.

PRE-USE REQUIREMENTS

- Confirm authorization and training to perform fume hood testing.
- Review previous annual test records and note any special testing conditions documented for the hood.
- Ensure the thermal anemometer/VelociCalc is in proper working condition.
- Verify the thermal anemometer/VelociCalc batteries are adequately charged.
- Inspect testing equipment for damage or defects before use.
- Confirm the established sash height is marked and visible.
- Verify only essential equipment remains within the hood.
- Confirm the laboratory environment can safely support testing activities.
- Confirm chemicals present are properly labelled and maintained in accordance with WHMIS requirements.
- Review applicable Safety Data Sheets (SDS) before moving chemical containers or equipment within the hood.
- Verify emergency exits, eyewash stations, and safety showers remain accessible.

OPERATING RULES

General

- Fume hoods shall be evaluated at least annually.
- Hoods may be turned off when not in use only where adequate general laboratory ventilation is maintained and no toxic materials remain within the hood.
- Hoods must remain operational where toxic materials are present or where the hood provides ventilation to connected chemical storage cabinets.
- Materials such as paper shall not be permitted to enter hood exhaust systems.
- The sash opening established during initial testing shall be maintained for future testing activities.
- The normal sash opening is approximately 12 inches unless a different height is required to achieve acceptable airflow performance.

Fume Hood Operation

- Chemicals shall not be stored in fume hoods.
- Chemical containers shall be removed from testing areas where practical.

- The hood sash should remain closed except when work is being performed or testing requires access.
- Waste chemicals shall be disposed of using approved disposal procedures and never through the hood exhaust system.
- Materials capable of obstructing airflow shall not be permitted to enter hood exhaust systems.
- Equipment should be positioned as far back in the hood as practical.
- Hot plates, heating mantles, and similar equipment should generally be positioned at least 150 mm (6 inches) from the sash opening.

SAFETY RULES

- Do not test a fume hood if unsafe conditions are present.
- Avoid placing body parts deep within the hood unless required for testing.
- Use caution when moving chemicals or laboratory equipment to obtain accurate measurements.
- Follow SDS requirements whenever hazardous products are present.
- Maintain awareness of laboratory activities occurring nearby during testing.
- Do not bypass, alter, disable, or adjust laboratory ventilation controls unless authorized.
- Report defective hoods immediately to Facilities and complete a work order when corrective action is required.
- If airflow falls outside acceptable operating parameters, notify the responsible department and initiate corrective action.

HOUSEKEEPING

- Keep work areas free of unnecessary materials.
- Remove tripping hazards before beginning testing.
- Maintain clear access to exits and emergency equipment.
- Return testing equipment to designated storage locations after use.
- Remove any waste or temporary materials generated during testing.

HANDLING PROCEDURES

Task 1: Initial Fume Hood Assessment

- Review previous annual test results.
- Identify permanent equipment, obstructions, or special conditions that may affect airflow.
- For first-time testing, establish and document the optimum sash height.
- Mark the sash height to facilitate consistent future testing.
- Verify only essential equipment remains within the hood.

Task 2: Airflow Measurement

- Lower the sash to the established test position.
- Mentally divide the hood face into 9 or 12 equal sections depending on hood size.

- Ensure the probe sensor window is fully exposed and facing upstream.
- Adjust the probe orientation as required using the articulated probe joint and locking nut.
- After the instrument startup sequence is complete, select Velocity/Flow Rate mode.
- Press the Next Test key to zero the instrument before each new test.
- Confirm a new test number is displayed.
- Position the probe 4 to 6 inches inside the fume hood opening.
- Do not stand immediately behind the probe while measurements are being taken.
- Obtain ten samples from the centre of each section.
- Record the average velocity for each section.
- Review average, high, and low readings using the Statistics function.
- Continue until all hood face sections have been tested.

Task 3: Data Review and Acceptance Criteria

- Average only the individual average readings collected from each section.
- Record the resulting value as the overall hood face velocity.
- Record the overall high and low readings observed during testing.
- Acceptable face velocity shall be maintained between 80 and 120 ft/min.
- Compare results against the acceptable airflow criteria.
- Document all test results on the approved Fume Hood Test Record.

Task 4: Corrective Action

- Where average face velocity falls outside the acceptable range, initiate corrective action.
- Submit a maintenance work order.
- Notify the responsible department or laboratory representative.
- Document deficiencies identified during testing.
- Document all corrective actions initiated as a result of testing.

HAZARD CONTROLS — DETAILED TABLE

Hazard	Control Measure
Exposure (Chemical / Fume)	Review SDS requirements, wear required PPE, and use local ventilation provided by the fume hood during testing.
High Sound Levels	Wear hearing protection when required and limit exposure where reasonably practicable.
Foot Injury	Wear protective footwear appropriate for laboratory and maintenance environments.
Slips / Trips	Remove hazards promptly and maintain good housekeeping practices.
Strains / Musculoskeletal Injury (MSI)	Use proper lifting techniques when repositioning equipment or chemical containers.

RECORDS/VERIFICATION OF UNDERSTANDING

- Maintain training records for personnel performing fume hood testing.
- Verification of understanding must be completed where required.
- Fume hood testing records shall be maintained and made available upon request.
- Calibration records for testing equipment shall be maintained in accordance with manufacturer requirements.
- Records must be available upon request.

WORKING ALONE

Where an employee performs work alone or in isolation, a Working Alone Risk Assessment and Check-In Procedure shall be implemented in accordance with the TRU Working Alone Program.

Workers shall not work alone where prohibited by the TRU Working Alone Program, applicable risk assessments, departmental procedures, or approved safety plans.

High-risk work activities shall not be performed while working alone unless an approved risk assessment, safety plan, and appropriate controls have been established.

Where applicable, additional controls shall be implemented when emergency response may be delayed, assistance may not be readily available, or the consequences of an incident may be increased due to isolation.

ANNUAL REVIEW

Risk and Safety Services (RSS) will complete a review of this Safe Work Procedure annually to ensure it remains current and effective. The Joint Occupational Health and Safety Committee (JOHSC) may be consulted during this review.

A review will also occur if:

- Regulatory requirements change.
- The procedure is reported to be ineffective.
- An incident occurs involving operation.

APPLICABLE OCCUPATIONAL HEALTH AND SAFETY REGULATION (OHSR)

SWP Section	Requirement Met	WorkSafeBC Regulation Reference
Training Requirements	Worker instruction and supervision	OHSR 3.23-3.25
Hazard Identification and Risk Assessment	Identification and control of hazards	OHSR 4.3, 4.13
Working Alone	Worker monitoring and check-in requirements	OHSR 4.20.1-4.21
Housekeeping	Maintaining safe work areas	OHSR 4.39
WHMIS and SDS Requirements	WHMIS program and worker training	OHSR 5.5, 5.6, 5.7
WHMIS and SDS Requirements	SDS availability	OHSR 5.16
Chemical Exposure Controls	Hierarchy of controls	OHSR 5.55
Fume Hood Testing	Workplace exposure assessment	OHSR 5.53
Fume Hood Testing	Ventilation control of contaminants	OHSR 5.64
Fume Hood Testing	Ventilation effectiveness verification	OHSR 5.67
PPE Requirements	Eye protection	OHSR 8.14

SUMMARY OF CHANGES

Rev#	Date	Change	Issued By
1	07 Mar 2019	New document	OHS Officer
2	15 May 2019	Review, revisions and new format	Safety Officer
3	22 Aug 2024	RSS update	Safety Advisor

4	16 Jul 2026	Full rewrite into current RSS SWP template. Incorporated original testing methodology, operational requirements, airflow measurement procedures, acceptance criteria (80–120 ft/min), hazard controls, records requirements, document control updates, and applicable OHSR references. Revised to align with the RSS SWP Development Standard.	Safety Technician
5	21 Oct 2026	Reviewed prior to QR coding upload, formatting, expanded details in OHSR table to be more specific to sections	Safety Technician