



Chemical Hygiene Plan – Appendix B Bartow Laboratory Task Risk Analysis

Document Title: Chemical Hygiene Plan – Appendix B – Bartow Laboratory Task Risk Analysis		Document Identifier: <Generated by Content Server>	
Document Owner: Laboratory Chemist		Document Approver: Laboratory Supervisor	
Current Version Effective Date:	See Content Server	Formal Review Cycle Due Date:	See Content Server

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1 Changing LECO Reagents

Dept/Area: Bartow Quality Control Lab			
TRA No: BTW-01		Reviewed by: Maya Foster	Date: 1/5/2023
Task: Changing LECO Reagents		Approved by: Alan Shobert	Date: 1/29/2025
Step	Task Steps	Potential Hazards	Controls
1	Remove Spent reagent tubes	Exposure to reagents	Use caution. Do not apply excessive force when removing, and place reagent tubes into a container that maintains them in an upright position.
2	Disposing of spent reagents	Exposure to reagents	Work in the reagent fume hood. Place the waste receptacle, a 5-gallon bucket in the fume hood and turn on the hood blower. Wearing disposable gloves, use a Nalgene stirring rod to dislodge the spent material from the tube and place into the 5-gallon bucket. Replace the bucket lid once transfer is complete.
3	Washing the glass reagent tubes	Exposure to reagents Thermal burns Cuts from reagent tube	Place reagent tubes in the sink. Use caution. Wearing cut resistant gloves, utilize a glassware brush to gently scrub away any solidified reagents from the tube's walls. Ensure tubes are pointed away from the face and body during the cleaning process to prevent splash back. Place rinsed reagent tubes in an ultrasonic cleaner for half an hour at 50 degrees Celsius. Turn the ultrasonic cleaner off and allow reagent tubes to cool for half an hour. Drain the water from the ultrasonic cleaner and



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			transfer reagent tubes to a container maintaining an upright position to facilitate the drying process. Inspect tubes for cracks or defects. Dispose of any damaged tubes in the appropriate waste container.
4	Refilling Reagent tubes	Exposure to reagents	Work in the reagent fume hood with the hood blower on. Wearing disposable gloves, use a powder funnel to carefully transfer reagents into the tube to minimize spillage.
5	Re-attach reagent tubes	Exposure to reagents Cuts from reagent tube	Use caution. When re-attaching tubes, wear cut resistant gloves while ensuring excessive force is not applied. Apply vacuum grease to the applicable fittings to secure a tight seal.



2 Screen Analysis Safety

Dept/Area: Bartow Quality Control Lab			
TRA No: BTW-02		Reviewed by: Maya Foster	Date: 1/5/2023
Task: Screen Analysis Safety		Approved by: Alan Shobert	Date: 1/29/2025
Step	Task Steps	Potential Hazards	Controls
1	Opening and closing the sound enclosure lid.	Bodily injury	Use caution when raising and lowering the sound enclosure lid, as the lid may close with a minimum of applied force when gas springs are not fully extended. Keep hands, head and rest of body out of line of fire.
2	Placing and removing screens from the shakers	Lacerations to fingers from damaged screens Pinched fingers Injury from loose top plate Wrist and arm strains	Inspect screens for damage before using. Replace damaged screens, or screens that do not fit correctly. Avoid placing fingers in potential pinch points (between the screens and the screen holder). Adjust height of bottom holder or use additional “spacer” sieves to allow for proper fit of the top plate. Secure shaker arm. Use proper tool for separating screens.



3 Operating Retsch Grinder

Dept/Area: Bartow/New Wales Quality Control Lab			
TRA No: BTW-03		Reviewed by: Maya Foster	Date: 1/21/2025
Task: Operating Retsch Grinder		Approved by: Alan Shobert	Date: 1/29/2025
Step	Task Steps	Potential Hazards	Controls
1	Opening and closing the grinder	Pinch points Abrasions	Use caution when opening and closing grinder lid. Allow grinder to come to a complete stop prior to opening. Inspect cassette lid, sieve, rotors and other components for damage.
2	Grinding samples	Dust inhalation Noise Eye injury	Turn on the exhaust fan prior to grinding any sample. Dust masks are not mandatory but are recommended. Turn on the grinder and slowly feed material into grinder to prevent overloading, clogging and/or disruptions to the process. Be mindful of body positioning to mitigate any flying debris coming into contact with the face.
3	Cleaning the grinder	Dust inhalation Pinch points	Turn on exhaust fan. Use caution when opening and closing lid. Allow grinder to come to a complete stop prior to opening.



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			Utilizing compressed air (maximum of 30 psi) spray cassette lid, sieve, rotor, and other components free of ground material. Dust masks are not mandatory but are recommended.
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4 Handling and Dumping Waste Containers

Dept/Area: Bartow Quality Control Lab			
TRA No: BTW-04		Reviewed by: Maya Foster	Date: 1/5/2023
Task: Handling and Dumping Waste Containers		Approved by: Alan Shobert	Date: 1/29/2025
Step	Task Steps	Potential Hazards	Controls
1	Lifting or moving waste containers (5-gallon buckets) with waste product	Back injury and/or muscle strain	Do not fill waste product containers all the way. Empty them when half full, or less. When lifting use your legs for lifting, not your back. Ask for help if container is too heavy to lift and carry comfortably and safely.
2	Putting product in dumpsters	Back injury and/or muscle strain Tripping on uneven ground or stairs Slipping on slippery floor or grounds Dust inhalation	Ask for help if container is too heavy to lift. Be aware of surroundings. Be alert to slipping hazards. Dust masks are not mandatory but are recommended.



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5 Routine Maintenance of Nitrogen LECO FP828(P)

Dept/Area: Bartow Quality Control Lab			
TRA No: BTW-05		Reviewed by: Maya Foster	Date: 1/22/2025
Task: Routine Maintenance of Nitrogen LECO FP828(P)		Approved by: Alan Shobert	Date: 1/29/2025
Step	Task Steps	Potential Hazards	Controls
1	Changing the crucible	Pinch points Thermal burns Cuts Fire	Turn off afterburner and furnace heater. To avoid burns, allow the instrument to cool to room temperature prior to replacing the crucible. Use caution when removing the furnace viewing mirror and loading head. Using the provided tools, screw the lance tool into the lance head to allow access to the crucible. Using the crucible extractor tool, reach into the combustion tube and grasp the crucible for removal. Ensure the crucible has had ample time to cool prior to disposal to avoid any fire hazards. Remove the quartz wool resting under the crucible utilizing the crucible extractor tool and replace. Always wear cut resistant gloves when handling quartz wool. Place the new crucible in the in the combustion tube utilizing the crucible extractor tool. Insert the lance assembly back into the combustion tube. Reinstall the loading head and furnace viewing mirror.



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2	Changing/replacing the reduction tube	Thermal burns Cuts from reagent tube Exposure to reagents	Turn off reduction heater. To avoid burns, allow reduction heater to cool to room temperature prior to removal of the reduction tube. Utilizing heat resistant gloves, carefully remove the reduction tube and place on a cooling tray. Install new reduction tube; If a new tube must be packed, ensure to work in a fume hood and utilize a powder funnel to mitigate exposure to reagents.
3	Changing/replacing the primary tube	Exposure to reagents Cuts from reagent tube	Before handling, ensure to don cut resistant gloves. Use caution. Without using excessive force, remove tube from behind the instrument's front door. Install new primary tube; If a new tube must be packed, ensure to work in a fume hood and utilize a powder funnel to mitigate exposure to reagents.
4	Replacing the scrubber tubes	Exposure to reagents Cuts from reagent tubes	Before handling, ensure to don cut resistant/protective gloves. Remove scrubber tubes from behind the instrument's front door. Install new scrubber tubes; If new tubes must be packed, ensure to work in a fume hood and utilize a powder funnel to mitigate exposure to reagents.