Chemical Hygiene Plan – Appendix F
Riverview Laboratory Task Risk Analysis

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1 Replacing LECO Sulfur Reagents

Dept/Area: Riverview Quality Control Lab				
TRA No: RVW-01			**Reviewed by:** Zane Hranac	**Date:** 1/2/2025
Task: Changing Reagents on the LECO Sulfur Analyzer			**Approved by:** Zane Hranac	**Date:** 1/2/2025
Step	**Task Steps**	**Potential Hazards**	**Controls**	
1	Remove spent reagent tubes	Exposure to reagents Cuts from broken tube	Use caution, do not apply excessive force when removing reagent tubes from holders. Wear chemical resistant gloves, eye protection, and lab coat. Visually inspect glassware for chips/cracks. Discard damaged tubes. Wear cut resistant gloves when handling damaged glassware.	
2	Disposing of spent reagents	Exposure to reagents	Wear chemical resistant gloves, lab coat, and safety glasses to transfer depleted reagents into designated waste area.	
3	Washing the glass reagent tube	Exposure to reagents. Cut from broken reagent tube.	Wear chemical resistant gloves, safety glasses, and lab coat Visually inspect glassware for chips/cracks. Discard damaged tubes. Wear cut resistant gloves when handling damaged glassware.	
4	Refilling reagent tube	Exposure to reagents	Slowly transfer fresh reagent to reagent tubes. Wear chemical resistant gloves, safety glasses Use a powder funnel to minimize spillage.	
5	Re-attach reagent tubes	Exposure to reagents. Cuts from reagent tube.	Use caution; do not apply excessive force when re-attaching the tube. Visually inspect glassware for chips/cracks. Discard damaged tubes. Wear cut resistant gloves when handling damaged glassware.	

2 Operating VAP500C Nitrogen Analyzer

Dept/Area: Riverview Quality Control Lab				
TRA No: RVW-02			**Reviewed by:** Zane Hranac	**Date:** 1/2/2025
Task: Operating VAP500C Nitrogen Analyzer			**Approved by:** Zane Hranac	**Date:** 1/2/2025
Step	**Task Steps**	**Potential Hazards**	**Controls**	
1	Refilling reagents	Chemical burns from transferring reagents from one container to the other Reagent cart tipping over when returning it to storage.	Safety glasses with side shields, lab coats and, chemical resistant gloves are required to ensure exposure is kept to a minimum. Ensure tubing from cubitainer is secured before starting to fill the reagent jugs. Hold reagent cart with both hands when returning it to storage position	
2	Using sample vessels	Potential cut due to chipped or cracked glass vessels.	Visually inspect flask for chips or cracks before use.	
3	Handling hot digested sample vessels	Potential burn from hot glassware Exposure to heated NaOH solution	Use thermal gloves to remove heated flasks from carousel. Use portable rack to transport hot sample vessels. Wait for samples to cool before handling.	
4	Cleaning sample vessels	Chemical burns	Allow flask to cool completely before cleaning or adding water. Wear chemical resistant gloves, lab coat, and safety glasses. Use low pressure water stream to clean glassware to avoid splash-back.	

3 Changing Combustion Tube on LECO S-832DR

Dept/Area: Riverview Quality Control Lab				
TRA No: RVW-03			**Reviewed by:** Zane Hranac	**Date:** 1/2/2025
Task: Changing Combustion Tube on LECO S-832DR			**Approved by:** Andres Jimeno	**Date:** 1/2/2025
Step	**Task Steps**	**Potential Hazards**	**Controls**	
1	Turn furnace off and allow to cool to room temperature	None	• Check furnace system diagnostics in software to ensure that furnace has cooled. • Ensure furnace is cooled slowly to avoid cracking the tube.	
2	Put instrument in front end maintenance mode and disable motors of Autosampler	Pinch points	• Be sure to disable motors so that maintenance can be performed without danger of them initializing.	
3	Disassemble broken/spent combustion tube	Thermal burn Cuts	• Ensure tube has cooled to room temp. • Use cut resistant gloves to avoid exposure to broken ceramic.	
4	Install new tube	Pinch Point	• Be aware of pinch points when installing new tube into furnace. • Enable all motors and initialize them to properly home each one.	
5	Return furnace to operating temperature	None	• Ensure to ramp up temperature slowly.	

4 Handling and Filling of Liquid Nitrogen

Dept/Area: Riverview Quality Control Lab				
TRA No: RVW-04			**Reviewed by:** Zane Hranac	**Date:** 1/2/2025
Task: Handling and filling of Liquid Nitrogen			**Approved by:** Zane Hranac	**Date:** 1/2/2025
Step	**Task Steps**	**Potential Hazards**	**Controls**	
1	Dewar transportation	• Pinch Points • Muscle Strain • Crushing	• Only use purpose-built dolly for the transportation of the dewars. • Inspect the latching mechanism and wheels are working properly on the dolly prior to use. • Ensure all body parts are clear from the latching point when hooking up the dewar dolly. • If needed, employ assistance to push full dewars up the ramp into the lab. • Once dewar is in place, secure the dewar in place using the ratchet strap	
2	Liquid Nitrogen Filling	• Thermal burns • Asphyxiation	• Use cryogenic gloves, apron, and a face shield, while filling. • Ensure the Oxygen sensor is plugged in and functioning prior to the filling. • Use a tube on the exhaust side of the instrument dewar to ensure LN_2 does not spray directly out. • Change the filling tubing every 3 months to prevent cracking and breaking while filling. • Zip-tie the silicon tube to the filling port while filling to ensure it doesn't pop off due to backpressure.	