REAGENT PREPARATION PROCEDURE

1. SCOPE AND APPLICATION

This general procedure is followed when preparing reagents used in the Nutrient workgroup of the DEP Laboratory. It describes labeling and rotation of purchased materials and reagents, reagent preparation, documentation of prepared reagents, labeling of reagent containers, and disposal of expired reagents. Any specific instructions about reagent preparation that appear in the relevant SOP for the method shall take precedence over these instructions. Also refer to DEP SOP LB-030 for instructions pertaining to purchasing and receiving laboratory chemicals and supplies.

2. LABELING OF PURCHASED AND PREPARED REAGENT CONTAINERS

2.1. Label all shipping cartons containing reagents for the Nutrients workgroup with the date received when received from the supplier (this should be carried out by the receiving room staff if the supplies are kept in storage). As the individual reagent containers are removed from the shipping cartoons, the date received should be copied to each container. Reagent containers delivered by the stockroom personnel should be returned back to the stockroom if they do not have the date received marked. Reagent containers for which the date received is not available, should be marked with "Received before <date>" indicating the earliest known date after the container's receipt.

2.2. Label all individual purchased reagent containers with the following information:

- Unique ID number
- Expiration date (see 2.3 for details)

All pertinent information about a purchased reagent is documented by entering it into the Standard Preparation Tracker in the Laboratory Information Management System (LIMS). A label is also printed using this module.

2.3. If a chemical or reagent container and its certificate of analysis have no explicit expiration date, then,

(a) dry inorganic and organic solids are assigned an expiration date ten years from the day they were received in the lab;

(b) all concentrated inorganic acids and organic solvents are assigned an expiration date five years from the day they are received in the lab;

(c) all other liquid reagents are assigned an expiration date five years from the day they are received in the lab;

(d) shorter expiration dates than the ones listed above may be assigned based on historical experience and the discretion of the supervisor. They are documented in the applicable SOPs.

If an expiration date is provided by the manufacturer it must be recorded on the container.

2.4. Label all prepared reagent containers with the following information each time a reagent is made:

- Unique ID number
- Identity
- Expiration date

This is achieved by entering the reagent preparation into the Standard Preparation Tracker in the Laboratory Information Management System (LIMS) and printing a label using this module.

3. ROTATION OF REAGENTS

3.1. Use the oldest dated stock reagents first and replace with newer dated stock reagents as necessary. Rotate all stock reagents according to the specified shelf life.

3.2. Holding times may vary among reagents. Refer to the analysis methods or SOPs for reagent shelf lives. Use the oldest dated working reagents first and replace with newer dated working reagents as necessary. Rotate all working reagents within the specified holding times.

3.3. Expired reagents should be discarded as soon as possible after the date of expiration. Any expired reagents used for non-quantification or method development purposes should be labeled “For Research Only”.

4. REAGENT PREPARATION INSTRUCTIONS

4.1. Prepare reagents according to the instructions given in the methods/SOPs. The volumes prepared for the reagents may be altered by the analyst as necessary. The final concentrations of the constituents of a reagent must not be changed.

4.2. If a new bottle of reagent is opened and used with a previously opened reagent the working solution must carry the expiration date of the oldest reagent used.

4.3. All reagent preparations are documented in the reagent and standard logsheet (NU-RGTSTD). The logsheet templates are located in the following directory \\floridadep\data\labs\lab3\Chem_data\Inorganic\Nutrients\RunData\MetaData for each analysis. Make sure to use the current version of the form. If in doubt contact a supervisor. Submit the updated form as part of the analysis report folder. Check the individual analysis SOP for more detailed instructions. An electronic copy of the Certificate of Analysis for each purchased reagent (if available) is also maintained in the REAGENT_PREP folder.

4.4 Preparing reagents from dry components use the appropriate balance (top loader or analytical balance) according to the weight needed. Consult your supervisor if you need advice choosing an appropriate balance. Familiarize yourself with the

balance operation and read SOP CM-011. Use the balance closest to your work area. Do not carry weigh boats with aliquots across the room or from different floors. Use top loader balances and beakers instead of analytical balances and weigh boats for larger amounts. All weights should be entered immediately into the reagents tracker in LIMS. Avoid weighing in several portions. If this is unavoidable enter each aliquot separately into the LIMS reagent tracker.

5. DISPOSAL OF USED AND EXPIRED REAGENTS

5.1. Refer to the MSDS for information about chemicals being used.

5.2. Review the Laboratory Health and Safety Plan.

5.3. Refer to the individual chemistry SOPs for specific handling of reagents. Some reagents used may need to be treated as hazardous or treated prior to disposal.

6. REFERENCES

6.1. Laboratory Health and Safety Plan.

6.2. Quality Manual, Bureau of Laboratories, FDEP.

6.3. DEP SOP LB-030, “Purchasing and Receiving Laboratory Chemicals and Supplies”.

Appendix of Significant Changes

08/24/2010 Instructions in section 4.3 are modified to include the use of the reagent preparation sheet.

08/19/2014 Section 2 is modified to include the use of unique ID numbers for labeling of reagent containers.

12/20/2023 Section 2.3 was added to include instructions on assigning expiration dates in cases where none are provided by the manufacturer. The file path is updated in section 4.3. A reference to SOP LB-030 was added.

12/18/2024 File path links were updated.