PICKERING LABORATORIES

GUARANTEED CHEMISTRY APPROVED

Glyphosate RESTORE™

For Removal of Metal Ion Contamination and Restoration of Proper Ion Balance in Glyphosate Analytical Columns and Guards

Glyphosate herbicide analysis by post-column HPLC according to USEPA Method 547 employs a cation-exchange column. Many polyvalent metal ions which may be present in the sample, especially iron, will accumulate in the guard or analytical column. As little as 100 nmole of ferric ion, for example, will cause serious degradation of column performance; larger amounts can actually cause the glyphosate peak to vanish completely.

Note: The use of a guard column containing the same cation resin as the column is strongly recommended, as the guard will normally trap all of the metal ions, and will be the only column requiring the use of RESTORE. Tests in our laboratory have demonstrated that the guard can accumulate sufficient iron to completely absorb glyphosate without bleeding Fe^{+3} into the analytical column.

The traditional metal removal process using EDTA requires a long treatment time, and an even longer re-equilibration period. Glyphosate RESTORE rapidly removes iron, nickel, aluminum, and chromium from the column and guard. The column and guard are ready to use after only a very brief re-equilibration with the K200 (potassium phosphate) eluant.

Glyphosate RESTORE is strongly acidic and can displace tenaciously-bound Fe^{+3} from the ioin-exchange medium. In addition, it preserves the balance of K^+ and H^+ in the resin, thus avoiding a lengthy re-equilibration.

COLUMN CLEANING PROTOCOL

Guard Column

1. Remove the analytical column after ensuring that no residual pressure remains in the post-column system.
2. Reverse the guard column and pump RESTORE through the guard at 0.4mL/min. for a minimum of 15 minutes, directing the effluent to waste.
3. Pump the K200 eluant through the guard for 15 minutes to displace RESTORE.
4. Reconnect the columns in the normal directions and restart the HPLC and post-column systems.

Analytical Column

Apply the procedure above, but pump RESTORE through the column for a minimum of 45 minutes.

Note: Since Glyphosate RESTORE is strongly acidic (pH 1.3), do not allow it to remain in your HPLC pump longer than necessary.

The shelf life of a factory-sealed 250 mL bottle of RESTORE is estimated at two years.

Restore is a trademark of Pickering Laboratories, Inc.

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