INTRODUCTION

As an HPLC column ages, the backpressure it generates tends to increase, and peaks times tend to shift, even with frequent column cleaning and chemical modification. Retention time drift is an important factor, and it becomes even more important when the column is used to perform high-pressure liquid chromatography (HPLC) measurements. Retention time drift affects the accuracy of peak identification, which is critical for the correct interpretation of chromatograms. The column's retention time—can help prevent the overlap problem, but this delay volume is also dependent on system backpressure. This Table lists the retention time increases, in seconds and in percent, at both 85 and 105 bar. Comparing relative deviation results for each pump type (e.g., 1.2% compared to 0.6%, for propylene glycol), it can be concluded, for this experiment, that the retention time shift for a pump damper equipped pump is 2–3 times greater than that of a unit without a pulse damper. Thus, the robustness of such a method can be enhanced by implementation of a pump without a pulse damper. In our example, doing so can clearly lead to an extended lifetime of the column, naturally reducing operating costs.

CONCLUSION

The cost and effort required for revalidation. These effects are particularly beneficial for those working in regulated environments, but are clearly advantageous for enhancing overall efficiency in all HPLC laboratories.

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