Technical Note | USP <621> L20:
Dihydroxypropane-modified surface

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General Care: USP <621> L20 stationary-phases

HPLC-columns by MZ-Analysentechnik made of high-purity silica, chemically modified with dihydroxypropane groups on the surface provide Diol-groups for interaction with analyte. This retention mechanism enables the use of these HPLC-columns in both normal phase and reversed phase mode. They feature stable and predictable separations with high column efficiencies over and over again - as long as deactivation of the diol-groups is avoided. In comparison with pure unmodified silica absed packings, Diol-phases provide faster re-equilibration. The following technical note will help users to get the maximum out of the columns and to extend the lifetime to its maximum.

General Care

To extend column lifetime and prevent contamination please consider the following suggestions:

1. Storage: all HPLC columns need to be stored in an appropriate solvent and capped tightly to prevent draining. Store column in a cool (not cold) place, free from vibration. Used a special column storage cabinet or use the shipping box. Flush columns after use with pH-neutral solvent to remove all possible contaminants and tag the column with the used storage solvent for later use. We recommend as storage solvent 2-propanol, which is compatible with both Normal Phase and Reversed Phase Chromatography.
2. Use: only use analytical grade solvents, filtered through a 0.2–0.45 µm membrane and degassed.
3. If possible, filter samples through a 0.2–0.45 µm syringe filter before injection and/or use guard column if contaminated samples have to be analyzed.

Column regeneration

Contamination of the column by impurities from the sample or mobile phase can cause changes in peak shape, peak splitting, shifts in retention or result in high back-pressure. It is important, to locate the source of contamination before using the column again for the analysis of samples. If a guard column is used high back-pressure is observed, try to exchange the guard column first. If the problem consists, please follow the next steps to try to regenerate the column:

Normal Phase Conditions :

1. Flush the column with 20 column volumes of heptane
2. Flush the column with 5 column volumes of 2-propanol
3. Flush the column with 20 column volumes of acetonitrile
4. Flush the column with 20 column volumes of water
5. Flush the column with 20 column volumes of acetonitrile
6. Flush the column with 5 column volumes of 2-propanol
7. Flush the column with 20 column volumes of heptane
8. Re-equilibrate the column with the required mobile phase

Reversed Phase Conditions :

1. Flush the column with 20 column volumes of water
2. Flush the column with 20 column volumes of acetonitrile
3. Flush the column with 5 column volumes of 2-propanol
4. Flush the column with 20 column volumes of heptane
5. Flush the column with 5 column volumes of 2-propanol
6. Flush the column with 20 column volumes of acetonitrile
7. Re-equilibrate the column with the required mobile phase