ULTRON ES-AmyCL-DM

Instruction Manual

1. Introduction

Thank you for purchasing an ULTRON ES-AmyCL-DM column for High-performance liquid chromatography. The ULTRON ES-AmyCL-DM columns are enantiomer separation columns and high stability with various solvents based on silica gel, about 5 μm and 10 μm in diameter, closs-linked by amylose tris (3,5-dimethylphenylcarbamate) derivatives. Therefore, organic solvents such as tetrahydrofuran and acetone, which cannot be used with the coated type columns, this product can be used as mobile phases or sample preparation solvents.

This product, which is manufactured under highly controlled conditions, must pass a series of strict tests before being accepted for shipment. To ensure optimal performance and durability of the column, please read these instructions carefully before using this column.

2. Specifications

Fittings	Waters compatible
Particle size	5, 10 μm
Temperature [1]	0 ~ 40°C
Pressure [2]	Recommended range: Up to 25 MPa (Maximum: 30 MPa)

※1 The degradation of column performance is likely to occur when used at higher temperatures.

※2 Avoid using a column repeatedly near the pressure limit or making abrupt changes in pressure to prevent shortening of the column life.

3. Shipment Solvent

Column is shipped with n-hexane/2-propanol = 90/10 (volume/volume).

4. Mobile Phase and Sample

- Ensure to filter samples and mobile phases using a membrane filter with a mesh size of 0.45 μm or smaller before use. Failure to filter mobile phases, etc. can lead to blockages of column filters and increases in analytical pressures.
- Recommend to use the dehydrated or the HPLC grade organic solvents for the mobile phase. The analytical repeatability must be lost by variation of elution times and peak shapes due to the water content in the mobile phase.
- Ensure to thoroughly degas mobile phases prior to use. Insufficient degassing of mobile phases can lead to the formation of bubbles inside analytical instruments and columns resulting in problems with analyses.
- This product can be used to organic solvents commonly used as mobile phases for HPLC. Please refer to the table below for examples of the solvents which can be used.

Recommended solvent	alkane[1], cycloalkane, alcohol[2], acetonitrile, ethyl acetate, methyl *tert*-butyl ether, acetone, tetrahydrofuran, dichloromethane, chloroform, dimethyl sulfoxide, dimethylformamide

※1 For safety reasons, we recommend using n-hexane or n-heptane.

※2 Any other alcohols that methanol, 1-propanol, 1-butanol, 2-butanol, etc. can be used. Please check the miscibility and the solubility with the alkane and use within the soluble proportion. In the case of immiscible, adding ethanol as a third component may improve solubility.

- In case of analyte is polar compound, additives such as shown below to the mobile phase may improve peak shape and separation of polar compounds. However, additives might reduce column life and detection sensitivity, amounts of additives for the mobile phase should keep in the range of 0.1 to 0.5%.

Acid compounds	trifluoroacetic acid, formic acid, acetic acid, etc.
Basic compounds	diethylamine, ethylenediamine, triethylamine, etc.

・It is recommended to dissolve the sample in a solvent that is of the same composition as a mobile phase (Initial composition in case of gradient elution). If the elution ability of the solvent of sample preparation has a higher than the mobile phase, the sample injection might occur broadening of peak shape or acceleration of elution time. If you absolutely must use a stronger elution solvent for sample preparation, reducing the injection volume may prevent these negative effects.

5. Precautions for Column Installation

・Before installation the column, replace the solvent in the system with the mobile phase to be used. Tubing must have flat ends and must bottom out in the column endfitting. Tubing must be connected to the column correctly to avoid creating a void between the column frit and tubing, which can cause a leak and result in poor column performance.
・Install the column according to the direction of the arrow.
・Immediately after switching the mobile phases, the column pressure may increase rapidly. Initially, please flush the mobile phases more slowly so as not to exceed the upper column pressure limit. After make sure the pressure has reached equilibrium, increase the flow rate.
・Do not remove the column from LC system before the pressure drops zero.
・Although this product is high stability with various organic solvents, repeated long time use may cause the degradation of column performance.

6. Cleaning and storage of columns

・If the column degradation occurs, trying the following cleaning method may be able to recover the performance. If it still doesn't recover, change a new column.
(1) If the column degradations are due to residues or moisture in the column, increase the ratio of high polar solvents in the mobile phase and pass it through the column may wash out the residuals or moisture in the column and restore the performance. If further washing is required, pass 100% ethanol or 2-propanol through the column.
(2) If the column deteriorated after passing a mobile phase containing additives such as acids or bases through the column, replacing the solvent without additives, wash in the same manner as (1).
・When the column is stored for long period, flush 2-propanol into the column at least ten column volumes, close the column with end stop plugs tightly and keep away from heat and moisture.
・Even if only for a short period, avoid storing the column with a mobile phase containing additives.
・Performance of the column should be carried out in accordance with the enclosed “Performance Report”.

ULTRON series packed columns are shipped under highly controlled conditions. However, if you should find any defect, please contact your dealer or Shinwa.

Note that Shinwa does not warrant the product against column life or deterioration caused by the failure to follow the above instructions.

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