GT083

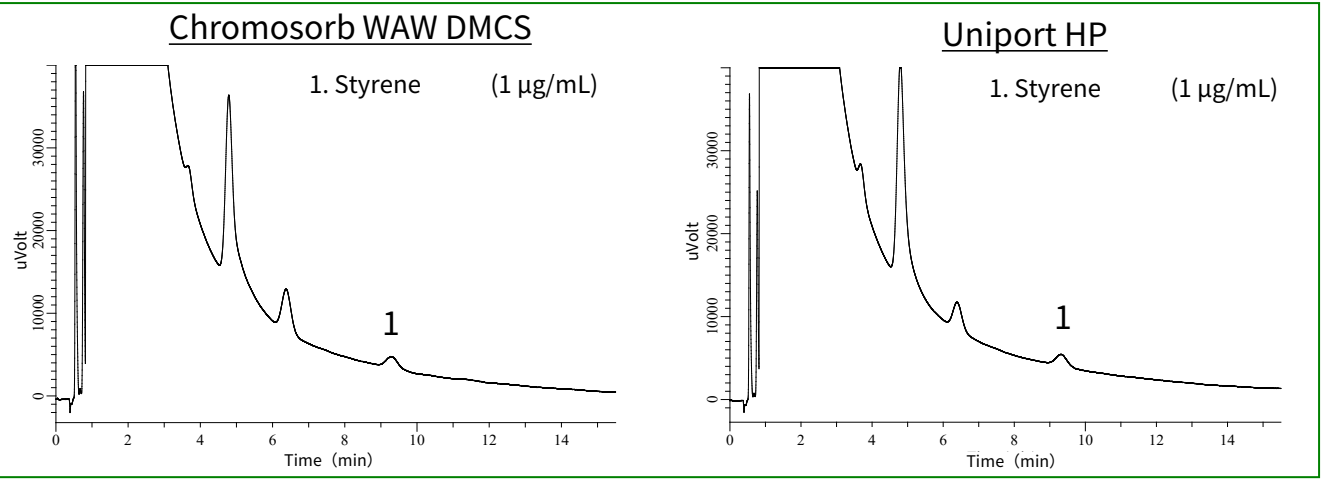
GL Sciences Inc.

Purity Test of Calcium Polystyrene Sulfonate, with reference to the Japanese Pharmacopoeia, 16th Edition - Comparisons of Chromosorb Series and Uniport Series of Siliceous Soil Support

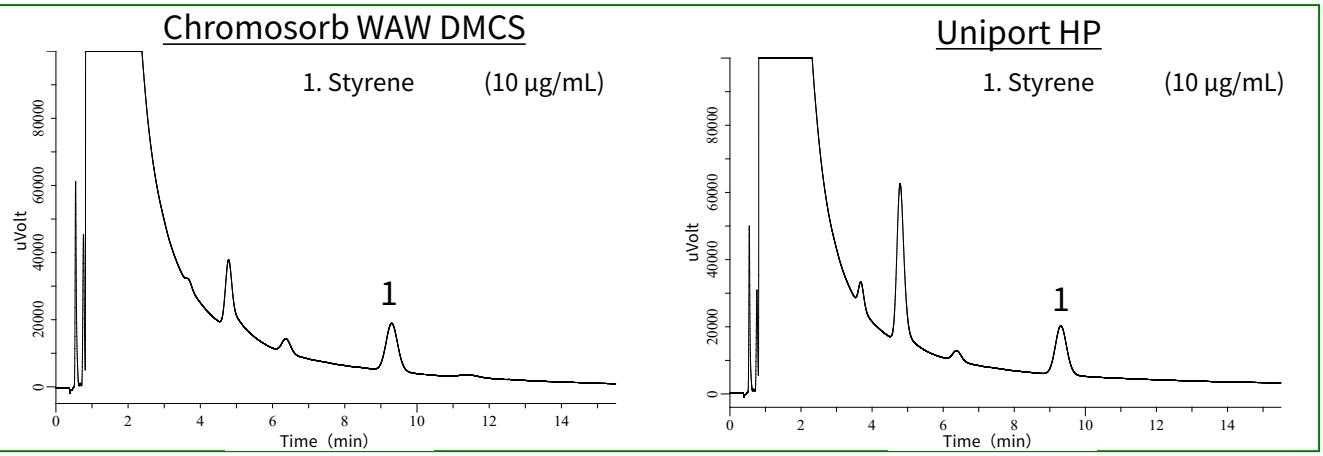
Calcium polystyrene sulfonate is used as a cardiovascular drug. It reduces potassium in the blood and is used to treat hyperkalemia caused by kidney failure. In this study, a packed column was used for analysis with reference to purity test (4) described in the Japanese Pharmacopoeia, 16th edition.

Chromosorb series and Uniport series siliceous earth carriers were evaluated and compared. This report demonstrates that both supports satisfy the requirements of the test method.

Example: Measurement of standard



Example: Measurement of performance test standard of the system



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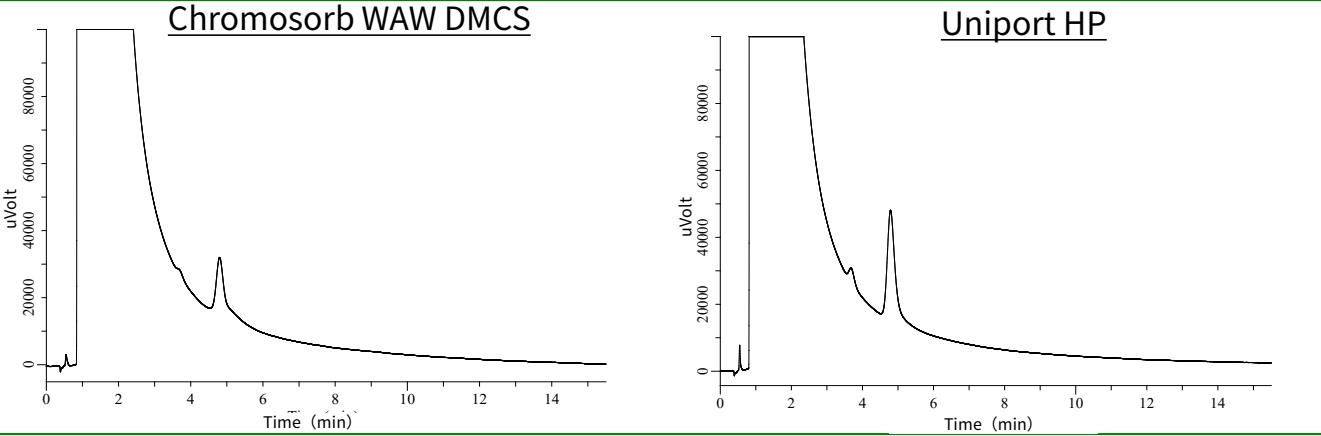

Measurement conditions

Conditions

System : GC - FID
Column : PEG 20M 15 %
Chromosorb WAW DMCS 80/100
Uniport HP 80/100
SUS 2 m x 3 mm I.D.
Col. Temp. : 90 ˚C
Carrier Gas : N_2 180 kPa

Injection : Direct
250 ˚C
Injection Vol. : 5 µL
Detection : FID Auto Range
250 ˚C
Sample : Standard
Analyte in Acetone

Measurement

Requirements for System Suitability

1. When the test is made with the system performance test standard, the number of theoretical plates and symmetry factor of the styrene peak are not less than 800 and 0.8 to 1.2, respectively.
2. When the test is repeated 6 times with the test standard, the relative standard deviation of the peak height of styrene is not more than 5%.

Results

Table 1. System performance test results

	Chromosorb WAW DMCS	Uniport HP
Number of theoretical plates	3502	3715
Symmetry factor	1.05	1.05

Table 2. System repeatability test results

	Chromosorb WAW DMCS	Uniport HP
1	1455	1419
2	1409	1400
3	1439	1473
4	1360	1441
5	1398	1361
6	1450	1397
Mean	1419	1415
Standard deviation	36.5	38.8
Relative standard deviation (%)	2.58	2.74

Introduction of diatomaceous earth carriers

The Japanese Pharmacopoeia contains several tests: “Siliceous earth packings for gas chromatography with XXX% liquid phase.” The two most commonly used diatomaceous earth carriers that were used in these tests are described here.

Uniport series

Uniport B (sintered after washing + acid-treated product)

Special treatment removes metals from the surface of the support, making it easy to use without catalytic activity.

It can be used with a wide range of liquid phases as well as polyglycols and polyesters.

Uniport HP (sintering, acid treatment, and silane treatment after washing)

Uniport B is specifically silanized. It is the most inert carrier for silanization.

It has good compatibility with silicon systems and is suitable to the sample that is easy to adsorb and disassemble.

Chromosorb series

Chromosorb WAW (sintered after washing + acid-treated product)

Chromosorb WAW DMCS (sintered after washing + acid treatment + silane treatment)

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