

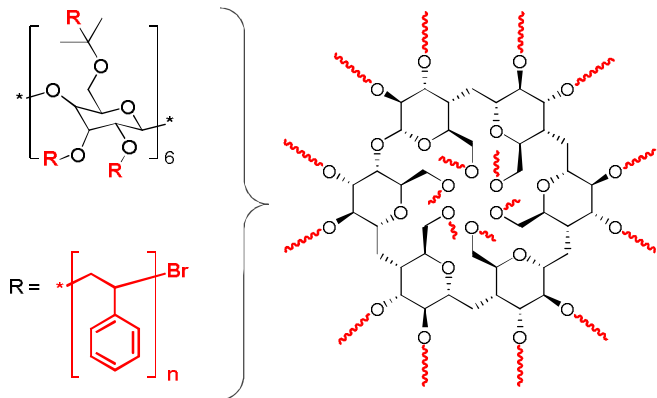
Sample Name:

**Star-like Polystyrene with  $\alpha$ -Cyclodextrin core**

Number of arms: 8 arms

Sample # **P20133C-8S**

Structure:



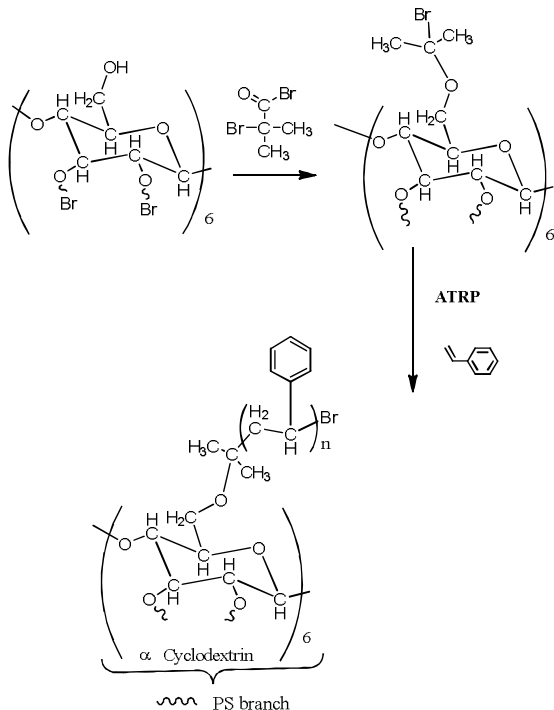
In star-like polymer that contains <18 arms, some R = H (hydrogen).

Composition:

| Mn x 10 <sup>3</sup> | PDI |
|----------------------|-----|
| Total: 77.0          | 1.3 |
| Each branch: 10.0    | 1.3 |

Synthesis Procedure:

The polymer was synthesized by ATRP process:



Characterization:

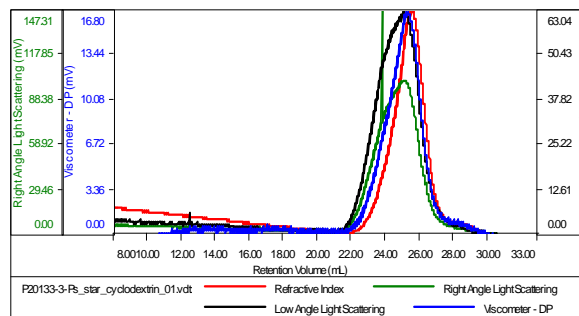
Molecular weight and polydispersity index were determined by size exclusion chromatography (SEC): The absolute molecular weight of the star-like polymer was determined by light scattering detector-Viscotek 270 model.

To analyze the molecular weight of the arms consisting of polystyrene, the ester groups located between cyclodextrin and PS block were cut by hydrolysis in the basic condition.

SEC elugram of star polymer:

Sample ID: P20133C-S Star

|                       |                         |
|-----------------------|-------------------------|
| Concentration (mg/mL) | 9.0576                  |
| Sample dn/dc (mL/g)   | 0.1860                  |
| Method File           | PS80K-NDV-2014-0003.vcm |
| Column Set            | 3x PL 1113-6300         |
| Solvent               | TH-F                    |

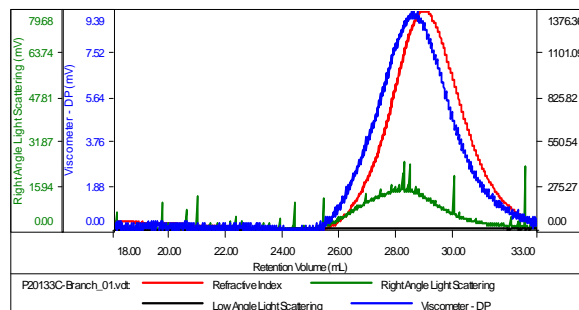


| Sample                              | MW Number Average (Da) | MW Weight Average (Da) | MW at Peak (Da) | Polydispersity | Intrinsic Viscosity (dL/g) |
|-------------------------------------|------------------------|------------------------|-----------------|----------------|----------------------------|
| P20133-3Ps_star_cyclodextrin_01.vdt | 77,141                 | 101,837                | 67,722          | 1.320          | 0.1036                     |

SEC elugram of branch (polymer after hydrolysis):

Sample ID: P20133C-S Branch

|                       |                         |
|-----------------------|-------------------------|
| Concentration (mg/mL) | 11.5665                 |
| Sample dn/dc (mL/g)   | 0.1860                  |
| Method File           | PS80K-NDV-2014-0003.vcm |
| Column Set            | 3x PL 1113-6300         |
| Solvent               | TH-F                    |



| Sample                | MW Number Average (Da) | MW Weight Average (Da) | MW at Peak (Da) | Polydispersity | Intrinsic Viscosity (dL/g) |
|-----------------------|------------------------|------------------------|-----------------|----------------|----------------------------|
| P20133C-Branch_01.vdt | 9,797                  | 13,043                 | 10,182          | 1.331          | 0.0524                     |