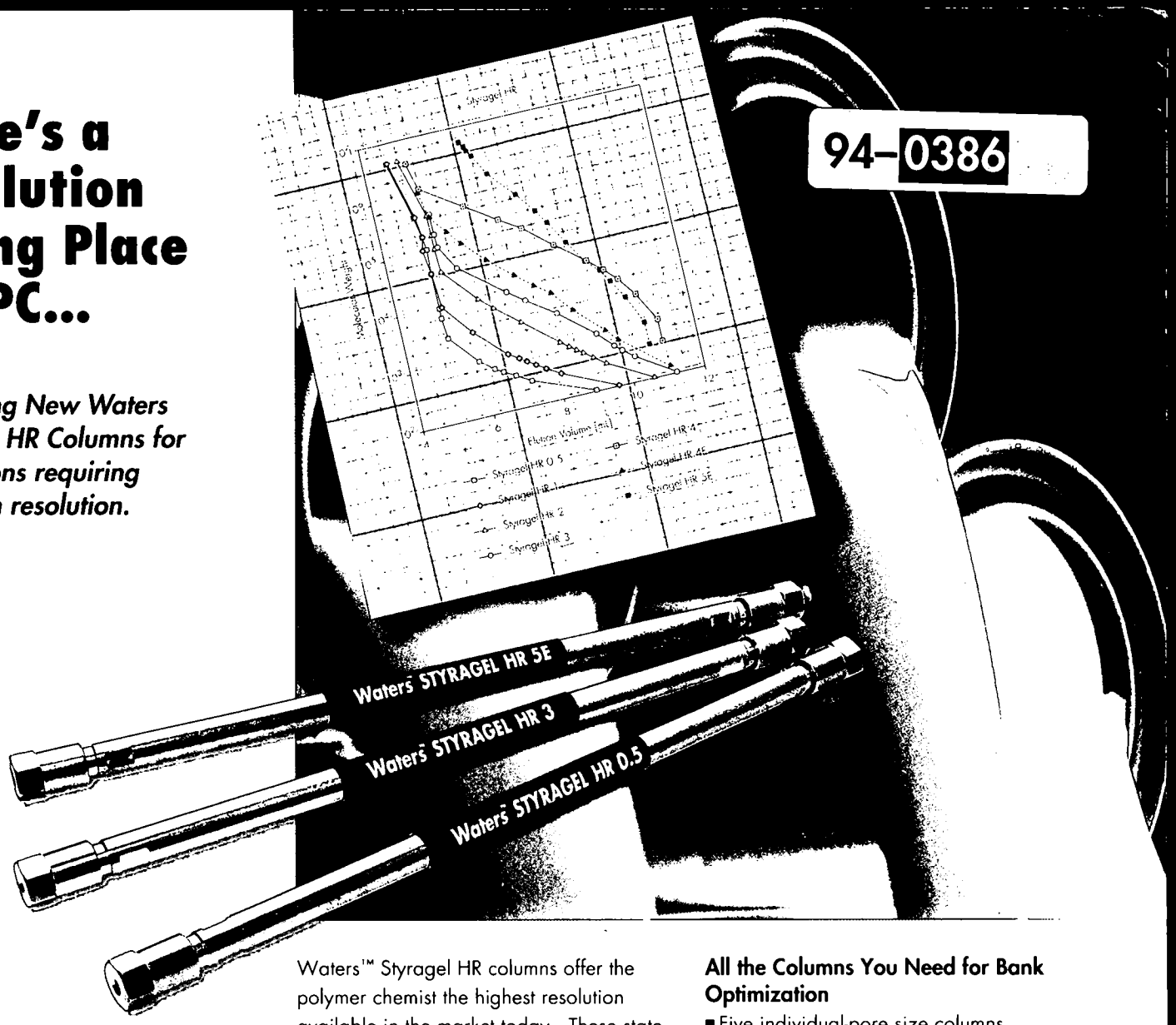
There's a Resolution Taking Place in GPC...

Introducing New Waters Styragel® HR Columns for applications requiring maximum resolution.



Waters™ Styragel HR columns offer the polymer chemist the highest resolution available in the market today. These state-of-the-art columns are designed to replace our Ultrastyragel series of columns, delivering higher efficiency and longer column lifetime. Waters Styragel HR columns are specifically designed for the polymer chemist working with mid to low molecular weight samples and offer:

Maximum Resolution and Efficiency.

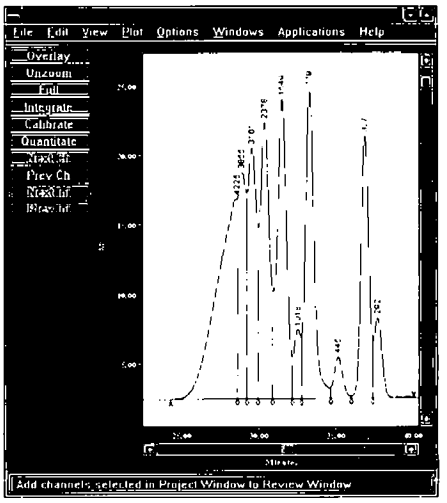
The 5 micron styrene divinylbenzene particle packing offers unrivaled resolution and efficiency for low-molecular-weight applications.

Choice of In-column Solvents

Waters Styragel HR columns are available in toluene, THF and DMF for your convenience.

All the Columns You Need for Bank Optimization

- Five individual-pore size columns
- One narrow extended molecular weight range column
- One broad extended molecular weight range column



Chromatogram of an amine-based epoxy-resin on a column bank of Styragel HR 0.5, HR1, HR2 and HR3 demonstrates the exceptional resolution of Waters new Styragel HR columns.

MILLIPORE

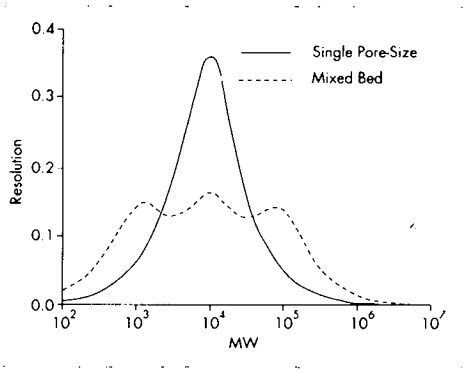
Waters Chromatography

Column Bank Optimization

Using the proper column is essential to optimum performance. The rule for selecting the best column (s) for an analysis is straightforward: Provide separation only for the molecules which you wish to separate. Never specify a column with a higher exclusion limit than the exclusion limit required by the largest molecules you wish to separate. When the measurement of broad distributions is desired, mixed bed or extended range columns are appropriate, thereby resulting in separation power that is constant at all molecular weight sizes.

Waters new Styragel column offering is comprised of mixed bed and narrow molecular weight range columns. The mixed bed columns, designated E for extended

Figure 1: Molecular weight resolution on a single pore-size column and a mixed-bed column



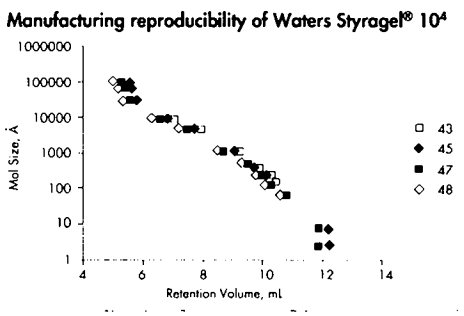
range, are ideal for use as scouting columns when the molecular weight range of your sample is unknown or for the measurement of samples with broad distributions. The narrow molecular weight range columns deliver greater pore volume and resolution in a more concentrated molecular weight range and are a much more powerful tool for obtaining more precise molecular weight range information. Figure 1.

The Waters Difference

Manufacturing

Waters manufactures our high quality styrene divinylbenzene resins in state-of-the-art chemical synthesis facilities that are registered with the FDA and certified to meet ISO 9002 standards. Every Waters Styragel column is individually tested for efficiency and asymmetry to ensure that your results will be reproducible column-to-column.

Figure 2: Batch to batch pore size reproducibility.

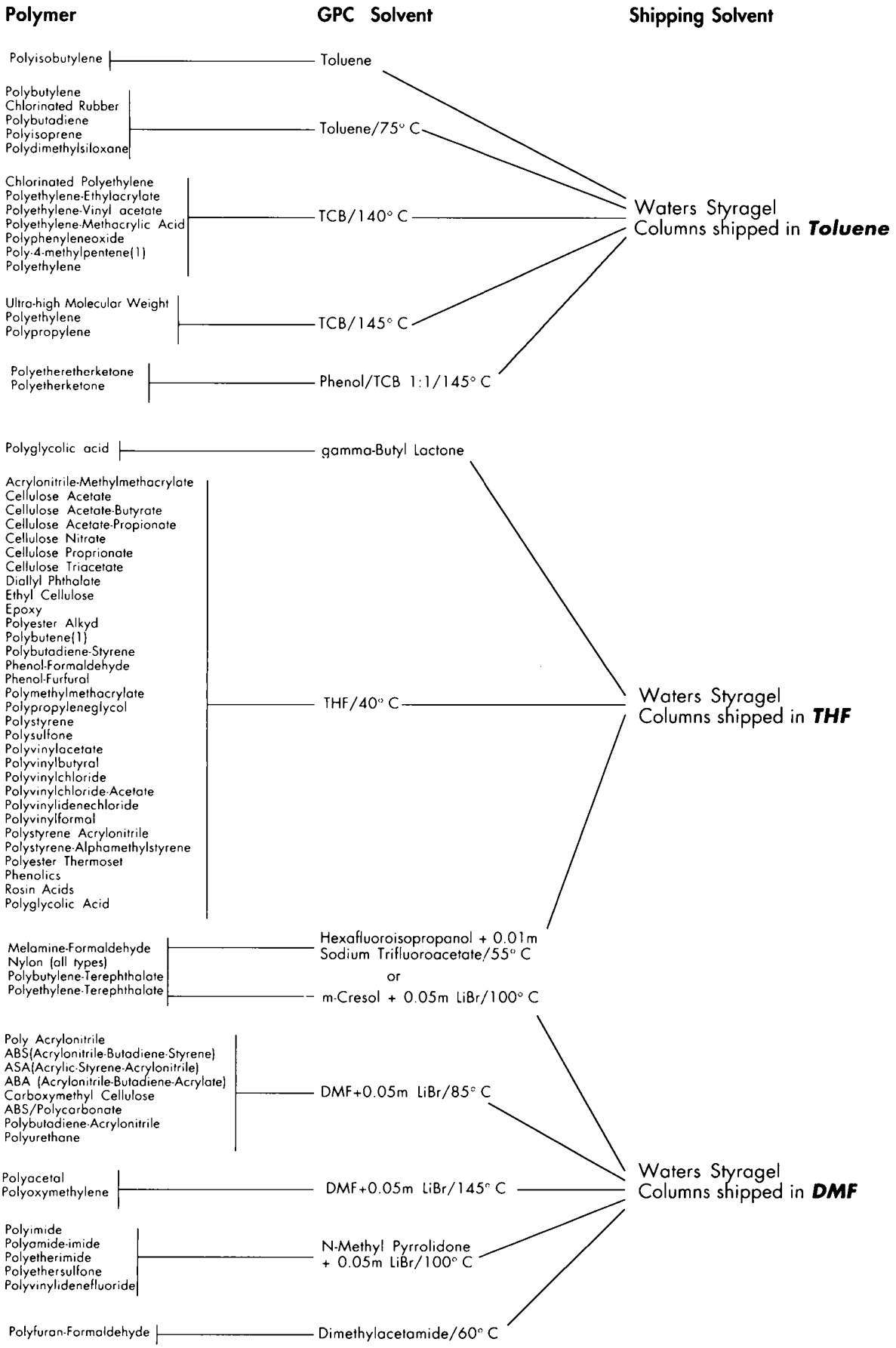


Every batch of our styrene divinylbenzene resin is put through a rigorous testing protocol that includes tight particle size specifications as well as demanding pore size specifications to ensure that your results will be reproducible from batch-to-batch.

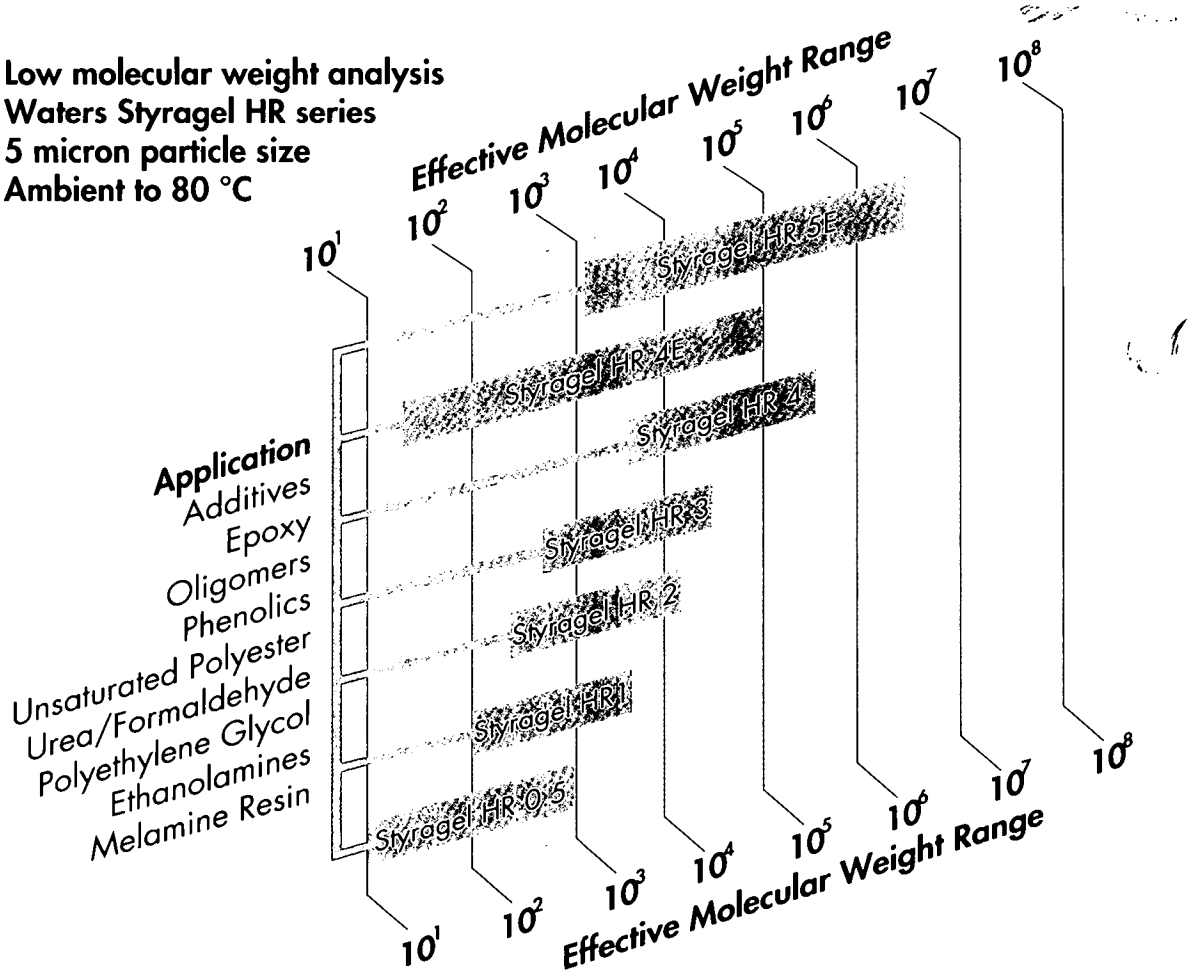
World-Wide Off-The-Shelf Delivery and Local Applications Support

Waters is the only supplier of HPLC columns that maintains a network of fully staffed sales, support and distribution offices around the world. No matter where on the globe a method is developed and used, our world-wide distribution system will be able to deliver columns right to your door. And, our highly trained local technical support team will help you with specific application needs as well as walk you through the sample prep, analysis and purification stages of your analyses. So the next time you have a technical question, give them a call.

Solvent Selection and Conversion Chart



GPC column selection guide



High Resolution Columns for Low Molecular Weight Analysis (5 μm, 7.8 mm I.D. x 300 mm)

Column	Effective Molecular Weight	Part No THF	Part No DMF	Part No Toluene	Price
Styragel HR 0.5	0-1,000	WAT044231	WAT044232	WAT044230	$800
Styragel HR 1	100-5,000	WAT044234	WAT044235	WAT044233	800
Styragel HR 2	500-20,000	WAT044237	WAT044238	WAT044236	800
Styragel HR 3	500-30,000	WAT044222	WAT044223	WAT044221	800
Styragel HR 4	5,000-600,000	WAT044225	WAT044226	WAT044224	800
Styragel HR 4E	50-100,000	WAT044240	WAT044241	WAT044239	850
Styragel HR 5E	2,000-4 x 10^6	WAT044228	WAT044229	WAT044227	850

To order in the U.S. call 1 800 252-4752, Press 1

Waters Chromatography Division Millipore Corporation 34 Maple Street Milford, Massachusetts 01757

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