



Rt-Alumina PLOT / Rt-QPLOT

□ Rt-Alumina PLOT

- Ideal for the analysis of light hydrocarbons up to C10.
- Innovative immobilization of particles minimizes detector noise.
- Can be regenerated after water contamination.
- Similar to GS-Alumina, HP Alumina-S, Alumina PLOT, AL₂O₃Na₂SO₄ and AT-Alumina.

PLOT columns, such as the Rt-Alumina, can achieve separations of light hydrocarbons without sub-ambient temperatures. Our research chemists carefully optimized the uniformity and film thickness, resulting in a column that provides better resolution and faster analysis times for light hydrocarbons. Immobilization of the PLOT layer was of major importance to prevent particle evolution and detector spiking.

A major application for this column is the analysis of impurities in ethylene and propylene. The Rt-Alumina column's unique deactivation affords complete separation of all the saturated and unsaturated hydrocarbons up to and including C4. The retention of unsaturates on the Rt-Alumina is greatly affected by temperature. By adjusting temperature programming parameters, the elution order of unsaturated and saturated hydrocarbons can be optimized. This property greatly increases the utility of the Rt-Alumina PLOT column for hydrocarbon analysis.

Rt-Alumina (Fused Silica) Al₂O₃, Stable to 200C

ID	temp. limits	30-Meter	50-Meter	60-Meter
0.32mm	up to 200°C	19702		19703
0.53mm	up to 200°C	19700	19701	

The Rt-Alumina is very sensitive to water contamination. Therefore moisture traps should always be used on carrier lines when using the Rt-Alumina column. If contaminated with water the Rt-Alumina can be regenerated by heating under dry carrier gas flow at 200C for 8 hours

Applications:
light hydrocarbons, unsaturates, propylene and ethylene purity analysis

□ Rt-Q PLOT/MXT-Q PLOT and Rt-S PLOT

- An efficient alternative to porous polymer packed columns.
- Minimal conditioning time required for high temperature use.

The Rt-S and Rt-Q PLOT columns offer a choice to the analyst who desires the selectivity of divinylbenzene porous polymers and the efficiency of capillary columns.

Because of the large amount of porous polymer in packed columns, long conditioning times are necessary. However, with PLOT columns, the actual amount of porous polymer is significantly lower. Not only does this shorten conditioning times and increase throughput, it also reduces the overall bleed level (critical with high temperature applications where low background levels are desired).

Restek starts with high purity monomers for production of porous polymer PLOT columns. This ensures that the columns will have a selectivity identical to that of the Porapak® and HayesSep packings. The Rt-Q PLOT column is a true divinylbenzene homopolymer, whereas the Rt-S PLOT column is a divinylbenzene and 4-vinylpyridine copolymer.

The Rt-QPLOT columns are available in both 0.32 and 0.53mm IDs. The 0.53mm ID columns are ideal for large samples where increased sample capacity is needed, whereas the 0.32mm ID columns offer enhanced efficiency for trace analysis and decreased analysis times

Rt-QPLOT

(Fused Silica PLOT)

Stable to 250C

ID	temp. limits	15-Meter	30-Meter
0.32mm	up to 250°C	19717	19718
0.53mm	up to 250°C	19715	19716

MXT-QPLOT

(Metal PLOT)

Stable to 250C

ID	temp. limits	15-Meter	30-Meter
0.53mm	up to 250°C	79715	79716

Applications:
light hydrocarbons, aldehydes, ketones, chlorofluorocarbons and carbon dioxide

Rt-S PLOT

(Fused Silica) PLOT

Stable to 250C

ID	temp. limits	15-Meter	30-Meter
0.32mm	up to 250°C	19711	78001
0.53mm	up to 250°C	19713	19712

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Rt-Msieve 13X

□ Rt-Msieve 13X

- Improved analysis of permanent gases.
- Symmetrical peak shape for carbon monoxide.
- Particles immobilized to eliminate valve contamination and detector noise.
- Similar to Molecular Sieve 5A PLOT columns.

The GC analysis of permanent gases has traditionally been done using molecular sieve packed columns. While packed columns offer high capacity, they offer poor resolution and have difficulty resolving closely eluting compounds. PLOT columns are made by anchoring molecular sieve particles to the wall of a fused silica column, which results in high efficiency and faster analysis times. Restek's Rt-Msieve' 13X, a new Molecular Sieve PLOT column, greatly improves the separation of permanent gases. The larger pore size of the Rt-Msieve 13X PLOT column reduces the retention of carbon monoxide while maintaining good resolution of other permanent gases. The reduced retention of carbon monoxide results in a narrower peak width and allows more accurate quantitation for low CO levels.

Because PLOT columns are a collection of small particles on the wall of a capillary, particle generation is of great concern. The molecular sieve particles in the Rt-Msieve 13x have been immobilized with a process, unique to Restek, that minimizes any particle generation. Our process utilizes a material that forms a blanket over the particles, thus preventing any particle evolution. This process prevents possible damage to valves and reduces detector noise.

The Rt-Msieve' 13X is available in both 0.53mm and 0.32mm ID. for large injection volumes or applications requiring valves, the 0.53mm ID is ideal because of the large sample capacity and high flow rates. The 0.32mm ID columns offer improved efficiency and narrower peak shapes, making it ideal for split capillary injectors.

Because the molecular sieves are very hydrophilic materials, they will adsorb water present in the sample or carrier gas. Water contamination can have a detrimental effect on peak symmetry and can reduce the resolution of all compounds. If water contamination occurs, reactivate the Rt-Msieve 13X PLOT columns by Conditioning at 300 C under dry carrier gas flow.

Rt-Msieve 13X

(Fused Silica PLOT)

Stable to 300C

ID	temp. limits	15-Meter	30-Meter
0.32mm	up to 300 ^o C	19707	19708
0.53mm	up to 300 ^o C	19705	19706

MXT-Msieve

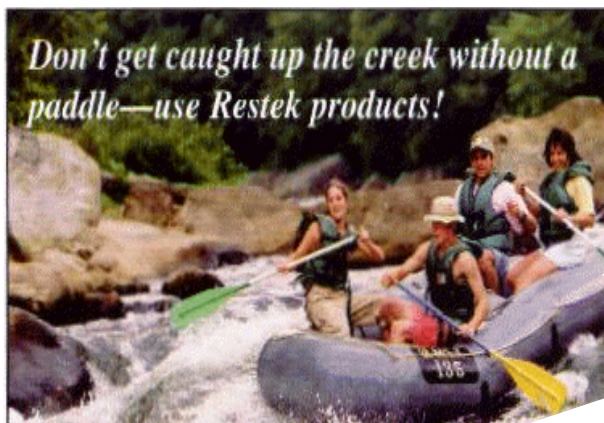
(Metal PLOT)

Stable to 300C

ID	temp. limits	15-Meter	30-Meter
0.53mm	up to 250 ^o C	19708	19706

Applications:
separation of
optical isomers.

Applications:
fixed gases



Tony Cepullio
Vice President/Controller
white water rafting on the
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