Dr. Maisch

Any Column, Any Size, Any Media

GHOST ELIMINATOR

MADE BY DR. MAISCH

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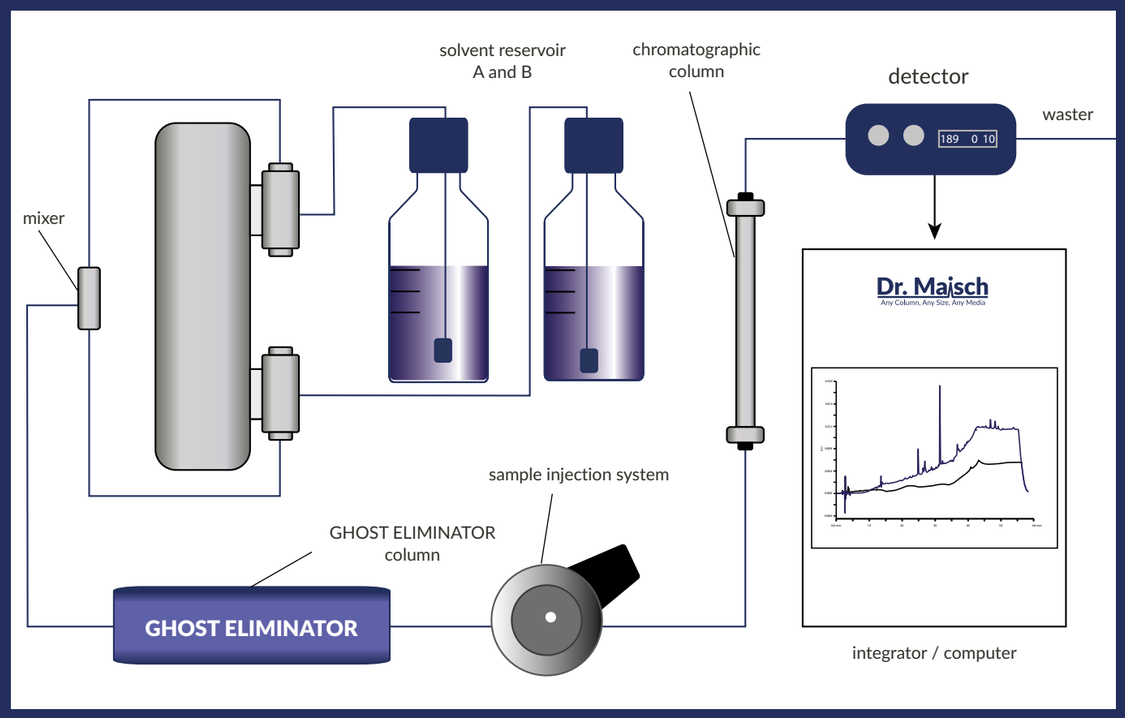
GHOST ELIMINATOR MADE BY DR. MAISCH

From one of the biggest
High-**P**erformance **L**iquid **C**hromatography (HPLC) and
Ultra **H**igh-**P**erformance **L**iquid **C**hromatography (UHPLC)
Column Manufacturers in Europe.

Dr. Maisch HPLC GHOST ELIMINATOR can effectively remove impurities with low polarity and thus prevents interference from all kinds of ghost peaks. It is installed between the gradient mixer and the injector, which helps remove not only impurities in the mobile phase, but impurities in the mixer and the pipelines as well. Unlike in-line filters which remove only solid particles but not organic pollutants, Dr. Maisch HPLC´s GHOST ELIMINATOR provides strong adsorption to weak-polar and non-polar organic impurities, without changing the composition of the mobile phase, thus to purify both the mobile phase and the system, remove most ghost peaks and extend column and system lifetime.

GHOST ELIMINATOR

installed between the gradient mixer and the sampler (injector)



ABOUT GHOST ELIMINATOR

Where do ghost peaks originale from?

- Water, with impurities
- System, polluted or poorly functioning
- Storage containers, polluted or breeding bacteria
- Mobile phase additives, like salts, acids and alkalis
- Instrument, polluted after long-period use
- Other organic pollutants

Mechanism:

GHOST ELIMINATOR uses a specifically optimized stationary phase and improved hardware. GHOST ELIMINATOR removes impurities in the mobile phase with stronger retention.

Stable baseline:

When the initial proportion of aqueous phase is high (generally more than 95%), using conventional GHOST columns can remove impurities effectively. But some GHOST peaks may still occur when the proportion of mobile phase has a drastic change in a few minutes or the baseline has large fluctuation. By improving the overall design of the GHOST ELIMINATOR, the mobile phase is fully mixed before entering the analytical column, greatly reducing the baseline fluctuation and drift in the initial phase of the gradient program.

Column lifetime:

3000 hours with stable baseline

Precautions:

- Install the column between mixer and injector. Being installed after the injector would cause strong adsorption of samples and affect analysis.
- For new analytical columns, flush GHOST ELIMINATOR column with 80% methanol solution at 1 mL/min for 20 min before installing a new.
- Not all impurities can be adsorbed by the GHOST ELIMINATOR column.
- Ion-pair solvents in the mobile phase-, would be adsorbed by the GHOST ELIMINATOR column and affect retention and peak shape. Please use with caution under such mobile phase contition.
- Column lifetime depends on analytical conditions, mobile phase and solvent purity. Routine change of the GHOST ELIMINATOR column is suggested to ensure performance.
- The GHOST ELIMINATOR column is rather a purification part to the system, to filtrate impurities and protect column and system.
- Before and after using buffer salt mobile phase, flush the column with high-ratio water to transit, thus to avoid buffer precipitation and blocking the column.
- When the GHOST ELIMINATOR column shows unsatisfying performance, try disconnecting the outlet of the column and flush with 100% acetonitrile.

Ordering information:

Packing : GHOST ELIMINATOR
Dim : 50 x 4.6 mm
Part no: ghost.s0546

- column to the system

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01

Q1 : For different samples and gradient conditions, should the GHOST ELIMINATOR column be removed or changed?

Ans. : Not necessarily. But it needs to be removed only for special circumstances like changing of peak position or ion-pair solvents mobile phase.

02

Q2 : When gradient elution is changed to isocratic, should the GHOST ELIMINATOR column be removed?

Ans. : There is no need to remove the GHOST ELIMINATOR column if it did not affect the separation, as the mobile phase stays same under isocratic condition. But impurities the in mobile phase shall be taken into consideration.

03

Q3 : In a gradient system, the GHOST ELIMINATOR column increases the mixed dwell volume. Will this affect the separation?

Ans. : The packing volume of a 4.6×50mm column is ~400µL and the column is installed before the injector ; which would cause little influence on the analysis. If it does, connect the GHOST ELIMINATOR column to the water phase path before the mixer or switching valve.

04

Q4 : Are there any requirements for connecting GHOST ELIMINATOR column?

Ans. : There are no special requirements for the connection. Common PEEK tubes and connectors for HPLC system are recommended.

05

Q5 : What's the lifetime of GHOST ELIMINATOR column?

Ans. : The lifetime of GHOST ELIMINATOR column is related to the analysis conditions, brand of the solvents and purity of the mobile phase. If the mobile phase composition (such as water/methanol) is simple; and the GHOST ELIMINATOR column is carefully used, the lifetime of the GHOST ELIMINATOR column is over one year and the number of injections is around 3000. Replacement of the GHOST ELIMINATOR column is recommended once the trapping effect begins to deteriorate.

DO´S & DON´TS

06

Q6 : What's the washing procedure and how frequently should it be applied.

Ans. :
The GHOST ELIMINATOR column doesn't need special washing as the adsorption of impurities is irreversible.

07

Q7 : Is the GHOST ELIMINATOR column compatible with ion-pair reagent mobile phases?

Ans. : Whether ion pair mobile phase can be used should be determined by testing a new GHOST ELIMINATOR column as the sorbent in the GHOST ELIMINATOR column may absorb ion pair reagent.

1. In most cases, it may not be compatible with the mobile phase which contains ion pair reagent such as sodium 1 heptanesulfonate, tetrabutylammonium hydroxide etc.

2. However, in some cases, the GHOST ELIMINATOR column might not affect the retention and peak shape. In these cases, this GHOST ELIMINATOR column must be dedicated for this ion pair reagent and can't be used for another ion pair reagent mobile phase.

08

Q8 : Can the GHOST ELIMINATOR column be used for different types of mobile phases (such as potassium phosphate, sodium phosphate, ammonium acetate, TFA, formic acid, etc.?

Ans. : Yes, the GHOST ELIMINATOR column can be used for different types of mobile phases except mobile phase containing ammonium ions. Other reagents such as potassium phosphate, sodium phosphate, TFA, formic acid, etc. can be used with this column.

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COMPATIBILITY WITH ION-PAIR REAGENT MOBILE PHASES

NOT COMPATIBLE WITH FOLLOWING REAGENTS :

Tetra(decyl)ammonium Bromide	Sodium 1-Propanesulfonate
Dodecyltrimethylammonium Chloride	Sodium 1-Butanesulfonate
Tetrabutylammonium Hydrogen Sulfate	Sodium 1-Pentanesulfonate
Tetrabutylammonium Phosphate	Sodium 1-Hexanesulfonate
Tetrabutylammonium Chloride	Sodium 1-Heptanesulfonate
Tetraethylammonium Hydroxide	Sodium 1-Octanesulfonate
Tetrabutylammonium Hydroxide	Sodium 1-Nonanesulfonate
Tetrabutylammonium Bromide	Sodium 1-Decanesulfonate
Tetrapropylammonium Hydroxide	Sodium 1-Undecanesulfonate
Dipropylammonium Acetate	Sodium 1-Dodecanesulfonate
Dibutylammonium Acetate	Sodium 1-Tridecanesulfonate

COMPATIBILITY WITH ION-PAIR REAGENT MOBILE PHASES

COMPATIBLE WITH FOLLOWING REAGENTS :

- Monosodium Phosphate
- Disodium Hosphate
- Trisodium Phosphate
- Monopotassium Phosphate
- Dipotassium Phosphate
- Tripotassium Phosphate
- Formic Acid

USE OF ION-PAIR REAGENTS

Using GHOST ELIMINATOR column may not affect the main peak but the GHOST ELIMINATOR must be dedicated to the use with this ion pair regent and cannot be used for other ion pair reagents mobile phases as this may reduce its life time.

WASHING PROCEDURE

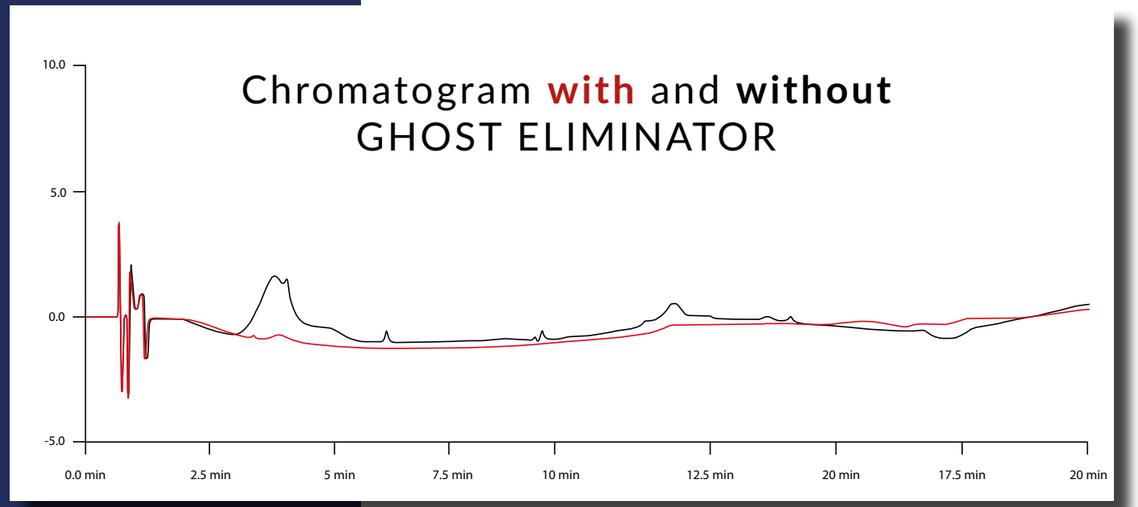
The GHOST ELIMINATOR column could be washed together, column does not need special washing.

COLUMN PACKING

Mainly used for industrial water treatment, especially to remove bicarbonate, carbonate and other alkaline salts, metal ions can also be used for waste recycling, biological drugs, such as separation and purification.

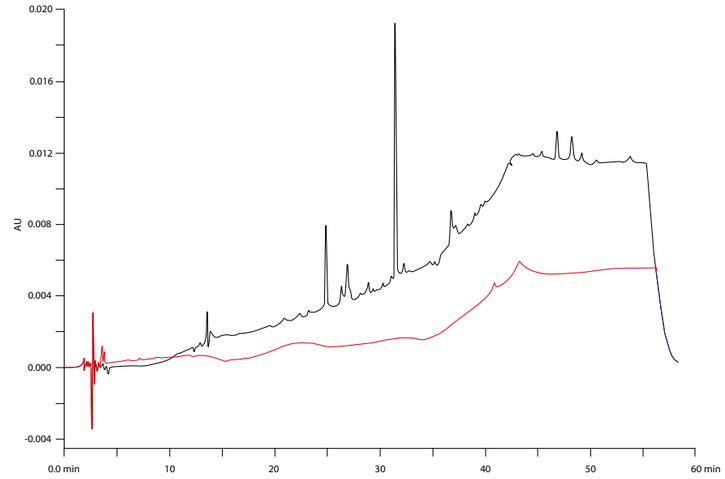
pH-STABILITY

1 to 14



Min	%A	%B	ml/Min
0.0	95	5	1
5.0	80	20	1
10.0	60	40	1
15.0	30	70	1
20.0	5	95	1

QUALITY ASSURANCE CHROMATOGRAM



DESCRIPTION:

Column lot no:	72101
Packing material:	GHOST ELIMINATOR
Length:	50 mm
ID:	4.6 mm
Analytical column:	Exsil Pure RP18M, 50x4.6mm
Mobile phase A:	20 mmol/L Dipotassium phosphate solution, adjust pH to 6.0 with phosphoric acid
Mobile phase B:	Acetonitrile
Detection:	UV 230 nm
Injection:	No injection (blank run)

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