

www.mega.mi.it

MEGA®

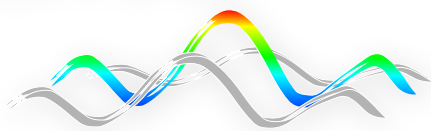
improve your GC analysis

CUSTOM
DEDICATED
COLUMNS

GC-MS
columns

dex xeb
chiral columns

mega 2D™
columns



FAST-GC
solutions

35th
anniversary

MegaHT
High Temperature Columns

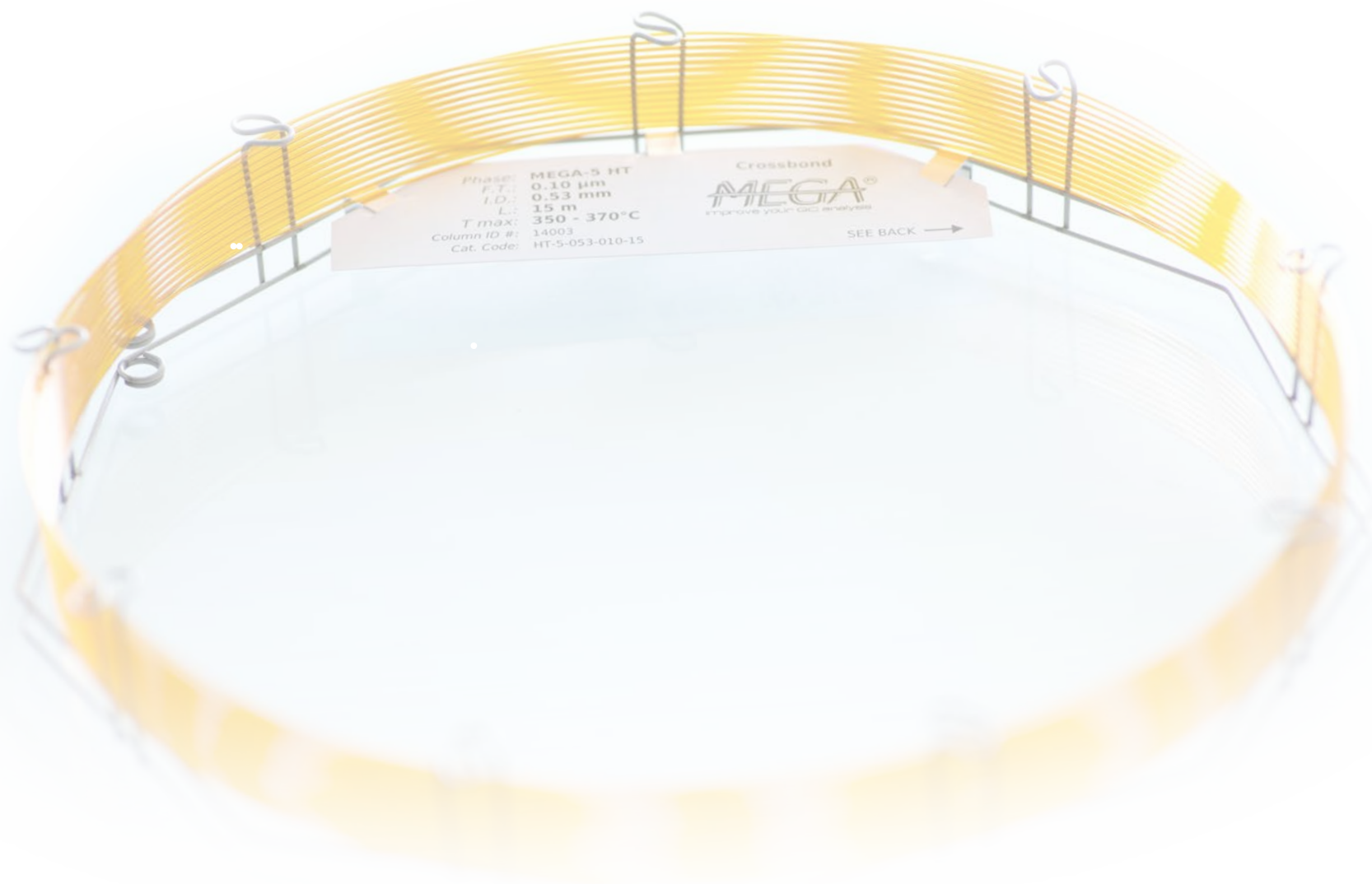
general purpose
**RETENTION
GAPs**

PRESS-FIT
connectors

GC products

35th anniversary

contact us: info@mega.mi.it



Since 1980 we offer:

- the most complete range of stationary phases for Conventional-GC, FAST-GC, Wide Bore GC, Chiral-GC, GC-MS
- special and innovative products for Multidimensional-GC (including GCxGC), High Temperature GC and more
- unsurpassed Quality, Efficiency and Inertness; we produce and test each column one-by-one to assure a perfect column-to-column reproducibility
- custom products by request with no additional cost
- support and services for your GC analysis

our experience in Gas Chromatography at Your service

GC Columns Dimensions Available

| | | | | | |
|------|------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| FAST | I.D. | 0.05 mm | 0.075 mm | 0.10 mm | 0.15mm |
| | Length | from 1 to 5 m | from 1 to 8 m | from 1 to 15 m | from 1 to 30 m |
| | Film Thickness * | from 0.05 to 0.25 μm | from 0.05 to 0.50 μm | from 0.05 to 1.40 μm | from 0.05 to 2.00 μm |

| | | | | | |
|--------------|------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| CONVENTIONAL | I.D. | 0.18 mm | 0.20 mm | 0.25 mm | 0.32mm |
| | Length | from 5 to 60 m | from 5 to 60 m | from 5 to 105 m | from 5 to 105 m |
| | Film Thickness * | from 0.05 to 1.50 μm | from 0.05 to 1.50 μm | from 0.05 to 3.00 μm | from 0.05 to 5.00 μm |

| | | | | | |
|-----------|------------------|--------------------------|--------------------------|--|--|
| WIDE BORE | I.D. | 0.45 mm | 0.53 mm | | |
| | Length | from 10 to 75 m | from 10 to 75 m | | |
| | Film Thickness * | up to 5.00 μm | up to 5.00 μm | | |

Completely customize your product, selecting all combinations of sizes and also asking for out-of-catalog configurations. Since 1980 we develop ad-hoc solutions for your specific analytical problem. We are able to even tune the selectivity of the stationary phase to respond to particular exigences.

All our stationary phases are available for FAST, Conventional, Wide-Bore and Multidimensional-GC (including GCxGC solutions and kits). Discover moreover our MEGA-DEX chiral columns, our MEGA-HT High Temperature columns and other unique and special products.

metal **MTX**
GC columns

Metal MTX capillary columns for high temperature GC (up to **420°C** with our HT stationary phases). You can require almost every stationary phase (even not HT) to be coated onto the high inertness metal capillary tubing. Contact us to have more details and to forward your requests.

mega **wax plus**

MEGA-WAX Plus and MEGA-FFAP EXT columns, **two new Carbowax phases**. MEGA-WAX Plus column is an high stable PEG phase (270°C max temperature) excellent also for GC-MS analysis, truly equivalent to InnoWax columns.

mega **FFAP EXT**

MEGA-FFAP EXT column is a Crossbonded version of the well known MEGA-ACID (FFAP) phase with also an extended working temperature range.



MEGA-2D single column, a revolutionary **unique tubing column coated with two in series different stationary phases** for GCxGC and MDGC applications. No connections are needed. Contact us to have more information and discover all the advantages of the MEGA-2D technology also applied to conventional-GC.

dex **FAST**
DEX FAST

FAST Chiral MEGA-DEX columns line; today you can speed up your chiral GC separations with **the most complete line of FAST-GC chiral columns**. Contact us to have more info and application notes.

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|--|---------|---|---|---|
| MEGA-I 100% methyl polysiloxane | 350°C | DB-I, HP-I, AT-I, ZB-I, 007-I, Rtx-I, BP-I, SPB-I, CP Sil 5 CB | EPA: 504.1, 505, 551, 606, 612, 8141A/B, etc.** USP: G1, G2, G9, G38 | General purpose column. Solvent impurities, PCBs, simulated distillation, drugs, gases, natural gases, essential oils, semivolatiles, pesticides, phenols, etc. |
| MEGA-5 5% phenyl, 95% methyl polysiloxane | 350°C | DB-5, HP-5, AT-5, ZB-5, 007-5, Rtx-5, BP-5, SPB-5, CP Sil 8 CB | EPA: 506, 611, 604, 607, 608, 8015, 8041, 8082, 8091, etc.** USP: G27, G36, G41 | General purpose column. Solvent impurities, PCBs, hydrocarbons, essential oils, semivolatiles, pesticides, etc. |
| MEGA-SE52 5% phenyl, 95% methyl polysiloxane | 350°C | SE52 | USP: G27, G36, G41 | General purpose column. Solvent impurities, PCBs, hydrocarbons, essential oils, semivolatiles, triglycerides, pesticides, poly-waxes, etc. |
| MEGA-SE54 5% phenyl, 1% vinyl, 94% methyl polysiloxane | 350°C | SE54 | - | General purpose column. Solvent impurities, PCBs, hydrocarbons, essential oils, semivolatiles, allergens, pesticides, etc. |
| MEGA-1701 14% cyanopropylphenyl, 86% methyl polysiloxane | 280°C | DB-1701, HP-1701, AT-1701, ZB-1701, 007-1701, Rtx-1701, BP-10, SPB-1701, CP Sil 19 CB | EPA: 513, 515.2, 552.2, 607, 619, 622, 8091, 8121, etc.** USP: G46 | General purpose column. Residual solvents, PCBs, alcohols, oxygenates, pesticides, etc. Ideal as confirmation column and GCxGC use. |
| MEGA-17 50% phenyl, 50% methyl polysiloxane | 340°C | DB-17, DB-608, HP-17, AT-50, ZB-50, 007-17, Rtx-17, BPX-50, SPB-50, CP Sil 24 CB | EPA: 604, 608, 619, 8060, 8081 USP: G3, G17 | General purpose column. Phthalate esters, herbicides, pharmaceuticals, etc. Ideal as confirmation column and GCxGC use. |
| MEGA-WAX polyethylene glycol (PEG) | 250°C | DB-Wax, HP-Wax, AT-Wax, ZB-Wax, 007-CW, Rtx-Wax, BP-20, CP Wax 52 CB | EPA: 602, 603, 619, 8015C USP 467 (OVIs), etc.** USP: G14, G15, G16, etc. | General purpose column. FAMES, flavor compounds, essential oils, BTEX aromatics, solvents, alcohols, etc. Tune your Wax column polarity (i.e. WAX-20M, WAX-400, WAX-8M and many more PEG types). Ask us for more info. |
| MEGA-I MS low bleeding 100% methyl polysiloxane | 350°C | DB-I ms (UI), HP-I ms, ZB-I ms, Rtx-I ms, BPX-I, Equity-I, CP Sil 5 CB ms | EPA: 504.1, 505, 606, etc.** USP: G1, G2, G9, G38 | General purpose column for GC-MS use. See MEGA-I phase. |
| MEGA-5 MS low bleeding 5% phenyl, 95% methyl polysiloxane | 350°C | DB-5 ms (UI), HP-5 ms, AT-5 ms, ZB-5 ms, 007-5 ms, Rtx-5 ms, BPX-5, Equity-5 | EPA: 513, 528, 552, 610, 613 1625, 8100, 8141A/B, etc.** USP: G27, G36, G41 | General purpose column for GC-MS use. See MEGA-5 phase. |

All trademarks mentioned in this document are registered.

*: the temperature range may change depending on the stationary phase film thickness.

** : download on our website a more complete guide to choose your GC column on the basis of EPA methods, USP requirements and/or ASTM methods.

www.mega.mi.it

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|--|---------|---|---|--|
| MEGA-5 MS XiI low bleeding silphenylene based MS phase | 350°C | DB-5 ms (UI), Rtx-5 ms Sil, SLB-5 ms new column | EPA: 515, 521, 529, 552, 604, 610, 625, 1613, 1625, etc.** USP: G27, G36, G41 | General purpose column for GC-MS use. Dioxins and furans, herbicides, phthalate esters POCs, chlorinated acids, etc. |
| MEGA-35 MS low bleeding 35% phenyl, 65% methyl polysiloxane | 340°C | DB-35 ms, BPX-35, BPX-608, MR2, Rtx-35 Sil ms | EPA: 507, 508, 552, 614, 615, 622, etc.** USP: G28, G32, G42 | General purpose column for GC-MS use. See MEGA-35 phase. |
| MEGA-17 MS low bleeding 50% phenyl, 50% methyl polysiloxane | 340°C | DB-17 ms, Rtx-17 Sil ms | EPA: 505, 610, 619, 614, 8040, 8041, etc.** USP: G3, G17 | General purpose column for GC-MS use. See MEGA-17 phase. |
| MEGA-225 MS low bleeding 25% cyanopropyl, 25% phenyl, 50% methyl polysiloxane | 240°C | unique column | EPA: 8095 USP: G7, G19 | General purpose column for GC-MS use. See MEGA-225 phase. |
| MEGA-WAX MS low bleeding polyethylene glycol (PEG) | 250°C | Stabilwax, ZB-Wax Plus, InnoWax, VF-Wax ms | EPA: 602, 603, 619, 8015C, 8121, etc.** USP: G14, G15, G16 etc. | General purpose column for GC-MS use. See MEGA-WAX phase. NEW PHASE 2015! |
| MEGA-10 100% cyanopropyl polysiloxane | 260°C | HP-88, AT-Silar, Silar 10 Rtx-2560, SP-2560 BPX-70, CP Sil 88 | EPA: 613, 1613, 8290B USP: G5, G8, G48 | High polarity column ideal for <i>cis/trans</i> FAMEs and dioxins isomers analysis. |
| MEGA-101 100% methyl polysiloxane | 350°C | OV-101, HP-101 | USP: G1, G2, G9, G38 | General purpose apolar column. |
| MEGA-13 13% phenyl, 87% methyl polysiloxane | 340°C | CP Sil 13 CB | EPA: 601, 602, 624 | General purpose column, ideal as confirmation column. |
| MEGA-20 20% phenyl, 80% methyl polysiloxane | 340°C | AT-20, 007-7, Rtx-20, SPB-20 | USP: G28, G32 | General purpose column, ideal as confirmation column. |

All trademarks mentioned in this document are registered.

*: the temperature range may change depending on the stationary phase film thickness.

** : download on our website a more complete guide to choose your GC column on the basis of EPA methods, USP requirements and/or ASTM methods.

www.mega.mi.it

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|--|-----------------------------|---|---|---|
| MEGA-200 trifluoropropyl methyl polysiloxane | 250°C | DB-200, DB-210, AT-210 007-210, Rtx-200, SP-2401, VF-200 ms | EPA: 551, 612, 625, 8095, etc.** USP: G6 | Unique selectivity column. Freon fluorocarbons, ketones, alcohols, organophosphorus pesticides, etc. |
| MEGA-225 25% cyanopropyl, 25% phenyl, 50% methyl polysiloxane | 260°C | DB-225, HP-225, AT-225, 007-225, Rtx-225, BP-225, CP Sil 43 CB | EPA: 8095 USP: G7, G19, G26 | Mid-to-high polarity phase. Carbohydrates, sterols, flavor compounds, etc. |
| MEGA-35 35% phenyl, 65% methyl polysiloxane | 340°C | DB-35, HP-35, AT-35, ZB-35, 007-11, MR2 Rtx-35, SPB-35, SPB-608 | EPA: 507, 508, 513, 551.1, 615, 622, etc.** USP: G28, G32, G42 | General purpose column. Pesticides, PCBs, substituted polar compounds, phenols, etc. Ideal as confirmation column. |
| MEGA-50 50% cyanopropyl, 50% methyl polysiloxane | 260°C | DB-23, Silar 5, Rtx-2330, SP-2330 | USP: G8 | Mid-to-high polarity phase. Carbohydrates, sterols, FAMES, flavor compounds, etc. Confirmation column. |
| MEGA-624 6% cyanopropylphenyl, 94% methyl polysiloxane | 280°C | DB-624, HP-624, AT-624, ZB-624, 007-624, Rtx-624, Vocol, SPB-624, VF-624 ms | EPA: 501.3, 502.1, 502.2, 601, 624, 1624, 8020, 8021, etc.** USP: G43, 467 (OVIs) | General purpose column. Ideal for volatile organic pollutants, purgeable aromatics, purgeable hydrocarbons, VOCs, etc. Available also for GC-MS systems. |
| MEGA-FFAP EXT acid modified polyethylene glycol (PEG) | 250°C | DB-FFAP, AT-1000, 007-FFAP, Stabilwax-DA, BP-21, SPB-1000 Nukol, CP Wax 58 CB | EPA: 8032 USP: G14, G15, G16, G25, G35, G39 | General purpose column. Ideal for free acids, FAMES, BTEX aromatics, flavor compounds, alcohols, spirits, polar compounds, etc. NEW PHASE 2015! |
| MEGA-ALC 1&2 proprietary phases | n.d. | DB-ALC 1&2, Rtx-BAC 1&2 | - | Application-specific columns for blood alcohols testing. |
| MEGA-BASIC proprietary unique phase for basic compounds | n.d. | unique column | - | Application-specific column for basic compounds analysis (i.e. amines). |
| MEGA-BIODIESEL phases for biodiesel analysis | 380°C (UNI EN ISO 14105) | - | UNI EN ISO 14105 (ASTM 6584), UNI EN ISO 14103 | Application-specific columns for free and total glycerine (phase stable up to 380°C) and for FAMES in biodiesel analysis. |

All trademarks mentioned in this document are registered.

*: the temperature range may change depending on the stationary phase film thickness.




** : download on our website a more complete guide to choose your GC column on the basis of EPA methods, USP requirements and/or ASTM methods.

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|---|---------|---|------------------------|---|
| MEGA-DAI 1&2 proprietary unique phases for Direct Aqueous Injections | n.d. | unique columns | - | Application-specific columns for the introduction of aqueous samples, thus minimizing preparation. |
| MEGA-JXR 100% methyl polysiloxane | 350°C | no equivalent on the market | USP: G1, G2, G9, G38 | General purpose apolar column. |
| MEGA-LAP proprietary unique phase for Lipid Analysis | 370°C | unique column | - | Application-specific column for lipids, sterols and triglycerides analysis. |
| MEGA-PAH unique phase for Polycyclic Aromatic Hydrocarbons | 340°C | unique column | EPA: 610, 8100 | Application-specific column for polycyclic aromatic hydrocarbons. |
| MEGA-PLUS copolymer polyethylene glycol + methyl polysiloxane | n.d. | Agilent DX columns series | EPA: 505 | Discover new selectivities! Choose also between MEGA-PLUS 25 (25% PEG), MEGA-PLUS 75 (75% PEG)...and others! Contact us! We can customize this phase as you need! |
| MEGA-POF 1&2 proprietary phases for pesticides, herbicides and insecticides | n.d. | new columns MRI (MEGA-POF I) | EPA: 622 | Application-specific columns developed for pesticides, herbicides, insecticides analysis etc. |
| MEGA-I PONA PDMS optimized for hydrocarbons analysis | 350°C | DB-Petro, HP-Pona, Rtx-I Pona, Petrocol | - | Phase optimized for DHA (Detailed Hydrocarbons Analysis). |
| MEGA-PS255 1% vinyl, 99% methyl polysiloxane | 350°C | no equivalent on the market | - | Phase that is extremely suitable for high film thickness columns to analyze solvents, alcohols, volatiles, etc. |
| MEGA-PS264 5.8% phenyl, 0.2% vinyl, 94% methyl polysiloxane | 350°C | no equivalent on the market | - | Phase that is extremely suitable for high film thickness columns to analyze solvents, alcohols, volatiles, etc. |

All trademarks mentioned in this document are registered.

*: the temperature range may change depending on the stationary phase film thickness.

** : download on our website a more complete guide to choose your GC column on the basis of EPA methods, USP requirements and/or ASTM methods.

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|--|---------|--|---|---|
| MEGA-SE30 100% methyl polysiloxane | 350°C | SE30 | EPA: 504.1, 505, 606, 8141A USP: G1, G2, G9, G38 | General purpose apolar column. |
| MEGA-SOLVE 1&2 proprietary unique phases for complex solvents mix analysis | n.d. | unique columns TCEP (MEGA-SOLVE 2) | - | Application-specific columns developed for complex solvents mixtures analysis. MEGA-SOLVE 2 is ideal for aromatics and oxygenates in gasoline. |
| MEGA-TNT unique phase | n.d. | unique column | EPA: 8091, 8095 | Application-specific column for explosives analysis, nitroaromatics, nitramines, nitrate esters. |
| MEGA-VOC 1&2 proprietary phases for Volatile Organic Compounds | n.d. | new columns | - | Application-specific columns for volatile organic compounds (OVIs), solvents and purgeable compounds. |
| MEGA-DEX DAC beta | 230°C |  | chiral-enantiomeric separations | Diacetyl TBS beta cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |
| MEGA-DEX DAC gamma | 230°C |  | chiral-enantiomeric separations | Diacetyl TBS gamma cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |
| MEGA-DEX DET beta | 230°C |  | chiral-enantiomeric separations | Diethyl TBS beta cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |
| MEGA-DEX DET gamma | 230°C |  | chiral-enantiomeric separations | Diethyl TBS gamma cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |
| MEGA-DEX DMP beta | 230°C |  | chiral-enantiomeric separations | Dimethyl-pentyl TBS beta cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |

All trademarks mentioned in this document are registered.

*: the temperature range may change depending on the stationary phase film thickness.

***: download on our website a more complete guide to choose your GC column on the basis of EPA methods, USP requirements and/or ASTM methods.

| Stationary Phase | T max * | Equivalent to | EPA - USP - Methods ** | Applications |
|--|---------|--|---------------------------------|--|
| MEGA-DEX DMT beta | 230°C |  | chiral-enantiomeric separations | Dimethyl TBS beta cyclodextrin based column. See and download on our website the applications and the table with hundreds of chiral compounds separated on our MEGA-DEX columns. |
| MEGA-I HT 100% methyl polysiloxane for high temperature | 380°C | high temperature column DB-1 ht | - | High temperature general purpose column. See MEGA-I phase. |
| MEGA-17 HT high temperature 50% phenyl, 50% methyl polysiloxane | 370°C | high temperature column DB-17 ht | - | High temperature general purpose column. See MEGA-17 phase. |
| MEGA-5 HT high temperature 5% phenyl, 95% methyl polysiloxane | 380°C | high temperature column DB-5 ht | - | High temperature general purpose column. See MEGA-5 phase. |
| MEGA-SE54 HT high temperature 5% phenyl, 1% vinyl, 94% methyl polysiloxane | 380°C | high temperature unique column | - | High temperature general purpose column. See MEGA-SE54 phase. |
| MEGA-WAX HT high temperature polyethyleneglycol (PEG) | 300°C | high temperature unique column | - | High temperature unique PEG phase. Extend the temperature limits of your FAST-GC and GCxGC analysis while using a polar Wax phase! |

FAST-GC
solutions

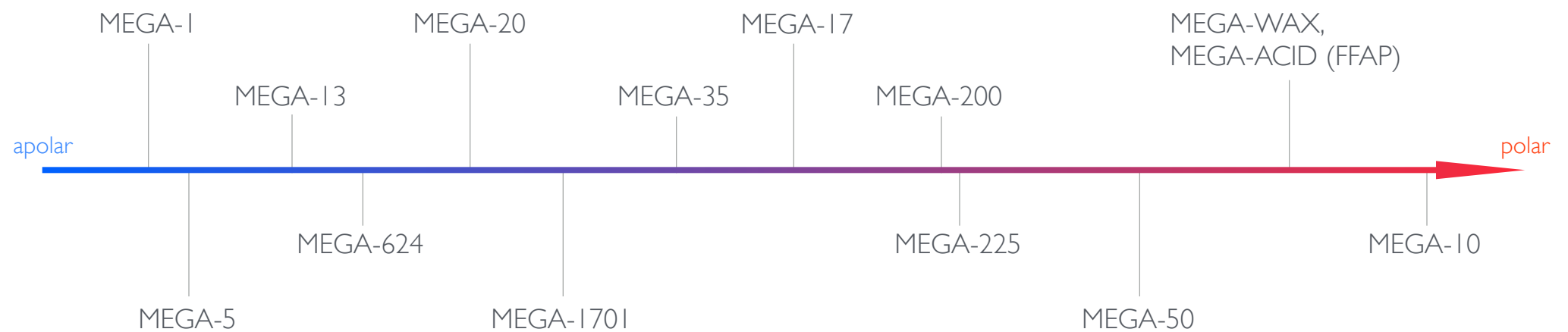
All our stationary phases are available for FAST-GC. Contact us to have more details. You can download on www.mega.mi.it our free guide to FAST-GC with a tons of application notes and technical tips!

dex xeb
chiral columns

Our chiral MEGA-DEX GC columns line is growing: MEGA-DEX G-01 (unique new phase able to separate Bornyl Acetate and Isobornyl acetate enantiomers in one analysis) and MEGA-DEX B-SE just announced. New chiral columns are coming. Contact us for more info and application notes!

www.mega.mi.it

Common Phases Polarity Quick View

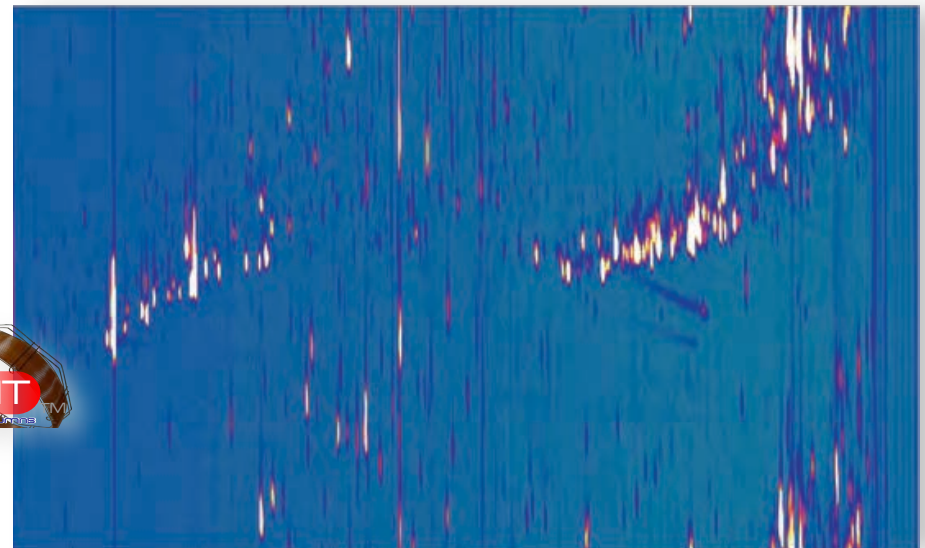


GCxGC Solutions

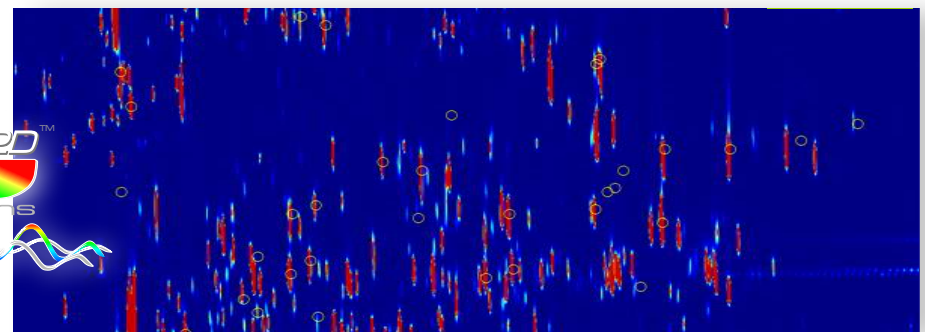
MEGA offers unique and innovative products for your GCxGC analysis.

We can provide completely custom GCxGC solutions, including ready-to-use kits.

Selectivity of the stationary phase plays a fundamental role in GC and this is even more important in GCxGC. Ask us to tune the selectivity of the stationary phase thus to explore new and unique solutions and to optimize the orthogonality and the efficiency of your GCxGC system.

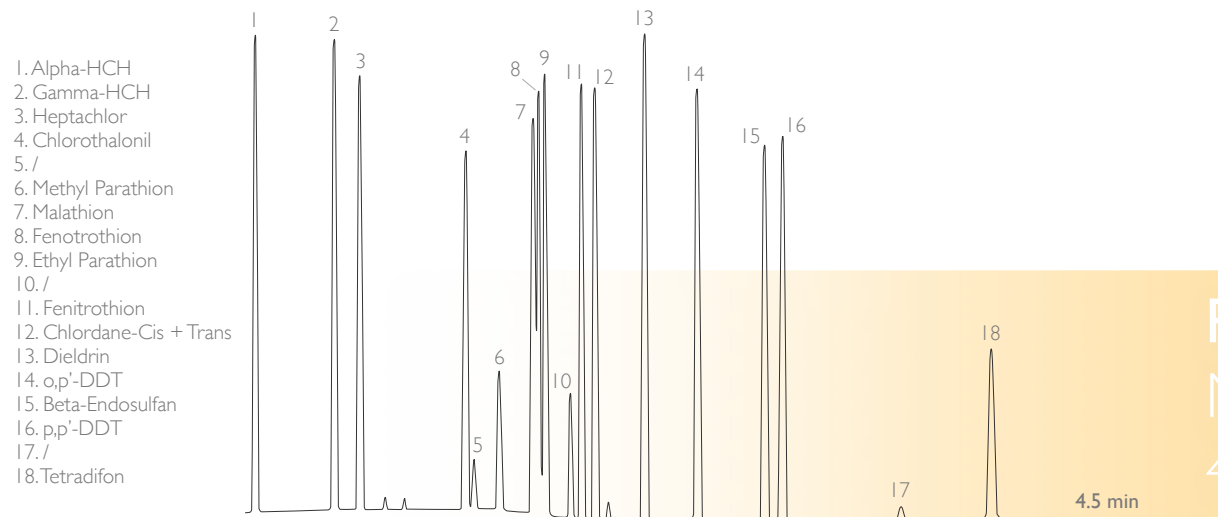


Kunzea essential oil GCxGC analysis using MEGA-WAX HT on 2nd dimension.
Courtesy of R. Shellie et al.



Allergens std. Mix GCxGC analysis on MEGA-2D column.
Courtesy of University of Torino, Prof. C. Bicchi, Prof. C. Cordero et al.

FAST-GC
solutions

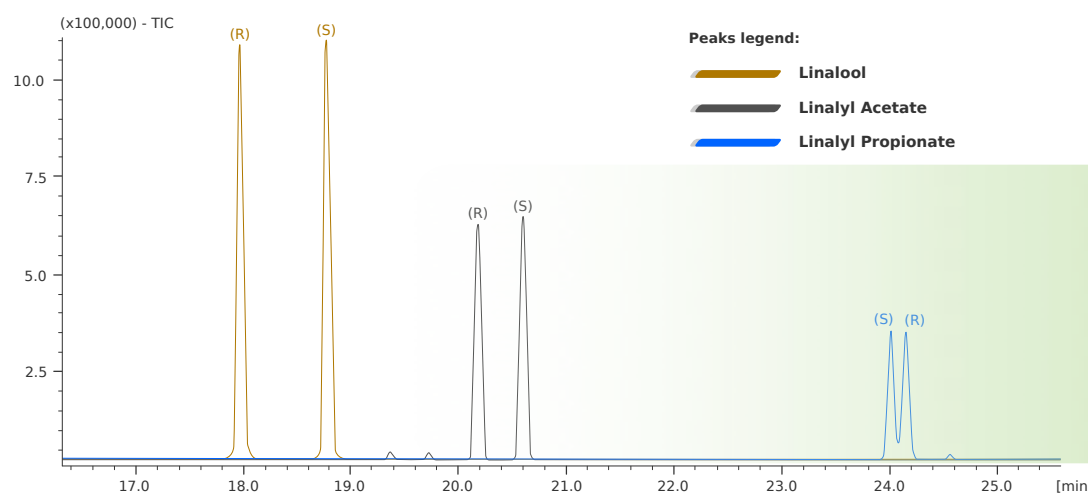
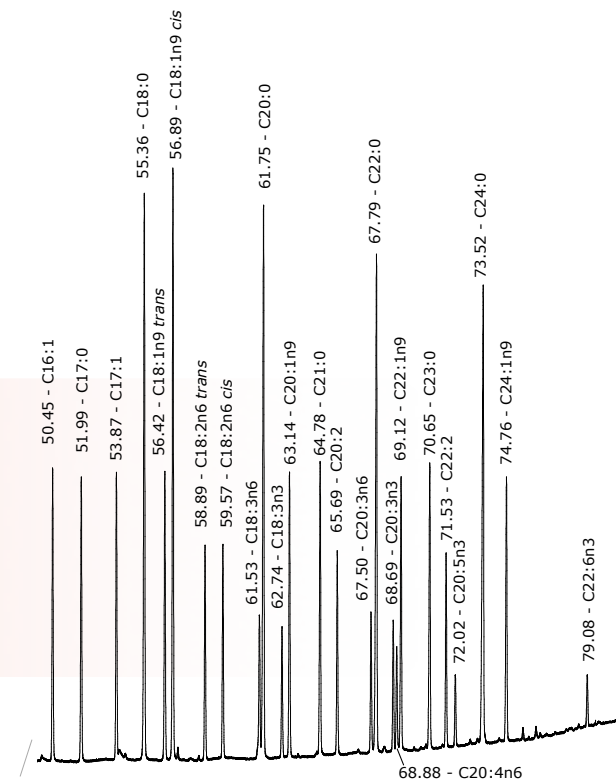


Pesticides mix on
MEGA-1701 FAST column
4.5 min analysis time only

Courtesy of University of Torino - Prof. C. Bicchi et al.

CUSTOM
DEDICATED
COLUMNS

cis/trans FAMES isomers
on MEGA-10 column



dex xeb
chiral columns

Linalool - Linalyl Acetate
enantiomeric separation
on MEGA-DEX DET Beta
chiral column

Courtesy of University of Torino - Prof. C. Bicchi et al.

PRESS-FIT connectors

- easy to handle

- a simple pressure to
assure a perfect seal

- easy to install

MEGA Press-Fit connectors allow you to simply connect, with a tight seal, different columns or Retention Gaps together in many ways. Our Press-Fit connectors are custom-made to fit any tubing size and to ensure the minimal dead volume. Visit our website to download the free guide “Press-Fit Connectors Tips” and discover how easy is to use our Press-Fit connectors.

Press-Fit Union linear connectors, ideal to connect two columns or a Retention Gap to the analytical column.

Press-Fit “Y” three ways connectors, ideal to connect two analytical columns to a single injector port or split the exit of one column to a dual detector GC system. Many other configurations are possible using MEGA “Y” Press-Fit.

MEGA produces also personalized **Multiways Press-Fit connectors** for advanced analytical system configurations as MDGC and other custom settings.



general purpose RETENTION GAPs

- easy to handle

- exceptional inertness

- easy to install

Retention Gaps deactivated for any purpose: our Retention Gaps are suitable for any analytical needs (use with polar solvents, apolar solvents and for general use) and available in any internal diameter size (0.05, 0.075, 0.10, 0.15, 0.18, 0.20, 0.25, 0.32, 0.45, and 0.53mm I.D.). Any length is available, also in pre-cut pieces individually packaged and ready to use. We also offer specific deactivation for aqueous samples injections.

MEGA Retention Gaps have an unsurpassed chemical inertness. Use our Retention Gaps for focusing the sample components when introducing a large (liquid) sample directly into the column and/or to protect the analytical column from contamination. Retention Gaps are also useful as connecting pipes to various part of systems with different configurations.

Discover also our **MEGA-GAP** columns line with integrated built-in Retention Gap.

No connections needed. Visit our website or contact us for more information.

Original Large Volume Injection UNCORET columns (0.53mm, 12m Gap + 3m coated) available.

MEGA GAP

integrated built - in retention gap

- want to optimize Your analytical method ?
- a new sample to analyze and don't know which is the best column to use ?
- want to see the performances of our products before buy them ?
- any other analytical problem in Gas Chromatography ?

Just:

- **send us Your real sample to analyze**
- **contact us**

www.mega.mi.it



contact us: info@mega.mi.it



MEGA s.n.c. - Capillary Columns Laboratory - Via Plinio, 29 - 20025 Legnano (MI) - Italy
Tel./Fax: +39 0331.54.79.24 - info@mega.mi.it - www.mega.mi.it - follow us on twitter @MEGAColumns

