



Short User Manual for ChiralCTAM-R Columns

Please visit English website <http://chiraltek-column.com/Downloads.php> for downloading the full product manual and application notes for the ChiralICTAM columns.

All ChiralCTAM-R columns have been passed the quality control tests. Please kindly refer to the “Certificate of Quality Control Analysis” for information about the testing results. The column was stored in ACN/H₂O (40:60, v/v) before delivery. Please carefully read this user manual before using the ChiralCTAM-R column.

1. Unique Characteristics for Amylose-coated ChiralCTAM-R Columns for Reversed-phases

ChiralCTAM-R columns are a new type of completely-substituted amylose-coated silica particles-packed chiral columns. The ChiralCTAM-R particles were prepared through a specially-designed procedure by coating the amylose derivatives onto the surface of the chemically-modified macroporous silica gel (2 μ m, 3 μ m, or 5 μ m for analytical columns). The schematic chemical structure of the ChiralCTAM-R phase is shown in Figure (A).



ChiralCTAM-2R: R= 3,5-Dimethylphenylcarbamate;
ChiralCTAM-3R: R=3-Chloro-4-methyl-phenylcarbamate;
ChiralCTAM-6R: R= (S)- α -Methylbenzylcarbamate;
ChiralCTAM-10R: R= 5-Chloro-2-methyl-phenylcarbamate.

Figure (A). Schematic diagram of the ChiralCTAM-R phase

High-quality sphere macroporous silica particles with pore size 500Å, 1000Å and above are used to manufacture the ChiralCTAM-R phases. Therefore, high column efficiency can be easily achieved on the ChiralCTAM-R columns.

As ChiralCTAM-R particles are amylose derivative-coated chiral phases, they are designed only for polar organic and reversed-phase conditions in HPLC and UPLC. Typical mobile phases are mixtures of MeOH/ACN, or MeOH/H₂O, or ACN/H₂O, etc. with or without organic acidic or basic additives. The ChiralCTAM-R columns cannot be used under normal phase or other non-typical mobile phase conditions.

Please use amylose-immobilized ChiralAM columns if other non-typical mobile phases or normal phase mobile phases are required for the chromatographic separations.

2. Application and Requirements

The ChiralCTAM-R columns can be used only under polar organic and reversed-phase conditions with some organic acidic or basic additives. A proper chiral guard column or a common NH₂ or C18 guard column can be used for ChiralCTAM-R columns.

The column pressure for ChiralCTAM-R columns with 5 μm particles is quite low in HPLC. However, when using ChiralCTAM-R columns with 2 μm and 3 μm particles, low flow rate (e.g., 0.1-0.5 mL/min) should be applied when used in traditional HPLC with highly viscous mobile phases in order to avoid high back pressure. However, there is no special flow rate limitation for use in UPLC.

The ChiralCTAM-R column is stored in ACN/H₂O (40:60, v/v) upon delivery. It is strongly recommended to flush the column with compatible mobile phase to achieve a stable baseline under polar organic mode or reversed-phase conditions before final application in UPLC or HPLC.

Flow direction:	Arrow direction on the label
Pressure:	< 860 bar (~12500 psi, 2 µm, 3 µm)
	< 460 bar (~7000 psi, 5 µm, HPLC)
Temperature:	0 – 40 °C
Guard column:	ChiralCTAM-R or NH ₂ or C18 column
Mode:	HPLC or UPLC

Non-typical solvents, e.g., Acetone, Chloroform, Dichloromethane, DMF, DMSO, 1,4-Dioxane, Ethyl acetate, THF, Toluene, etc., cannot be used to resolve samples and cannot be used as mobile phase additives.

3. Care and Maintenance of the ChiralCTAM-R Columns

- [1] It is strongly recommended to use guard columns to protect the ChiralCTAM-R columns;
- [2] It'd be better to resolve samples in mobile phases and filter through 0.5 μ m membrane before injection;
- [3] The non-typical solvents, e.g., Acetone, Chloroform, Dichloromethane, DMF, DMSO, 1,4-Dioxane, Ethyl acetate, THF, Toluene, etc., cannot be used to resolve samples or to use as mobile phase additives in HPLC.
- [4] A small amount (e.g.0.01% to 0.1%) of organic acidic or basic additives and buffers can be used under certain mobile phase conditions. However, frequent changes of additives may shorten lifespan of the columns.
- [5] When worked in high pressure conditions, it's strongly recommended to gradually decrease flow rate to ensure column pressure lower than 100 bar (~1450 psi) before switching off the chromatograph pump.

4. Notice and Other Considerations

- [1] The ChiralCTAM-R columns can only be used under polar organic and reversed-phase conditions with or without some organic acidic or basic additives. They cannot be used under normal phase or non-typical mobile phase conditions.
- [2] Diethylamine, butylamine, or amino ethyl alcohol (0.1%) can be used as mobile phase additives for basic compounds.
- [3] Formic acid, acetic acid, or trifluoroacetic acid (0.1%) can be used as mobile phase additives for acidic compounds.
- [4] Non-typical solvents, e.g., Acetone, Chloroform, Dichloromethane, DMF, DMSO, 1,4-Dioxane, Ethyl acetate, THF, Toluene, etc., cannot be used to resolve samples and cannot be used as mobile phase additives in HPLC and UPLC.
- [5] If other non-typical mobile phases or normal phase mobile phases are required for the chromatographic separations, another type of amylose-immobilized ChiralAM columns or the coating ChiralCTMA columns for normal phases should be used to replace the amylose-coated ChiralCTAM-R columns.

5. List of the ChiralCTAM-R Columns with Different Specifications

Product List of amylose-coated ChiralCTAM-R Columns from ChiralTek

Part Number	Type	Dimension	Description
9022-CTAM2R-01	ChiralCTAM-2R	2 μ m, 1000Å, 50 × 2.1mm	2 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
9032-CTAM3R-02	ChiralCTAM-3R	2 μ m, 1000Å, 100 × 2.1mm	2 μ m tris(3-chloro-4-methyl-phenylcarbamate)-amylose-coated reverse phase analytical column
9023-CTAM2R-04	ChiralCTAM-2R	3 μ m, 1000Å, 200 × 2.1mm	3 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
9023-CTAM2R-05	ChiralCTAM-2R	3 μ m, 1000Å, 250 × 2.1mm	3 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
9023-CTAM2R-61	ChiralCTAM-2R	3 μ m, 1000Å, 50 × 4.6mm	3 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
9023-CTAM2R-62	ChiralCTAM-2R	3 μ m, 500Å, 100 × 4.6mm	3 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
95023-CTAM2R-61	ChiralCTAM-2R	3 μ m, 500Å, 50 × 4.6mm	3 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
95023-CTAM3R-62	ChiralCTAM-3R	3 μ m, 1000Å, 100 × 4.6mm	3 μ m tris(3-chloro-4-methyl-phenylcarbamate)-amylose-coated reverse phase analytical column
9035-CTAM3R-61	ChiralCTAM-3R	5 μ m, 1000Å, 50 × 4.6mm	5 μ m tris(3-chloro-4-methyl-phenylcarbamate)-amylose-coated reverse phase analytical column
9035-CTAM3R-62	ChiralCTAM-3R	5 μ m, 1000Å, 100 × 4.6mm	5 μ m tris(3-chloro-4-methyl-phenylcarbamate)-amylose-coated reverse phase analytical column
9065-CTAM6R-05	ChiralCTAM-6R	5 μ m, 1000Å, 250 × 4.6mm	5 μ m tris((s)- α -Methylbenzylcarbamate)-amylose-coated reverse phase analytical column
9025-CTAM2R-05	ChiralCTAM-2R	5 μ m, 1000Å, 250 × 4.6mm	5 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase analytical column
9025-CTAM10R-14	ChiralCTAM-10R	5 μ m, 1000Å, 200 × 10.0mm	5 μ m tris(5-chloro-2-methyl-phenylcarbamate)-amylose-coated reverse phase semi-preparative column
9025-CTAM2R-25	ChiralCTAM-2R	5 μ m, 1000Å, 250 × 20.0mm	5 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase preparative column
9025-CTAM2R-35	ChiralCTAM-2R	5 μ m, 1000Å, 250 × 30.0mm	5 μ m tris(3,5-dimethylphenyl-carbamate)-amylose-coated reverse phase preparative column
803-SK1-61	ChiralKit-1	3 μ m, 1000Å, 50 × 4.6mm	Screening Kit-1 (4 analytical columns)

ChiralCTAM-R columns with other dimensions are also available. This manual may not be updated on time, please visit English website <http://chiraltek-column.com/Downloads.php> for downloading the latest version of full product manual and application notes for ChiralCTAM-R columns. Please call an international phone number (+65)-93656129 to directly contact ChiralTek technical support team in Singapore. You also can call a special local phone number (+86)-95040358310 in the mainland of China to directly contact ChiralTek support team in Singapore.