

Short User Manual for ChiralAMxAMy Columns

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

All ChiralAMxAMy 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 IPA/MeOH (50:50, v/v) before delivery. Please carefully read this user manual before using the column.

1. Unique Characteristics for ChiralAMxAMy columns

ChiralAMxAMy columns are the first type of tandem hetero-amylose derivative-bonded silica particles-packed chiral columns. The ChiralAMxAMy particles (as shown in Figure (A)) were prepared through a specially-designed procedure by immobilizing the novel type of complex selector, the tandem hetero-amylose derivative (AMxAMy), onto surface of high-quality porous silica (2 μm, 3 μm, 5 μm, or 10 μm). The column contains a unique complex chiral selector with two recognition moieties: the derivatized amylose AMx and a different amylose derivative AMy. The AMx was linked with AMy by covalent bonds.

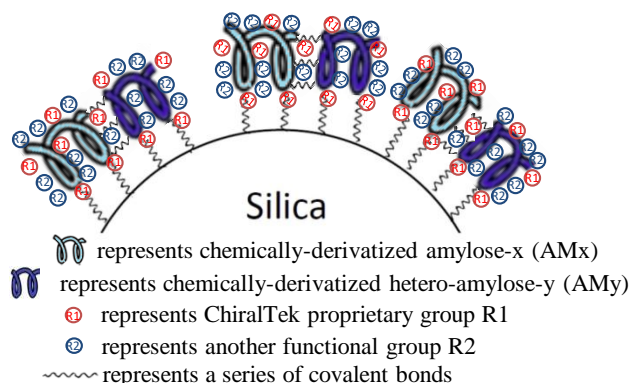


Figure (A). Schematic diagram of ChiralAMxAMy phase

Other manufacturers' columns contain a single type of chiral selector (e.g., single amylose, or single cellulose, etc). The ChiralAMxAMy column contains tandem hetero-amylose complex selector. Figure (B) shows the schematic structure of the AMxAMy complex selector (B1) and the general glucose unit (B2) in the AMxAMy selector. Novel space structure with extra chiral recognition sites is formed between AMx and AMy moieties. Due to the cooperative functioning of the AMx and AMy moieties, the ChiralAMxAMy columns can provide different and generally better chiral separation abilities for a wider range of chiral compounds.

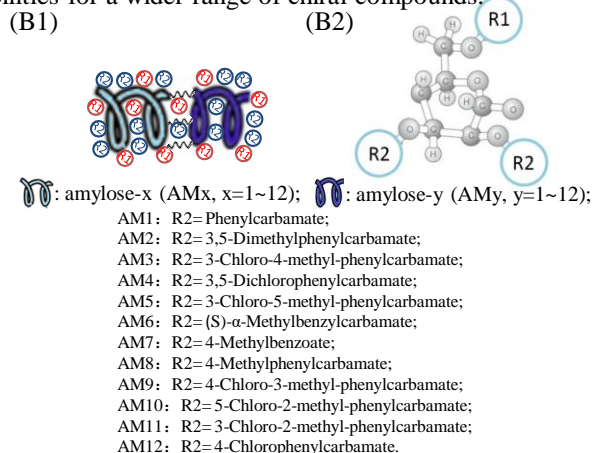


Figure (B). Schematic diagram of AMxAMy selector

2. Application and Requirements

The ChiralAMxAMy columns can be used under multiple modes of mobile phase conditions. For use under reversed-phase conditions, the columns need to be firstly flushed with methanol following by mobile phase until reaching a constant column pressure. Similarly, for use under normal phase conditions, the columns need to be flushed with ethanol following by mobile phase until achieving a stable baseline signal. A ChiralAM or C18 guard column can be used for RP conditions and a ChiralAM or Diol guard column can be used for normal phase conditions. If non-standard mobile phases are to be used, please contact ChiralTek for technical support.

When using ChiralAMxAMy columns with 2 μm and 3 μm particles, low flow rate (e.g., 0.1-0.3 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.

Flow direction:	Arrow direction on the label
Pressure:	< 860 bar (~12500 psi , 2 μm, 3 μm) < 600 bar (~9000 psi , 5 μm, HPLC)
Temperature:	0 – 40 °C
Guard column:	ChiralAM, C18 or Diol column
Mode:	HPLC, SFC, or UPLC

3. Care and Maintenance of the ChiralAMxAMy Columns

[1] It is strongly recommended to use ChiralAM, C18 or Diol guard columns to protect ChiralAMxAMy columns;
 [2] It'd better to resolve samples in mobile phases and filter through 0.5 μm membrane before injection;
 [3] The solvent in the ChiralAMxAMy columns should be replaced with methanol (reversed phase conditions) or ethanol (normal phase conditions) if the columns need to be stored for over a week's time.

[4] The ChiralAMxAMy columns can be easily cleaned by flushing with 100% methanol (reversed phase conditions) or 100% ethanol (normal phase conditions) at a proper flow rate for 3 hours.

[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] A single ChiralAMxAMy column can be used under normal phase, reversed phase, or polar organic mobile phase conditions. It is strongly recommended to use 100% ethanol or IPA as intermediate solvent when switching between different mobile phase conditions. Due to the high viscosity of the IPA, low flow rate of about 0.1~0.3 mL/min should be applied in traditional HPLC in order to avoid extreme high pressure. However, there is no flow rate limit for UPLC.

[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] Since the strong alkalic compounds (e.g., NaOH etc.) can cause damages to the ChiralAMxAMy column bed, they cannot be used as mobile phase additives or sample solution additives.

[5] The ChiralAMxAMy columns can be used in SFC and SMB under different type of mobile phase conditions.

5. List of the typical ChiralAMxAMy Columns with Different Specifications

Product List of typical ChiralAMxAMy Columns from ChiralTek

<i>Part Number</i>	<i>Type</i>	<i>Dimension</i>	<i>Description</i>
882-AM2AM3-01	ChiralAM2AM3	2 μm, 120Å, 50 × 2.1mm	2 μm AM2AM3 immobilized column
882-AM2AM4-02	ChiralAM2AM4	2 μm, 120Å, 100 × 2.1mm	2 μm AM2AM4 immobilized column
882-AM2AM5-03	ChiralAM2AM5	2 μm, 120Å, 150 × 2.1mm	2 μm AM2AM5 immobilized column
883-AM3AM4-01	ChiralAM3AM4	3 μm, 120Å, 50 × 2.1mm	3 μm AM3AM4 immobilized column
883-AM3AM5-02	ChiralAM3AM5	3 μm, 120Å, 100 × 2.1mm	3 μm AM3AM5 immobilized column
8983-AM4AM5-61	ChiralAM4AM5	3 μm, 1000Å, 50 × 4.6mm	3 μm AM4AM5 immobilized column
8983-AM5AM6-62	ChiralAM5AM6	3 μm, 1000Å, 100 × 4.6mm	3 μm AM5AM6 immobilized column
8583-AM6AM7-03	ChiralAM6AM7	3 μm, 500Å, 150 × 2.1mm	3 μm AM6AM7 immobilized column
8583-AM8AM9-04	ChiralAM8AM9	3 μm, 500Å, 200 × 2.1mm	3 μm AM8AM9 immobilized column
8583-AM9AM10-05	ChiralAM9AM10	3 μm, 500Å, 250 × 2.1mm	3 μm AM9AM10 immobilized column
8985-AM9AM11-05	ChiralAM9AM11	5 μm, 1000Å, 250 × 4.6mm	5 μm AM9AM11 immobilized column
883-AM9AM12-04	ChiralAM9AM12	3 μm, 120Å, 200 × 2.1mm	3 μm AM9AM12 immobilized column
883-AM2AM3-05	ChiralAM2AM3	3 μm, 120Å, 250 × 2.1mm	3 μm AM2AM3 immobilized column
8983-AM2AM4-03	ChiralAM2AM4	3 μm, 1000Å, 150 × 2.1mm	3 μm AM2AM4 immobilized column
8983-AM2AM5-05	ChiralAM2AM5	3 μm, 1000Å, 250 × 2.1mm	3 μm AM2AM5 immobilized column
8983-AM3AM4-01	ChiralAM3AM4	3 μm, 1000Å, 50 × 2.1mm	3 μm AM3AM4 immobilized column
8983-AM3AM5-02	ChiralAM3AM5	3 μm, 1000Å, 100 × 2.1mm	3 μm AM3AM5 immobilized column
8983-AM4AM5-61	ChiralAM4AM5	3 μm, 1000Å, 50 × 4.6mm	3 μm AM4AM5 immobilized column
8983-AM2AM3-62	ChiralAM2AM3	3 μm, 1000Å, 100 × 4.6mm	3 μm AM2AM3 immobilized column
8983-AM2AM4-03	ChiralAM2AM4	3 μm, 1000Å, 150 × 2.1mm	3 μm AM2AM4 immobilized column
8983-AM2AM5-04	ChiralAM2AM5	3 μm, 1000Å, 200 × 2.1mm	3 μm AM2AM5 immobilized column
8983-AM3AM4-05	ChiralAM3AM4	3 μm, 1000Å, 250 × 2.1mm	3 μm AM3AM4 immobilized column
8985-AM3AM5-05	ChiralAM3AM5	5 μm, 1000Å, 250 × 4.6mm	5 μm AM3AM5 immobilized column
8933-SK1-61	ChiralKit-1	3 μm, 1000Å, 50 × 4.6mm	Screening Kit-1 (3 analytical columns)
8933-SK2-61	ChiralKit-2	3 μm, 1000Å, 50 × 4.6mm	Screening Kit-2 (6 analytical columns)

ChiralAMxAMy 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 ChiralAMxAMy 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.