

The Ultron ES series of chiral columns is manufactured by Shinwa Chemical Industries Ltd., Japan. Columns packed with protein immobilised silica (Ultron ES-OVM and Ultron ES-Pepsin) and chemically bonded cyclodextrin (Ultron ES-CD and ES-PhCD) are available.

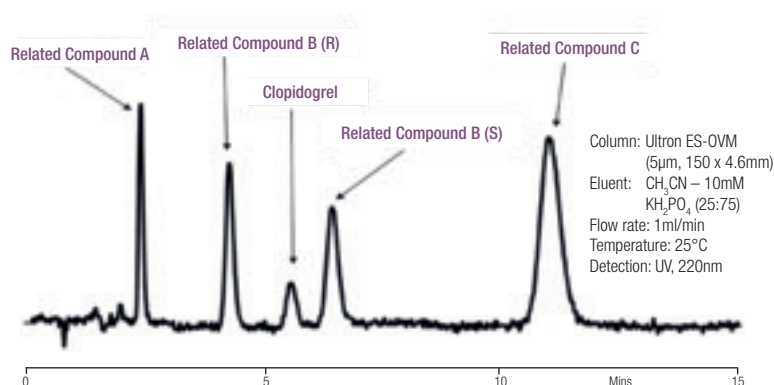
## Ultron Phases

Ultron Phase	Description	Particle Size (µm)	Pore Size (Å)	pH Range
ES-OVM	Ovomucoid protein	5, 10	120	3 - 7.5
ES-Pepsin	Pepsin	5	120	3 - 6
ES-CD	β-Cyclodextrin	5	120	3 - 7.5
ES-PhCD	Phenylcarbamated β-Cyclodextrin	5	120	3 - 7.5

## Ultron ES-OVM and ES-OVM-C

- USP L57 designation
- Wide range of chiral recognition
- Reversed-phase eluents
- No derivatization required

Ultron ES-OVM is a chiral separation column immobilised with ovomucoid protein. Applications include pharmaceutical compounds, pesticides and organic compounds. Figure 1 shows the separation of the widely prescribed drug clopidogrel bisulphate and related substances according to the USP method, which specifies an L57 column. Ultron ES-OVM-C (5µm, 150 x 4.6mm) is a newer version of the Ultron ES-OVM column, specifically tested for clopidogrel bisulphate under the recommended USP conditions.



## Ultron ES-Pepsin

- Reversed-phase eluents
- No derivatization required

Ultron ES-Pepsin is a chiral separation column immobilised with pepsin. It is particularly effective for the enantiomer separation of basic compounds and is complementary to the more universally applicable Ultron ES-OVM.

## Ultron ES-CD and ES-PhCD

- USP L45 designation
- Reversed-phase and normal-phase
- Excellent stability and durability

Ultron ES-CD and ES-PhCD are chiral separation columns chemically bonded with β-cyclodextrin and phenylcarbamated β-cyclodextrin respectively. They are particularly effective for the enantiomeric separation of hydrophobic cyclic compounds.

## Ordering Information

Description	Dimensions (mm)	Particle Size (µm)	ES-OVM <sup>3</sup>	ES-Pepsin	ES-CD	ES-PhCD
Microbore	150 x 2.0	5	ESOVM-1502	-	ESCD-1502	ESPCD-1502
Analytical	150 x 4.6	5	ESOVM-1546	ESPEP-1546	-	-
Analytical	150 x 6.0	5	ESOVM-1506	-	ESCD-1506	ESPCD-1506
Guard column	10 x 4.0	5	ESOVM-GA	ESPEP-GA	ESCD-GA	ESPCD-GA
Microbore guard cartridge (2/pk)	5 x 2.0	5	ESOVM-GD52 <sup>1</sup>	-	ESCD-GD52 <sup>1</sup>	ESPCD-GD52 <sup>1</sup>
Analytical guard cartridge (2/pk)	10 x 4.6	5	ESOVM-GD1046 <sup>2</sup>	-	ESCD-GD1046 <sup>2</sup>	ESPCD-GD1046 <sup>2</sup>
Analytical	250 x 4.6	10	ESOVM-10-2546	-	-	-
Preparative	250 x 20.0	10	ESOVM-10-2520	-	-	-
Preparative guard	15 x 8.0	10	ESOVM-10-GP	-	-	-

<sup>1</sup> Use with holder ULT-H52 (includes adaptor)

<sup>2</sup> Use with holder ULT-H1046 (includes adaptor)

<sup>3</sup> Ultron ES-OVM-C available as 150 x 4.6mm column. Please specify part number ESOVM-C-1546 when ordering.