

## Reproducible chiral separations with **CHIRAL ART Cellulose-SZ**

For a trouble-free quality control and a distinct interpretation of results reproducible and robust methods are essential. This includes reproducible chromatography columns in terms of column

packing and lot-to-lot variation. Especially in pharmaceutical and crop sciences precise chiral separations are crucial as errors can result in hazardous consequences.



The following chromatographic analyses of two pesticides demonstrate the reproducibility of YMC's CHIRAL ART Cellulose-SZ. The pesticides paclobutrazol (see Figure 1) and hexaconazole (see Figure 2) were analysed using three different lots of CHIRAL ART Cellulose-SZ. All three lots provide consistent resolutions and peak shapes, which is confirmed by the calculated resolution  $R_s$  and the selectivity factor  $\alpha$  (Table 2 and 4).

The major factor to judge the separation performance is  $\alpha$ . In this case Lot 1 shows a little more retention, but for both analyses there is no or only an insignificant change of  $\alpha$  for the different lots. In conclusion, these results highlight the reproducibility of CHIRAL ART Cellulose-SZ.

Table 1: Chromatographic conditions for the analysis of paclobutrazol.

Column:	CHIRAL ART Cellulose-SZ (5 $\mu$ m) 150 x 4.6 mm ID
Part No.:	KSZ99S05-1546WT
Eluent:	20 mM $\text{NH}_4\text{HCO}_3$ / acetonitrile / diethylamine (50/50/0.1)
Flow rate:	1 mL/min
Temperature:	25 $^\circ\text{C}$
Detection:	UV at 220 nm
Injection:	5 $\mu\text{L}$
Sample:	Paclobutrazol, 1 mg/mL in eluent

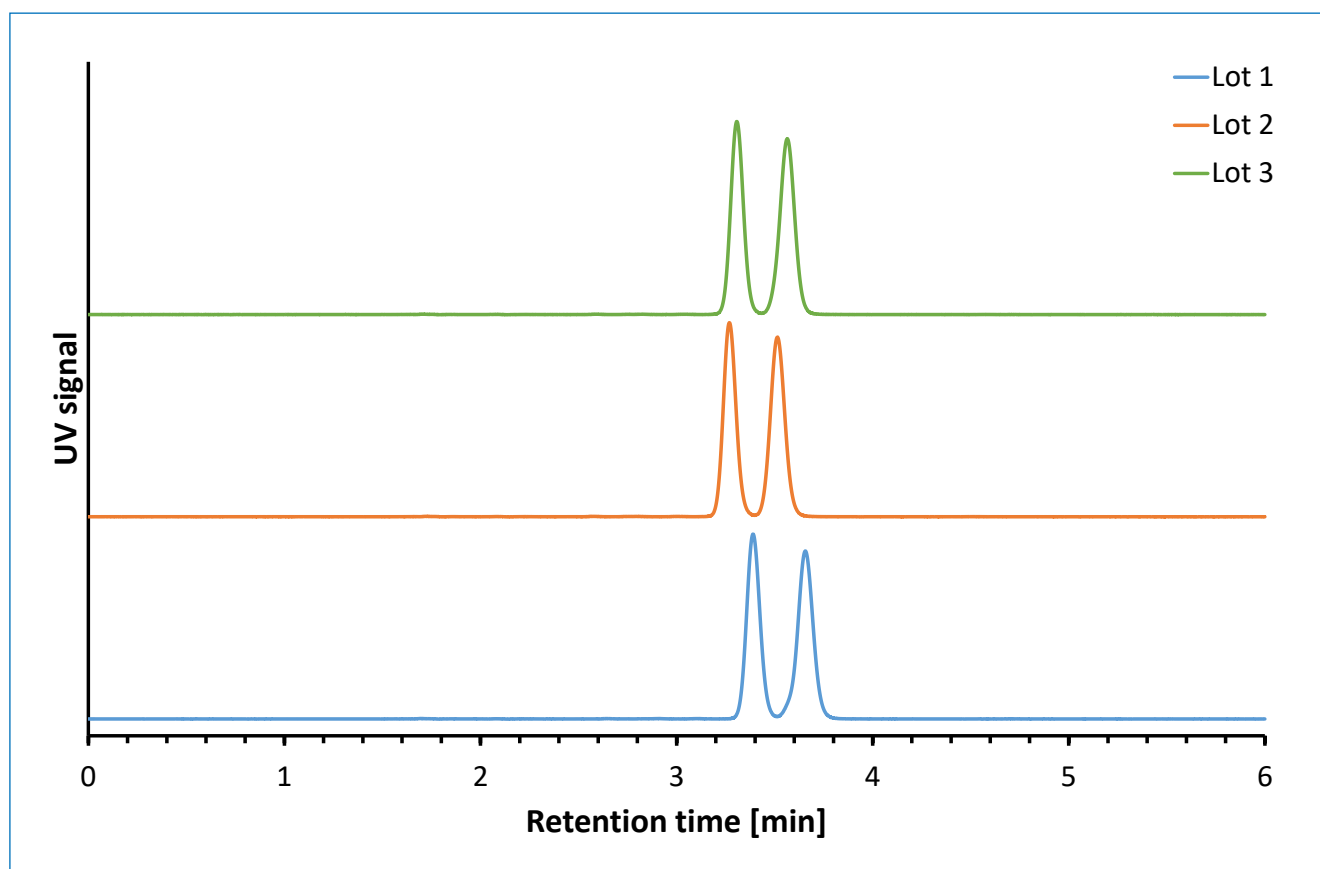


Figure 1: Chiral separation of paclobutrazol using three different lots of CHIRAL ART Cellulose-SZ.

Table 2:  
Calculated resolution and selectivity factors of the separation of paclobutrazol using three different lots of CHIRAL ART Cellulose-SZ.

Lot	$R_s$	$\alpha$
1	2.0	1.14
2	1.9	1.14
3	2.0	1.14

Table 3: Chromatographic conditions for the analysis of hexaconazole.

Column:	CHIRAL ART Cellulose-SZ (5 $\mu$ m) 150 x 4.6 mm ID
Part No.:	KSZ99S05-1546WT
Eluent:	20mM NH <sub>4</sub> HCO <sub>3</sub> / acetonitrile / diethylamine (40/60/0.1)
Flow rate:	1 mL/min
Temperature:	25 °C
Detection:	UV at 220nm
Injection:	5 $\mu$ L
Sample:	Hexaconazole, 1 mg/mL in 20mM NH <sub>4</sub> HCO <sub>3</sub> / acetonitrile / diethylamine (50/50/0.1)

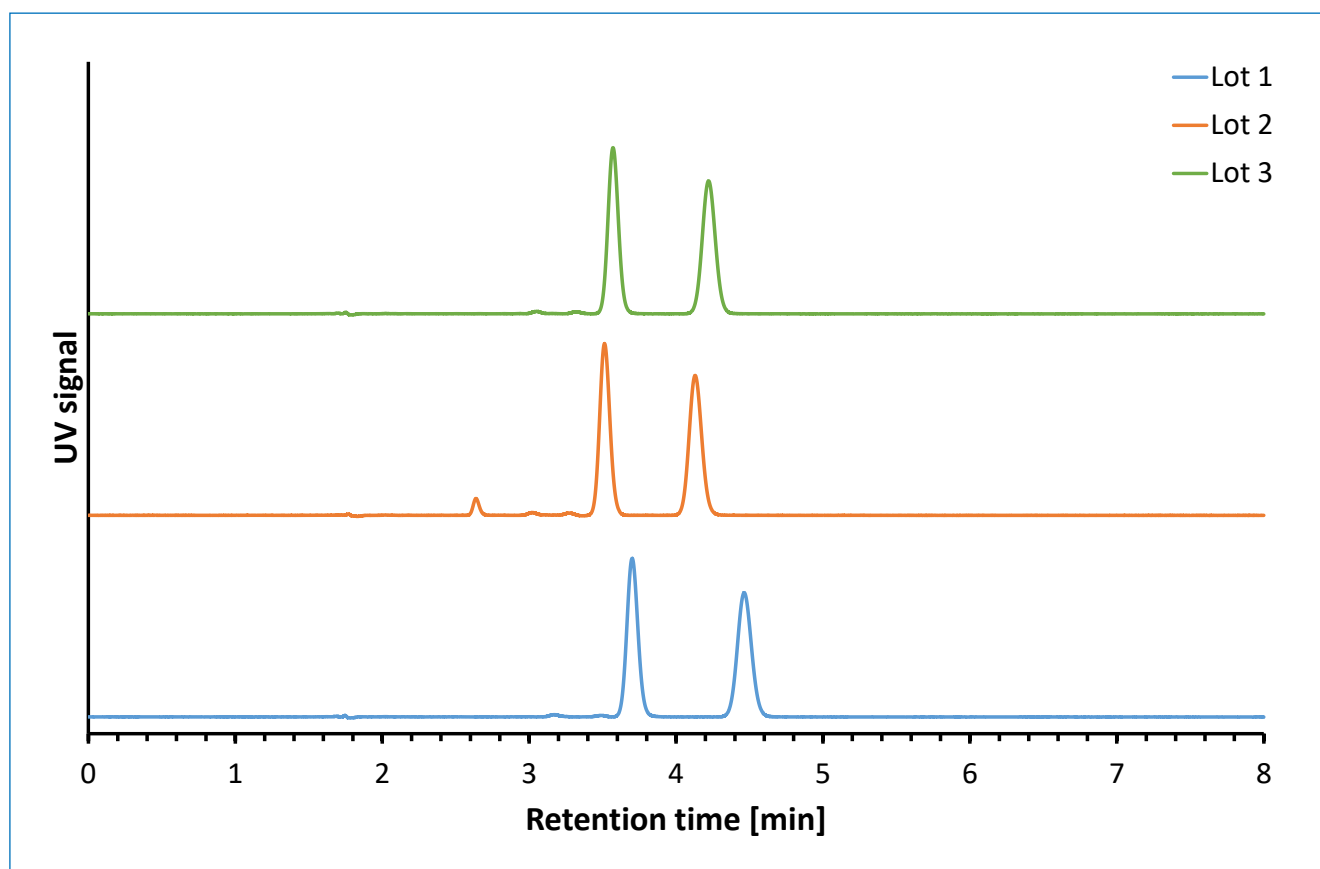


Figure 2: Chiral separation of hexaconazole using three different lots of CHIRAL ART Cellulose-SZ.

Table 4:  
Calculated resolution and selectivity factors of the separation of hexaconazole using three different lots of CHIRAL ART Cellulose-SZ.

Lot	$R_s$	$\alpha$
1	4.8	1.35
2	4.2	1.31
3	4.3	1.31