



Welch Ghost-Buster Column II

1. Product Description

During the chromatographic separation process, especially in gradient elution or when the instrument system has been in use for a long time, intermittent chromatographic peaks, commonly known as "Ghost peaks," are more likely to occur. The occurrence of Ghost peaks can have various reasons, but in many cases, it is caused by impurities in the mobile phase and the impurity of the instrument system.

In cases where the initial proportion of the aqueous phase in certain mobile phases is excessively high (generally exceeding 95%), using conventional Ghost-Buster Columns, although effective in removing impurity peaks, may still result in the appearance of ghost peaks or significant baseline fluctuations when the proportion of the mobile phase changes rapidly within a few minutes.

Welch Materials introduces the second-generation Ghost-Buster Column. With enhanced capabilities, Ghost-Buster Column II excels in adsorbing impurities from the mobile phase. Simultaneously, it addresses the issues of baseline drift caused by excessively high initial gradient proportions of the aqueous phase, significantly reducing baseline fluctuations.

2. Effect of Removing Impurities

Example 1:

Conditions:

Chromatographic Conditions

Column: Welch Ultisil® XB-C18, 4.6×250mm, 5µm

Flow Rate: 1.0 mL/min

Injection Volume: 10µL

Detection Wavelength: 210nm

Column Temperature: 40 °C

Sample Preparation: Ultra-pure water

Mobile Phase A: Ultra-pure water

Mobile Phase B: Acetonitrile

Gradient program:

Time (min)	Mobile Phase A (%)	Mobile Phase B (%)
0	96	4
4	89	11
5	89	11
8	84	16
11	80	20
15	50	50
18	20	80
22	20	80
23	96	4
33	96	4

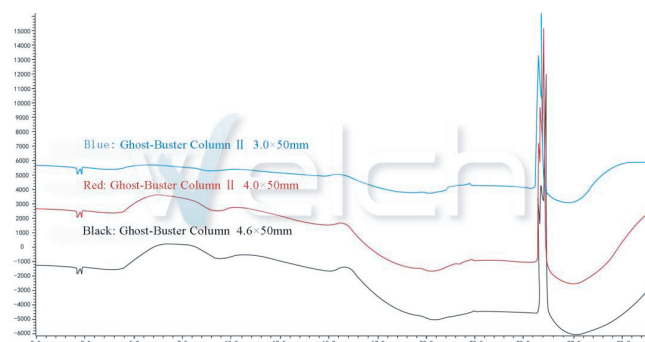


Fig 1. Blue: Ghost-Buster Column II 3.0×50mm
Red: Ghost-Buster Column II 4.0×50mm
Black: Ghost-Buster Column 4.6×50mm

Example 2:

Chromatographic Conditions

Column: Welch Ultisil® AQ-C18, 4.6×100mm, 3µm

Flow Rate: 1.0mL/min

Injection Volume: 5µL

Detection Wavelength: 210nm

Column Temperature: 25 °C

Mobile Phase A: 0.05% Phosphoric Acid in Water

Mobile Phase B: Acetonitrile

Gradient program:

Time (min)	Mobile Phase A (%)	Mobile Phase B (%)
0	95	5
3	95	5
15	15	85
20	15	85
20.1	95	5
30	95	5

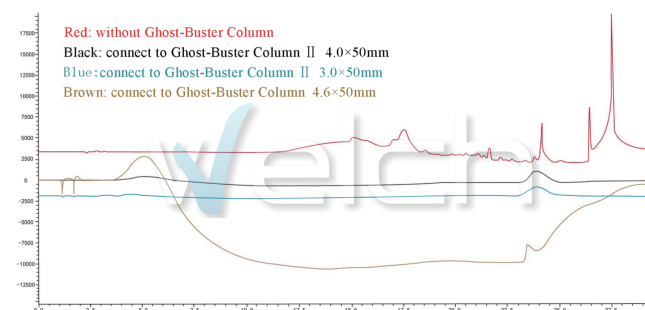


Fig 2. Red: without Ghost-Buster Column
Black: connect to Ghost-Buster Column II 4.6×50mm
Blue: connect to Ghost-Buster Column II 3.0×50mm
Brown: connect to Ghost-Buster Column 4.6×50mm

3. Ordering Information

P/N	Product	Specification	Max. pressure
06100-31008	Ghost-Buster Column II	4.0×50mm	40Mpa
06100-31016	Ghost-Buster Column II	3.0×50mm	40MPa
06100-31026	Ghost-Buster Column II	4.6×30mm	40Mpa
06100-31027	Ghost-Buster Column II	4.0×30mm	40MPa

4. Precautions

1. When using, install the Ghost-buster Column II between the gradient mixer and the injector. Ensure that the column is installed before the injector. If installed after the injector, it may strongly adsorb the sample.
2. For a new column, flush the Ghost-Buster Column II with 80% methanol at a flow rate of 1 mL/min for 15 minutes before connecting it to the equipment. If there is significant baseline drift, flush at a low flow rate of 0.2 mL/min with the initial ratio of the mobile phase used for sample detection for 12 hours (requires connection to the chromatographic column for activation).
3. Not all impurities can be adsorbed by the Ghost-Buster Column II.
4. If ion-pair reagents are used in the mobile phase, they may adsorb onto the Ghost-Buster Column II, affecting the retention time or peak shape of the target substance. Whether to use such mobile phase conditions depends on the chromatographic results.
5. The lifespan of the Ghost-Buster Column II is related to the chromatographic analysis conditions, the mobile phase brand, and purity of the mobile phase. If the trapping efficiency deteriorates, it is recommended to replace it promptly.

6. The Ghost-Buster Column II serves as a purification component of the instrument, acting like an online filter on the instrument. Unlike online filters that filter solid particles, it not only filters solid particles but also purifies organic contaminants in the system, providing better protection for the instrument and chromatographic column.

7. When using a buffer salt mobile phase, be cautious about transitioning with a high proportion of water before and after to avoid salt precipitation, which could lead to column clogging.

Welch Materials, Inc.

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