Is pressure really a problem for the Agilent 971-FP Flash Purification System?

Technical Overview

Purification for discovery applications

The longest Agilent SuperFlash column, packed with high performance 35 µm silica media, can be run at 40 mL/min without exceeding the maximum operating pressure of the Agilent 971-FP instrument. This enables purification, even of complex samples, across the range needed for discovery applications.

Agilent offers a total flash purification sollution, comprising the 971-FP instrument, IntelliFlash software and SuperFlash columns for drug discovery applications. These applications typically require the purification of milligram to several gram quantities of a synthetic compound from a synthesis mix. Related compounds require high efficiency so smaller particle media and longer columns lengths are used.

The SuperFlash SF25-160 g Si 35 column is a normal phase column packed with high efficiency 35 µm silica. This column has an aspect ratio of 16.2:1 and is designed for the purification of between 1.6 g and 16 g of a complex mix; it is the longest column in the SuperFlash column product range.

Investigations of the operating pressure of this column determined the maximum pressure reached during a purification when using the IntelliFlash software at the default flow rate for this column id and a gradient from 0 to 100% ethyl acetate.

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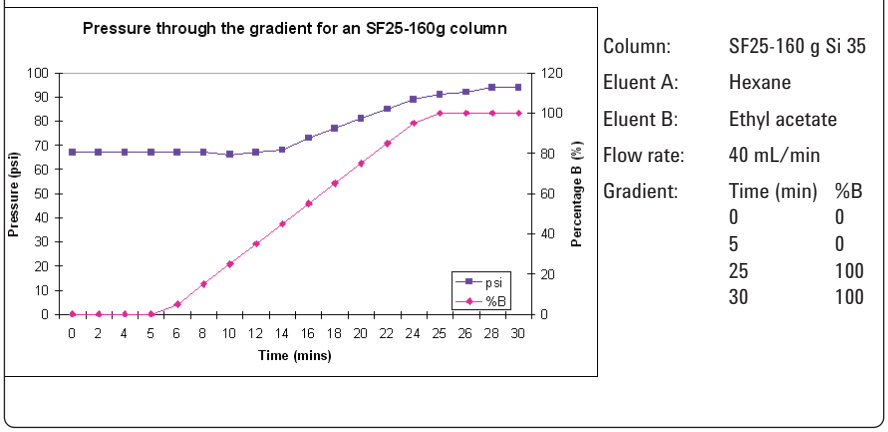

Figure 1
Plot of %B (ethyl acetate) and pressure against time for the SuperFlash column SF25-160 g Si 35. The gradient was run at 40 mL/min.

Time (min)	Pressure (psi)	%B
0	67	0
2	67	0
4	67	0
5	67	0
6	67	5
8	67	15
10	66	25
12	67	35
14	68	45
16	73	55
18	77	65
20	81	75
22	85	85
24	89	95
25	91	100
26	92	100
28	94	100
30	94	100

Table 1
Pressure and gradient composition as % ethyl acetate.

After column equilibration, three column volumes at 60 mL/ min, the gradient was started and the pressure recorded every two minutes. Table 1 shows the pressures and the gradient composition as %B. This is represented graphically in Figure 1.

This data clearly shows that the longest SuperFlash column, packed with high performance 35 µm silica media (SF25 160 g Si 35), can be run using the InteliFlash default flow rate of 40 mL/min without exceeding the maximum operating pressure of the 971-FP instrument. This would enable purification, even of complex samples, to be achieved across the range needed for discovery applications, from 1.6 g to 16 g.

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