Rapid Gravity Separation of Two Phase Systems using ISOLUTE Phase Separator Columns and 96-well Plates

Chemistry Data Sheet

This Chemistry Data Sheet describes the use of ISOLUTE Phase Separator columns and 96-well plates to separate aqueous solutions from chlorinated organic solvents.

ISOLUTE Phase Separators have been designed to rapidly separate chlorinated solvents from aqueous phases, under gravity. The phase separators are available in a comprehensive range of column sizes (3, 6, 15, 25, 70 and 150 mL) and also in 96-well plates (fixed well and the versatile ISOLUTE Array formats).

Unlike other phase separation devices, no vacuum or positive pressure is required – the separation is achieved under gravity. The phase separator is impervious to aqueous solvents, but allows the passage of water immiscible solvents of a higher density than water. See **Figure 1** for illustration of how to use ISOLUTE Phase Separator columns.

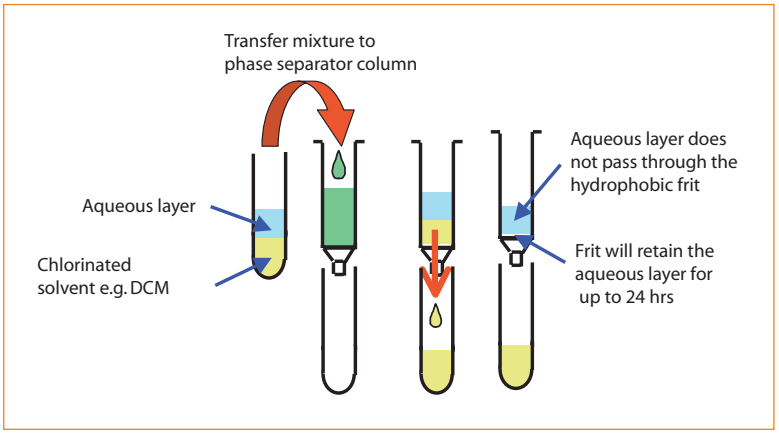

Figure 1. *Schematic showing how to use phase separator columns*

Procedure

1. Select column size appropriate to the total volume requiring separation e.g. for 3 mL samples use 96-well plate or 3 mL columns. For larger columns choose the appropriate reservoir capacity.
2. Dispense the two phases to be separated into the phase separator column.
3. After a few seconds (approximately 5 secs.), the water immiscible solvent will begin to pass through the frit UNDER GRAVITY, DO NOT APPLY VACUUM.
4. Once it has passed through the frit, the water immiscible solvent can be collected in a suitable vial (or collection plate for 96-well phase separation).
5. The aqueous layer will not pass through the frit. The column can be left for several hours (overnight if neccesary) and the aqueous layer will not pass through the frit.

N.B. This process should be carried out under gravity: vacuum and positive pressure are not required. If vacuum or positive pressure is applied the phase separator will not function correctly.

Biotage

Important information

The solvents to be separated must be a two phase system, consisting of water and a water immiscible solvent that has a greater density than water. For the most efficient separation of compounds associated with either the aqueous or organic layer, a liquid-liquid extraction must have taken place prior to adding the sample to the phase separator.

If the aqueous sample contains significant levels of water miscible organic solvent (e.g. methanol or acetone) it may not efficiently form a two phase system. In this case, the phase separator may not operate effectively.

Typical solvents that can be separated from aqueous solution using ISOLUTE Phase Separators include dichloromethane and chloroform.

Processing Options

Phase separators are designed to operate under gravity. Standard column formats (3 to 150 mL sample volume) can be processed using the IST Gravity Rack. (See ordering information below).

The high throughput formats (fixed well and flexible ISOLUTE Array) can be processed using the VacMaster™-96 vacuum manifold. See ordering information on the following pages.

ISOLUTE Columns Ordering Information

Part Number	Description	Quantity
120-1903-B	ISOLUTE Phase Separator, 3 mL	100
120-1905-C	ISOLUTE Phase Separator, 6 mL	100
120-1906-D	ISOLUTE Phase Separator, 15 mL	100
120-1907-E	ISOLUTE Phase Separator, 25 mL	100
120-1908-F	ISOLUTE Phase Separator, 70 mL	50
120-1909-J	ISOLUTE Phase Separator, 150 mL	25

ISOLUTE Tab-less Columns (for High Throughput) Ordering Information

Part Number	Description	Quantity
120-1903-BG	ISOLUTE Phase Separators, 3 mL, tab-less	100
120-1905-CG	ISOLUTE Phase Separators, 6 mL, tab-less	100

ISOLUTE Phase Separator Fixed-Well Plate Ordering Information

Part Number	Description	Quantity
120-1910-P01	ISOLUTE Phase Separator, fixed-well plate	1

ISOLUTE Array Phase Separator Wells Ordering Information

Part Number	Description	Quantity
120-1920-T	ISOLUTE Phase Separators, 2 mL	100

Gravity Racks Ordering Information

Part Number	Description	Quantity
123-2016	Complete with 16 mm diameter collection tube rack	1
123-2019	Complete with 19 mm diameter collection tube rack	1

Gravity Rack Needle Options Ordering Information

Part Number	Description	Quantity
121-0001	PTFE stopcock/needle unit	10
121-0002	PTFE needle unit	10
121-0003	Stainless steel needle	20
121-0004	Stainless steel needle retainer	10

VacMaster-96 Ordering Information

Part Number	Description	Quantity
121-9600	VacMaster-96 (no vacuum control included)	1
121-9601	VacMaster-96 Vacuum Control Unit	1
121-9602	VacMaster-96 Vacuum Control Unit with integrated vacuum source	1

Collection Plates Ordering Information

Part Number	Description	Quantity
121-5202	Collection plate - 1 mL	50
121-5203	Collection plate - 2 mL	50

www.biotage.com

UNITED STATES AND CANADA
Main Office: +1 434 979 2319
Toll Free: +1 800 446 4752
Fax: +1 434 979 4743
Order Tel: +1 434 220 2687
Order Fax: +1 434 296 8217
ordermailbox@biotage.com

UNITED KINGDOM
Main Office: +44 1443 811811
Fax: +44 1443 816552
Order Tel: +44 1443 811822
Order Fax: +44 1443 816816
eurosales@eu.biotage.com

SWEDEN
Main Office: +46 18 56 5900
Fax: +46 18 59 1922
Order Tel: +46 18 56 57 10
Order Fax: +46 18 56 57 05
order@eu.biotage.com

GERMANY
Tel: +49 7624 90 80 0
Fax: +49 7624 90 80 10
separtis@eu.biotage.com

SWITZERLAND
Tel: +41 61 743 90 15
Fax: +41 61 743 90 18
separtis@eu.biotage.com

AUSTRIA
Tel: +43 2231 63167
Fax: +43 2231 63520
separtis@eu.biotage.com

JAPAN
Tel: +81 422 28 1233
Fax: +81 422 28 1236
order@biotage.co.jp