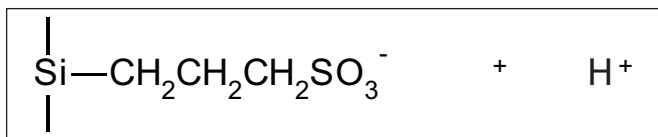


# Work-up of Basic Products from Organic Synthesis Mixtures using ISOLUTE® SCX-2

This Chemistry Data Sheet details the use of ISOLUTE® SCX-2, a strong cation exchange sorbent, for the work-up of basic products from organic synthesis mixtures containing non-basic reagents or by-products.

In medicinal chemistry reactions are often carried out in solvents such as DMSO. Once the reaction is complete, it is usually necessary to separate the products of the reaction from reagents and by-products. This can be performed using strong cation exchange sorbents (e.g. ISOLUTE SCX-2 or ISOLUTE Flash SCX-2) to selectively isolate the basic compounds from the reaction mixture. (see Figure 1 for structure of ISOLUTE SCX-2 and ISOLUTE Flash SCX-2 sorbents)



**Figure 1.** Structure of ISOLUTE SCX-2 and ISOLUTE Flash SCX-2 bonded phases

## Chemical Data

- » **Base Material:** Silica, 50 µm
- » **Functional Group:** Propylsulfonic acid
- » **Capacity:** 0.6 mmol/g
- » **Counter Ion:** Proton

## Protocol

This protocol is based on the use of an ISOLUTE SCX-2 500 mg/6 mL column (part number 532-0050-C). This column is suitable for isolation of approximately 10-50 mg of basic product with a molecular weight of 350 amu. The method can be scaled up as necessary using larger column sizes and increasing the volumes of solvents used accordingly. N.B. If the basic compound to be removed is a reagent present in excess, a larger column would be required to work-up the same amount of product.

## Crude Sample/Reaction Mixture Preparation

The sample (organic synthesis reaction mixture in a solvent such as DMSO) often requires dilution with solvents of lower polarity for optimum results. A suitable dilution solvent would be a mixture of dichloromethane (DCM) and methanol. Choice of dilution solvent is influenced by the polarity of the compounds in the sample, as they must remain in solution. In general, the selectivity of the method will be enhanced by using the most non-polar solvent or solvent mixture possible.

## SPE Column Conditioning

Wet the column with methanol (2 mL).

## SPE Column Equilibration

Equilibrate the column with methanol/dichloromethane (2 mL).

## Sample Application

Apply the sample to the column under gravity.

A typical volume of sample for the 500 mg/6 mL configuration would be 1-10 mL, however, this is influenced by the concentration of product in the sample. Sample size should be accurately determined by weight of product to be purified.

## Non-basic Impurity Removal

Elute non-basic reagents and by-products with methanol/dichloromethane (2 x 2 mL) followed by methanol/0.1M NH<sub>3</sub> (1 mL). For best results, this wash elution solvent should be made up using 7.0 M NH<sub>3</sub>, diluted 1:70 (v/v) with methanol.

## Target Compound/Molecule Release

Elute basic products with methanol/1.0 M NH<sub>3</sub> (2 x 2 mL). For best results, interference elution solvent should be made up using 7.0 M NH<sub>3</sub>, diluted 1:7 (v/v) with methanol. This solution contains no water, and is therefore easier to evaporate to dryness.

# Ordering Information

## ISOLUTE® SCX-2

Part Number	Description	Qty
532-0050-B	500 mg/3 mL	50
532-0050-C	500 mg/6 mL	30
532-0100-B	1 g/3 mL	50
532-0100-C	1 g/6 mL	30

## ISOLUTE® Flash SCX-2

Part Number	Description	Qty
456-0200-D	2 g/15 mL	20
456-0500-E	5 g/25 mL	20
456-1000-F	10 g/70 mL	16
456-2000-F	20 g/70 mL	16
456-5000-J	50 g/150 mL	8
456-7000-J	70 g/150 mL	8

## ISOLUTE® Tabless Columns for High-Throughput Work-up

Part Number	Description	Qty
532-0050-BG	ISOLUTE® SCX-2 500 mg/3 mL Tabless	50
532-0050-CG	ISOLUTE® SCX-2 1g/3 mL Tabless	50
532-0100-BG	ISOLUTE® SCX-2 500 mg/6 mL Tabless	30
532-0100-CG	ISOLUTE® SCX-2 1g/6 mL Tabless	30

## ISOLUTE®-96 SCX-2 Fixed-well Plate

Part Number	Description	Qty
532-0500-P01	ISOLUTE®-96 SCX-2 500 mg Fixed Well Plate	1

## ISOLUTE® Array SCX-2

Part Number	Description	Qty
532-0400-TP	ISOLUTE® SCX-2 400 mg/2 mL Array Plate	1
532-0400-T	ISOLUTE® SCX-2 400 mg/2 mL Array Wells	100

Part Number: PPS750

© 2024 Biotage. All rights reserved. No material may be reproduced or published without the written permission of Biotage. Information in this document is subject to change without notice and does not represent any commitment from Biotage. E&OE. A list of all trademarks owned by Biotage AB is available at [www.biotage.com/legal](http://www.biotage.com/legal). Other product and company names mentioned herein may be trademarks or registered trademarks and/or service marks of their respective owners, and are used only for explanation and to the owners' benefit, without intent to infringe.