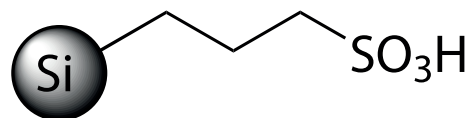


ISOLUTE® Si Propylsulfonic Acid (SCX-2)

Metal Scavenger/Scavenger



Key Facts



Specifications

| | |
|-----------------------------|--|
| Chemical Name: | Silica Propylsulfonic Acid (Si-propylsulfonic acid; SCX-2) |
| Solid-Support Type: | Silica |
| Appearance: | Free flowing off-white powder |
| Application: | Scavenger of amine, Catch-and-Release, Acid catalyst |
| Typical Conditions: | Stir crude reaction mixture with 2–4 equivalents for 1 h and filter |
| Compatible Solvents: | Methanol (MeOH), Dichloromethane (DCM), Acetonitrile (MeCN), Acetone, Ethyl Acetate (EtOAc), N,N-Dimethylformamide (DMF), Dimethylsulfoxide (DMSO) |
| Storage: | Cool (4 °C), dry location |

ISOLUTE® Si-Propylsulfonic acid (SCX-2) belongs to a class of strong supported acids. As a bound sulfonic acid, it has a natural propensity to bind alkali and some transition metal group metals, which means that it can be used as a scavenger for metals with a +I or +II oxidation state, such as Na, K, Li, also Pd, Rh, and Ru. SCX-2 is typically used as a metal scavenger when the target product is not basic, to avoid the obvious acid/base product binding interactions with the scavenger. If the product is basic then Si-Tiol, SI TMT, MP-TMT or Si-Trisamine may be utilized instead. Other uses in chemistry include (a) scavenge (removing) amines and other bases from solution (b) as an acid catalyst in reactions or (c) catch and release purification of amines, to facilitate either solvent switching or amine purification. The advantage of using SCX-2 as a polymer supported acid is that it eliminates traditional laborious work-up steps.

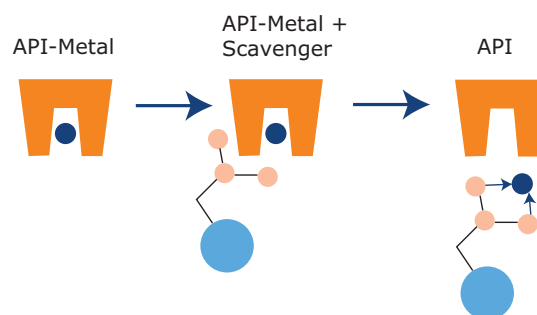


Figure 1. Metal Scavenging

Other Applications

Catch and Release Purification of Amines

When a solution containing an amine is passed through a SCX-2 column the amine is retained. Non-basic impurities are not retained and are removed by washing the column with an organic solvent, such as methanol, acetonitrile or THF. The product is subsequently released from the column by elution with a solution of ammonia in methanol.

SCX-2 columns can be used to isolate amines from solutions in DMF. After complete removal of the DMF using DCM or methanol, the retained amine is eluted with an ammonia/methanol solution. The amine is then isolated by removal of the more volatile ammonia/methanol solution by evaporation.

Scavenging of Basic Impurities

SCX-2 columns can also be used to scavenge basic impurities and thereby purify reaction mixtures. Passing a reaction mixture through an SCX-2 column will result in removal of all basic components in the mixture. If additional selectivity is required, the use of a more selective scavenger resin is recommended, for example, PS-Isocyanate¹ (for removal of primary and secondary amines), or PS-Benzaldehyde² (for selective removal of primary amines).

Other Applications

In Mitsunobu, Suzuki and Heck reactions, it is often challenging to isolate pure products from mixtures containing triphenylphosphine oxide and palladium. SCX-2 columns can be used to purify these products when they contain a basic functional group. The reaction mixture is applied to the column and the product is retained by SCX-2. The by-products can also be easily removed with a methanol or DCM wash step. The product can then be released by eluting with 2 M ammonia in methanol.

Ordering Information

| Part Number | Quantity |
|-------------|----------|
| 9536-0010 | 10 g |
| 9536-0025 | 25 g |
| 9536-0100 | 100 g |
| 9536-0500 | 500 g |
| 9536-1000 | 1000 g |

SCX-2 is included in a comprehensive metal scavenging screening tool kit, an essential tool to quickly and effectively find the right metal scavenger for the application in hand. With protocols, guidance and recommendations, this all in one kit showcases all of the key metal scavengers.

Part Number: K-MS-2.

References

1. PS-Isocyanate: Part Numbers 800495 (3 g); 800260 (10 g), 800261 (25 g), 800262 (100 g); 800311 (1000 g).
2. PS-Benzaldehyde: Part Numbers 800502 (3 g); 800360 (10 g), 800361 (25 g), 800362 (100 g); 800363 (1000 g).

EUROPE

Main Office: +46 18 565900
 Fax: +46 18 591922
 Order Tel: +46 18 565710
 Order Fax: +46 18 565705
 order@biotage.com
 Support Tel: +46 18 56 59 11
 Support Fax: + 46 18 56 57 11
 eu-1-pointsupport@biotage.com

NORTH & LATIN AMERICA

Main Office: +1 704 654 4900
 Toll Free: +1 800 446 4752
 Fax: +1 704 654 4917
 Order Tel: +1 800 446 4752
 Order Fax: +1 704 654 4917
 ordermailbox@biotage.com
 Support Tel: +1 800 446 4752
 us-1-pointsupport@biotage.com

JAPAN

Tel: +81 3 5627 3123
 Fax: +81 3 5627 3121
 jp_order@biotage.com
 jp-1-pointsupport@biotage.com

CHINA

Tel: +86 21 68162810
 Fax: +86 21 68162829
 cn_order@biotage.com
 cn-1-pointsupport@biotage.com

KOREA

Tel: +82 31 706 8500
 Fax: +82 31 706 8510
 korea_info@biotage.com
 kr-1-pointsupport@biotage.com

INDIA

Tel: +91 11 45653772
 india@biotage.com

Distributors in other regions
 are listed on www.biotage.com

Part Number: PPS373.V.2

© 2023 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. 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.