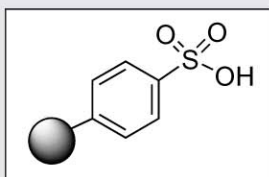


PRODUCT INFORMATION

Product: MP-TsOH



Chemical Name: Macroporous polystyrene sulfonic acid (0.5% inorganic antistatic agent)

Capacity: 3.5-4.5 mmol/g based on uptake of benzylamine

Resin-Type: Macroporous poly(styrene-co-divinylbenzene)

Application: Scavenging and "Catch and Release" of amines

Typical Scavenging Conditions: Approx. 2 - 3 equiv of resin relative to amine, 0.5 - 1 h, 20 °C

Resin Swelling: CH₂Cl₂ (3.0 mL/g), THF (3.1 mL/g), DMF (3.1 mL/g), MeOH (3.05 mL/g)

Recommended Agitation: Gentle magnetic stirring, rocking, or overhead stirring for large resin quantities (> 5g)

Part #	Quantity
800461	10 g
800462	25 g
800463	100 g

References

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MP-TsOH resin is a sulfonated macroporous polystyrene resin that is a resin-bound equivalent of *p*-toluenesulfonic acid (TsOH). The resin may be used as an equivalent to the strong cation-exchange resin, Amberlyst A-15 (Rohm and Haas).^{1,2,6-7} However, MP-TsOH has been optimized for use as a bound reagent or scavenger resin for the synthesis of small molecules. The sulfonic acid groups in MP-TsOH are predominately restricted to the surface of the macroporous framework and are readily accessible for removal of basic compounds, e.g. primary, secondary, and tertiary amines, by quaternary salt formation. In addition, MP-TsOH does not contain dark leachable impurities derived from overoxidation of the polystyrene backbone observed in higher loading sulfonic acid resins.⁸ Representative amine scavenging exam-

TABLE 13. Amine Removal by MP-TsOH (Batch Mode)

Amine	MP-TsOH (equiv)	% Scavenged	
		20 min	1h
diisopropylamine	2.0	100	100
aniline	1.5	96	99.6
2-aminobenzophenone	1.6	63	71
benzylamine	1.9	100	100
N-benzyl-diethylamine	1.8	99	100

ples (batch mode) as a function of time are provided in Table 13. MP-TsOH is a useful alternative to quenching reactions with aqueous or soluble organic acids. MP-TsOH may also be used in cartridge applications to perform "catch and release" of amine derivatives in analogy to silica-derived SCX columns.³⁻⁵ MP-TsOH (3.5-4.5) mmol/g) has approximately 5-6 times the sulfonic acid capacity of SCX media (approx. 0.7 mmol/g). In addition, MP-TsOH circumvents the contamination of amine products with particulates that sometimes occurs with silica-derived SCX columns. This is presumably due to dissolution of silica by methanol used to elute amine products from the media. Representative amine scavenging examples (cartridge mode) as a function of time

TABLE 14. Amine Removal by MP-TsOH (Cartridge Mode)

Amine	MP-TsOH (equiv)	% Scavenged (10 min)
benzylamine	4.67	97
N-benzyl-diethylamine	4.67	95

are provided in Table 14.