



>>Entry Name: Tris(2-cyanoethyl)phosphine

Synonym(s): 3,3',3''-Phosphinidynetris[propanenitrile], 9CI

CAS Registry Number: 4023-53-4

$\text{P}(\text{CH}_2\text{CH}_2\text{CN})_3$

Molecular Formula: $\text{C}_9\text{H}_{12}\text{N}_3\text{P}$

Molecular Weight: 193.188

Accurate Mass: 193.076884

Percentage Composition: C 55.96%; H 6.26%; N 21.75%; P 16.03%

Use/Importance: A multidentate monophosphine ligand

Physical Description: Cryst.

Melting Point: Mp 97-98°

pKa Value: pK_a 1.37 (H_2O)

Rare Chemicals Library: S43603-8

>>Derivative: Methiodide

Synonym(s): Tris(2-cyanoethyl)methylphosphonium iodide

Molecular Formula: $\text{C}_{10}\text{H}_{15}\text{IN}_3\text{P}$

Molecular Weight: 335.127

Accurate Mass: 335.004832

Percentage Composition: C 35.84%; H 4.51%; I 37.87%; N 12.54%; P 9.24%

Physical Description: Cryst. (MeCN)

Melting Point: Mp 238-239°

>>Derivative: Oxide

Synonym(s): 3,3',3''-Phosphinylidynetris[propanenitrile]

CAS Registry Number: 1439-41-4

Molecular Formula: $\text{C}_9\text{H}_{12}\text{N}_3\text{OP}$

Molecular Weight: 209.187

Accurate Mass: 209.071799

Percentage Composition: C 51.68%; H 5.78%; N 20.09%; O 7.65%; P 14.81%

Physical Description: Needles (2-propanol aq.)

Melting Point: Mp 173°

>>Derivative: Sulfide

Synonym(s): 3,3',3''-Phosphinothioylidynetris[propanenitrile]

CAS Registry Number: 6783-73-9

Molecular Formula: $\text{C}_9\text{H}_{12}\text{N}_3\text{PS}$

Molecular Weight: 225.254

Accurate Mass: 225.048954

Percentage Composition: C 47.99%; H 5.37%; N 18.65%; P 13.75%; S 14.24%

Physical Description: Cryst. (H_2O)

Melting Point: Mp 141-142°

>>Derivative: Selenide

Synonym(s): 3,3',3''-Phosphinoselenoylidynetris[propanenitrile]

CAS Registry Number: 71309-04-1

Molecular Formula: $\text{C}_9\text{H}_{12}\text{N}_3\text{PSe}$

Molecular Weight: 272.148

Accurate Mass: 272.993404

Percentage Composition: C 39.72%; H 4.44%; N 15.44%; P 11.38%; Se 29.01%

Physical Description: No phys. props. reported

References: