



>>Entry Name: Copper(I) trifluoromethanesulfonate

Synonym(s): Trifluoromethanesulfonic acid copper(I+) salt, 9Cl. Cuprous triflate. (Trifluoromethanesulfonato)copper

CAS Registry Number: 42152-44-3

CuOSO2CF3

Molecular Formula: CCuF3O3S

Molecular Weight: 212.616

Accurate Mass: 211.891622

Percentage Composition: C 5.65%; Cu 29.89%; F 26.81%; O 22.58%; S 15.08%

Source/Synthesis: Generated *in situ* from Cu(OTf)2 and diazo compds.

Use/Importance: Catalyst for alkene dimerisation and photocycloadditions, cyclopropanation and carbene addn., for promotion of Grob-type fragmentations and in Ullmann reactions. Used to separate alkenes (e.g. ethene) from other hydrocarbons, and CO. Complexes C6H6 and a range of polyenes. Activates C-H bonds in alkynes. Reagent for mild dehydration of alcohols

Physical Description: Air- and moisture-sensitive

>>Derivative: CO complex

CAS Registry Number: 81967-72-8

Molecular Formula: C2CuF3O4S

Molecular Weight: 240.627

Accurate Mass: 239.886537

Percentage Composition: C 9.98%; Cu 26.41%; F 23.69%; O 26.60%; S 13.33%

Physical Description: Near white (v. pale pink) microcryst.

Solubility: Sol. Et2O

Other Data: Stable indefinitely under CO. Limited air stability. Forms complexes with phen., bipy, TMED. Phosphines displace CO. ν_{CO} 2118 cm^{-1}

>>Derivative: Cyclohexene complex (1:1)

Synonym(s): Cyclohexene copper trifluoromethanesulfonate

Molecular Formula: C7H10CuF3O3S

Molecular Weight: 294.761

Accurate Mass: 293.969872

Percentage Composition: C 28.52%; H 3.42%; Cu 21.56%; F 19.34%; O 16.28%; S 10.88%

Use/Importance: Possible catalyst in photochemically-induced alkene rearrangements

Physical Description: White cryst.

Solubility: Sol. toluene

>>Derivative: C6H6 complex (1:1)

CAS Registry Number: 42152-46-5

Molecular Formula: C7H6CuF3O3S

Molecular Weight: 290.73

Accurate Mass: 289.938572

Percentage Composition: C 28.92%; H 2.08%; Cu 21.86%; F 19.60%; O 16.51%; S 11.03%

Melting Point: Fp 7°

Aldrich: 40724-0

Fluka: 61255

References:

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