



>>Entry Name: Tetradecaamminedi-μ-oxotriruthenium(6+)

Synonym(s): Ruthenium red. Bis-μ-oxo-pentaammineruthenium(III)tetraammineruthenium(IV)

CAS Registry Number: 32696-80-3

Related CAS Registry Numbers(s): 12506-76-2 25125-46-6 36965-92-1

$[(\text{H}_3\text{N})_5\text{RuORu}(\text{NH}_3)_4\text{ORu}(\text{NH}_3)_5]^{6(+)}$

Molecular Formula: $\text{H}_{42}\text{N}_{14}\text{O}_2\text{Ru}_3^{6(+)}$

Molecular Weight: 573.634

Accurate Mass: 576.07456

Percentage Composition: H 7.38%; N 34.18%; O 5.58%; Ru 52.86%

$[\text{Ru}(\text{NH}_3)_5]$ groups being twisted through 31° with respect to the other two (eclipsed) groups

Use/Importance: Used extensively as a staining agent for optical and electron microscopy

Physical Description: Intensely red soln. (detectable at <1 ppm)

Solubility: Sol. H_2O

Other Data: $\mu_{\text{eff}} = 0.77\mu_{\text{B}}$ per Ru atom

>>Derivative: Hexachloride

CAS Registry Number: 11103-72-3

Molecular Formula: $\text{Cl}_6\text{H}_{42}\text{N}_{14}\text{O}_2\text{Ru}_3$

Molecular Weight: 786.351

Accurate Mass: 785.887672

Percentage Composition: Cl 27.05%; H 5.38%; N 24.94%; O 4.07%; Ru 38.56%

Source/Synthesis: Prepd. by aerial oxidation of $\text{RuCl}_3 \cdot x\text{H}_2\text{O} + \text{aq. NH}_3$

Physical Description: Intensely red cryst. + $4\text{H}_2\text{O}$ (aq. NH_3)

Aldrich: 20173-1

Fluka: 84071

Sigma: R2751

>>Derivative: Tris-thiosulfate

CAS Registry Number: 73173-10-1

Molecular Formula: $\text{H}_{42}\text{N}_{14}\text{O}_{11}\text{Ru}_3\text{S}_6$

Molecular Weight: 910.025

Accurate Mass: 911.861215

Percentage Composition: H 4.65%; N 21.55%; O 19.34%; Ru 33.32%; S 21.14%

Physical Description: Intensely red cryst. + $4\text{H}_2\text{O}$

References:

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