



>>Entry Name: Tetrakis(thiocyanato-*N*)cobaltate(2-)

Synonym(s): Tetraisothiocyanatocobaltate(*II*)

CAS Registry Number: 18904-81-9

Related CAS Registry Numbers(s): 16039-28-4 59585-17-0

$[\text{Co}(\text{NCS})_4]^{2(-)}$

Molecular Formula: $\text{C}_4\text{CoN}_4\text{S}_4^{2(-)}$

Molecular Weight: 291.268

Accurate Mass: 290.833774

Percentage Composition: C 16.49%; Co 20.23%; N 19.24%; S 44.04%

Other Data: Contains tetrahedrally coord. $\text{Co}^{2(+)}$

>>Derivative: Di-Na salt

CAS Registry Number: 42186-76-5

Physical Description: Blue cryst. + 8H₂O

>>Derivative: Di-K salt

CAS Registry Number: 19453-13-5

Physical Description: Blue cryst. + 4H₂O

Other Data: $\mu_{\text{eff}} = 4.38 \mu_{\text{B}}$ (4.47)

>>Derivative: Hg(*II*) salt

CAS Registry Number: 27685-51-4

Molecular Formula: $\text{C}_4\text{CoHgN}_4\text{S}_4$

Molecular Weight: 491.858

Accurate Mass: 492.804391

Percentage Composition: C 9.77%; Co 11.98%; Hg 40.78%; N 11.39%; S 26.08%

Use/Importance: Used as calibrant in magnetic susceptibility determinations; also in gravimetric estimation of cobalt

Physical Description: Blue solid

Aldrich: 23368-4

>>Derivative: Bis-Me₄N salt

CAS Registry Number: 14052-14-3

Physical Description: Blue cryst.

Melting Point: Mp 197°

Solubility: Sol. Me₂CO, PhNO₂, MeNO₂

Other Data: $\mu_{\text{eff}} = 4.40 \mu_{\text{B}}$

References:

- Aldrich Library of FT-IR Spectra*, 1st edn., 1985, **2**, 1291B, (*ir*)
Zhdanov, G.S. *et al.*, *Zh. Fiz. Khim.*, 1950, **24**, 1339, (*cryst struct*)
Figgis, B.N. *et al.*, *J.C.S.*, 1958, 4190, (*magnetism*)
Holm, R.H. *et al.*, *J. Chem. Phys.*, 1960, **32**, 1158, (*magnetism*)
Figgis, B.N., *Trans. Faraday Soc.*, 1960, **56**, 1553, (*magnetism, use*)
Cotton, F.A. *et al.*, *J.A.C.S.*, 1961, **83**, 4157, (*synth, uv-vis, magnetism*)
Vogel, A.I., *Qualitative Inorg. Anal.*, 4th Ed., Longmans, 1978, 461, (*use*)