>>**Entry Name: Tetrakis(cyano-*C*)aurate(1–)**
ENTRY UNDER REVIEW
Synonym(s): Tetracyanoaurate(*III*)(1–)

CAS Registry Number: 22806-79-7
$[Au(CN)_4]^{(-)}$

Molecular Formula: $C_4AuN_4^{(-)}$
Molecular Weight: 301.037
Accurate Mass: 300.978839
Percentage Composition: C 15.96%; Au 65.43%; N 18.61%

>>**Derivative:** Na salt

CAS Registry Number: 31395-95-6
Molecular Formula: C_4AuN_4Na
Molecular Weight: 324.027
Percentage Composition: C 14.83%; Au 60.79%; N 17.29%; Na 7.10%
Physical Description: Yellow cryst. (H_2O)
Solubility: Sol. H_2O

>>**Derivative:** K salt

CAS Registry Number: 14263-59-3
Molecular Formula: C_4AuKN_4
Molecular Weight: 340.136
Percentage Composition: C 14.12%; Au 57.91%; K 11.49%; N 16.47%
Use/Importance: Commercially available. Used in photographic processes and gold plating
Physical Description: Orthorhombic yellow cryst. + 0.5 H_2O (H_2O)
Solubility: Sol. H_2O
Other Data: Ir ν 2189 cm^{-1}

>>**Derivative:** Ag salt

CAS Registry Number: 71317-90-3
Molecular Formula: C_4AgAuN_4
Molecular Weight: 408.906
Percentage Composition: C 11.75%; Ag 26.38%; Au 48.17%; N 13.70%
Physical Description: Insol. solid

>>**Derivative:** H compd., dihydrate

Molecular Formula: $C_4H_5AuN_4O_2$
Molecular Weight: 338.076
Percentage Composition: C 14.21%; H 1.49%; Au 58.26%; N 16.57%; O 9.46%
Source/Synthesis: Synth. from K salt by cation exchange
Use/Importance: Stable strong acid
Physical Description: Monoclinic white cryst.
Solubility: Sol. H_2O
Other Data: Ir ν_{CN} 2204, 2218 cm^{-1}. Formulated as $[[H_3O][Au(CN)_4]].H_2O$ and $[H_5O_2][Au(CN)_4]$

>>**Derivative:** H compd., trihydrate

Molecular Formula: $C_4H_7AuN_4O_3$
Molecular Weight: 356.091
Percentage Composition: C 13.49%; H 1.98%; Au 55.31%; N 15.73%; O 13.48%
Physical Description: Colourless hygroscopic plates
Solubility: V. sol. H_2O, EtOH, Et_2O
Other Data: Dec. in hot H_2O

References:

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Bertinotti, C. *et al.*, *Acta Cryst. B*, 1970, **26**, 422, *(cryst struct)*
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