



>>Entry Name: Molybdate ($\text{Mo}_7\text{O}_{24}^{6(-)}$)

Synonym(s): Paramolybdate. Hexa- μ_3 -oxohexa- μ -oxododecaoxoheptamolybdate(6-). Heptamolybdate ($\text{Mo}_7\text{O}_{24}^{6(-)}$). 7-Molybdate(VI)

CAS Registry Number: 12274-10-1
[$\text{Mo}_7\text{O}_{24}^{6(-)}$]

Molecular Formula: $\text{Mo}_7\text{O}_{24}^{6(-)}$

Molecular Weight: 1055.566

Accurate Mass: 1069.215802

Percentage Composition: Mo 63.62%; O 36.38%

heteropolyanions of related formula, e.g. Molybdotellurate ($\text{Mo}_6\text{TeO}_{24}$) [KPG45-Z](#)

>>Derivative: Hexa-Na salt

Synonym(s): Sodium molybdate ($\text{Na}_6\text{Mo}_7\text{O}_{24}$). Sodium paramolybdate

CAS Registry Number: 12058-33-2

Molecular Formula: $\text{Mo}_7\text{Na}_6\text{O}_{24}$

Molecular Weight: 1193.504

Accurate Mass: 1207.154404

Percentage Composition: Mo 56.27%; Na 11.56%; O 32.17%

Physical Description: Cryst. + $14\text{H}_2\text{O}$

>>Derivative: Hexa- NH_4 salt

Synonym(s): Ammonium molybdate, USAN. Molypen

CAS Registry Number: 12027-67-7

Molecular Formula: $\text{H}_{24}\text{Mo}_7\text{N}_6\text{O}_{24}$

Molecular Weight: 1163.795

Accurate Mass: 1177.422046

Percentage Composition: H 2.08%; Mo 57.71%; N 7.22%; O 32.99%

Use/Importance: Source of H_2O -soluble Mo e.g. in prep. of catalysts

Physical Description: White cryst.

Solubility: V. sol. H_2O

Sigma: A2962

>>Derivative: Hexa- NH_4 salt, tetrahydrate

Synonym(s): Ammonium molybdate hexahydrate

CAS Registry Number: 12054-85-2

Molecular Formula: $\text{H}_{32}\text{Mo}_7\text{N}_6\text{O}_{28}$

Molecular Weight: 1235.856

Percentage Composition: H 2.61%; Mo 54.34%; N 6.80%; O 36.25%

Source/Synthesis: Synth. by cryst. from a soln. of MoO_3 in excess aq. NH_3 heated under reflux for >1 h

Physical Description: Yellowish to colourless monoclinic cryst.

Solubility: V. sol. H_2O

Other Data: Loses H_2O at 90°

Aldrich: 43134-6

Fluka: 9878

Sigma: M1019

>>Derivative: Hexakis- Ph_4P salt

CAS Registry Number: 135436-44-1

Physical Description: Colourless cryst. + 4 H_2O ($\text{MeCN/Et}_2\text{O}$)

References:

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Karov, Z.G. *et al.*, *Zh. Neorg. Khim.*, 1960, **5**, 343, (synth, NH_4 salt, tetrahydrate)
Evans, H.T., *J.A.C.S.*, 1968, **90**, 3275, (struct, NH_4 salt, tetrahydrate)
Sjöbom, K. *et al.*, *Acta Chem. Scand.*, 1973, **27**, 3673, (struct, Na salt)
Day, V.W. *et al.*, *J.A.C.S.*, 1977, **99**, 6146, (stability)
Pope, M.T., *Heteropoly and Isopoly Oxometalates*, Springer-Verlag, 1983, 43, (rev, bibl)
Bhattacharyya, R.G. *et al.*, *Inorg. Chim. Acta*, 1991, **181**, 213, (synth, ir, uv-vis, molar conductivity, powder struct)