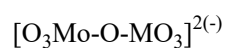




>>Entry Name: Molybdate ($\text{Mo}_2\text{O}_7^{2(-)}$)



Molecular Formula: $\text{Mo}_2\text{O}_7^{2(-)}$

Molecular Weight: 303.876

Accurate Mass: 307.775217

Percentage Composition: Mo 63.14%; O 36.86%

>>Derivative: Di-Na salt

Synonym(s): Sodium dimolybdate. Dimolybdenum disodium heptoxide

CAS Registry Number: 13466-16-5

Molecular Formula: $\text{Mo}_2\text{Na}_2\text{O}_7$

Molecular Weight: 349.855

Accurate Mass: 353.754751

Percentage Composition: Mo 54.85%; Na 13.14%; O 32.01%

Physical Description: Orthorhombic cryst.

Melting Point: Mp 614°

Solubility: Sol. H_2O

Other Data: Struct. contains infinite chains of MoO_6 octahedra connected by MoO_4 tetrahedra. Ir ν 905, 881, 863, 805, 595 cm^{-1} . ΔH_f° (per $\text{Na}_2\text{Mo}_2\text{O}_7$) $-2243 \text{ kJ mol}^{-1}$

>>Derivative: Di-K salt

Synonym(s): Potassium dimolybdate. Dimolybdenum dipotassium heptoxide

CAS Registry Number: 19421-45-5

Molecular Formula: $\text{K}_2\text{Mo}_2\text{O}_7$

Molecular Weight: 382.072

Accurate Mass: 385.702631

Percentage Composition: K 20.47%; Mo 50.22%; O 29.31%

Source/Synthesis: Synth. e.g. by thermal dec. of dipotassium oxalatohexaoxodimolybdate at 300-380°

Melting Point: Mp 495°

Solubility: Sol. H_2O

Other Data: Ir ν 870, 720, 705, 362, 361, 242 cm^{-1} . ΔH_f° 298 (per $\text{K}_2\text{Mo}_2\text{O}_7$) $-2290 \text{ kJ mol}^{-1}$

>>Derivative: Di- NH_4 salt

Synonym(s): Ammonium dimolybdate ($(\text{NH}_4)\text{Mo}_2\text{O}_7$)

CAS Registry Number: 27546-07-2

Molecular Formula: $\text{H}_8\text{Mo}_2\text{N}_2\text{O}_7$

Molecular Weight: 339.952

Accurate Mass: 343.843965

Percentage Composition: H 2.37%; Mo 56.44%; N 8.24%; O 32.94%

Source/Synthesis: Synth. from hot ammoniacal molybdate solns.

Use/Importance: Source of soluble Mo, e.g. in catalyst props.

Physical Description: Cryst.

Solubility: Sol. H_2O

Other Data: Struct. comprises infinite chains of pairs of edge-shared MoO_6 octahedra with adjacent pairs linked by MoO_4 tetrahedra

>>Derivative: Bis- Ph_4P salt

CAS Registry Number: 115436-95-8

Source/Synthesis: Synth. from corresp. salt of Diaqua- μ -oxodioxotetraperoxydimolybdate(*VI*)(2-) [HXP93-C](#) and PPh_3 in MeCN

Physical Description: Cryst. (MeCN/ Et_2O)

>>Derivative: Bis[triphenyl(*P,P,P*-triphenylphosphineimidato-*N*)]phosphorus(1+)

CAS Registry Number: 94348-96-6

Physical Description: Colourless cryst. (MeCN/ Et_2O)

References:

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Caillet, P. *et al.*, *J. Mol. Struct.*, 1969, **4**, 351, (*ir*)

Armour, A.W. *et al.*, *J.C.S. Dalton*, 1975, 1493, (*synth, struct, di-NH₄ salt*)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **15**, 686, (*uses*)

Sawhney, S.S. *et al.*, *Thermochim. Acta*, 1983, **70**, 367, (*synth, struct*)

Bhattacharya, R.G. *et al.*, *Inorg. Chim. Acta*, 1991, **181**, 213, (*synth, cryst struct, ir, conductivity, bis-Ph₄P salt*)