



>>Entry Name: Nickel molybdate(VI) (NiMoO₄)

Synonym(s): Molybdenum nickel oxide (MoNiO₄)

CAS Registry Number: 14177-55-0

Related CAS Registry Numbers(s): 12673-58-4

NiMoO₄

Molecular Formula: MoNiO₄

Molecular Weight: 218.628

Accurate Mass: 219.820412

wolframite struct. changing from ferromagnetic to antiferromagnetic

Source/Synthesis: Synth. by combining aq. solns. of sodium or ammonium molybdate and a sol. nickel salt, or by heating mixed solid oxides at 400-500°

Use/Importance: α- and β-forms have different catalytic props. Catalyst in the petroleum and chemical industries for oxidation and hydrodesulfurisation. Molecular precursor for obtaining thin solid films and powders of ternary transition metal nitrides, e.g. heating to 700° under flow of NH₃, and quenching to r.t. after 12h → Ni₃Mo₃N

Physical Description: Green cryst. + 5H₂O

Melting Point: Mp 970°

Solubility: Sl. sol. H₂O

References:

Mellor Compr. Treat. Inorg. Theor. Chem., 1931, **11**, 575, (bibl)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **2**, 488; **15**, 687, (use, props)

Saleem, S.S. et al., Polyhedron, 1982, **1**, 331, (ir, Raman)

Sieber, K. et al., Inorg. Chem., 1983, **22**, 2667, (synth, struct, magnetism)

Bem, D.S. et al., Chem. Mater., 1993, **5**, 397, (synth, use)

Portela, M.F. et al., Chem. Comm., 1996, 501, (use)