



>>Entry Name: Tetrakis[carbonato(2-)]dihydroxypentamagnesium, 9CI

Synonym(s): Basic magnesium carbonate

CAS Registry Number: 7760-50-1

$\text{Mg}_5(\text{CO}_3)_4(\text{OH})_2$

Molecular Formula: $\text{C}_4\text{H}_2\text{Mg}_5\text{O}_{14}$

Molecular Weight: 395.576

Accurate Mass: 393.86967

Percentage Composition: C 12.15%; H 0.51%; Mg 30.72%; O 56.62%

>>Derivative: Tetrahydrate

CAS Registry Number: 12072-91-2

Extra CAS Registry Numbers(s): 12072-90-1

Source/Synthesis: Widespread in nature as the mineral *hydromagnesite*. Synth. by heating $\text{MgCO}_3 \cdot 3\text{H}_2\text{O}$ in the presence of H_2O . Also synth. by vacuum dist. at 90° of NH_3 from a soln. contg. $(\text{NH}_4)_2\text{CO}_3$, NH_4OH and MgCl_2

Physical Description: Cryst.

Other Data: Struct. based on a 3-D framework of MgO_6 octahedra and triangular carbonate ions

>>Derivative: Pentahydrate

Synonym(s): Tetrakis[carbonato(2-)]dihydroxypentamagnesium pentahydrate. Pentamagnesium tetracarbonate dihydroxide pentahydrate

CAS Registry Number: 56378-72-4

Extra CAS Registry Numbers(s): 12417-94-6 12544-02-4

Molecular Formula: $\text{C}_4\text{H}_{12}\text{Mg}_5\text{O}_{19}$

Molecular Weight: 485.652

Accurate Mass: 483.922495

Percentage Composition: C 9.89%; H 2.49%; Mg 25.02%; O 62.59%

Source/Synthesis: Synth. from water-sol. Mg salt and carbonate in static aq. medium at 40°. Occurs in nature as the minerals *dypingite* and *giorgiosite*

Use/Importance: Used in smoke suppressors

Aldrich: 22766-8

Sigma: M0125

References:

Hagino, Y., *Nippon Shio Gakkai-Shi*, 1956, **10**, 77; *CA*, **55**, 18030c, (pentahydrate, powder struct)

Hayek, E. *et al.*, *Monatsh. Chem.*, 1966, **97**, 1059-1063, (tetrahydrate, synth)

Arav, R.I. *et al.*, *Ukr. Khim. Zh. (Russ. edn.)*, 1966, **32**, 521-523; *CA*, **65**, 4992h, (tetrahydrate, synth)

Akao, M. *et al.*, *Acta Cryst. B*, 1974, **30**, 2670-2672; 1977, **33**, 1273-1275, (hydromagnesite, cryst struct)

Friedel, B. *et al.*, *Neues Jahrb. Mineral., Monatsh.*, 1975, 196-208, (pentahydrate, synth)

Canterford, J.H. *et al.*, *Mineral. Mag.*, 1984, **48**, 437-442, (dypingite, cryst struct)

Eur. Pat., 1991, 460 923; *CA*, **116**, 87138, (pentahydrate, synth)