



>>Entry Name: Gallium(I) tetrachlorogallate(III), 12Cl

CAS Registry Number: 24597-12-4

Ga[GaCl₄]

Molecular Formula: Cl₄Ga₂

Molecular Weight: 281.257

Accurate Mass: 277.726568

Percentage Composition: Cl 50.42%; Ga 49.58%

General Statement: Formerly described as *Gallium(II) chloride*. Struct. consists of central Ga^I dodecahedrally surrounded by GaCl₄ tetrahedra; interatomic distance: Ga-Cl 219 pm

Source/Synthesis: Synth. from Ga and Hg₂Cl₂ at 170°

Physical Description: Air- and moisture-sensitive colourless needles (C₆H₆ or PhCl). Apparently also detected in vapour

Melting Point: Mp 172°

Solubility: Sol. C₆H₆, PhCl; reacts with CCl₄, Et₂O, HNO₃

Other Data: $\Delta H_{f298} -703.7 \text{ kJ mol}^{-1}$. Many complexes descr.

>>Derivative: Monomer

CAS Registry Number: 13498-12-9

Molecular Formula: Cl₂Ga

Molecular Weight: 140.628

Accurate Mass: 138.863284

Percentage Composition: Cl 50.42%; Ga 49.58%

Other Data: Aldrich: 41308-9

Aldrich: 41308-9

References:

Inorg. Synth., 1953, **4**, 111, (synth)

Garton, G. *et al.*, *J. Inorg. Nucl. Chem.*, 1957, **4**, 84, (synth, cryst struct)

Carlston, R.C. *et al.*, *J.A.C.S.*, 1958, **80**, 1532, (synth, props)

Greenwood, N.N. *et al.*, *J.C.S.*, 1958, 1680, (props)

Ali, S.M. *et al.*, *J. Inorg. Nucl. Chem.*, 1959, **9**, 124, (complexes)

Fedorov, P.I. *et al.*, *Russ. J. Inorg. Chem. (Engl. Transl.)*, 1968, **13**, 1730; 1971, **16**, 1568, (phase diagram, conductivity)

Beck, J.C. *et al.*, *Inorg. Chem.*, 1970, **9**, 86, (ΔH_f)

Taylor, M.J., *J.C.S.(A)*, 1970, 2812, (Raman)

Kuniya, Y. *et al.*, *J. Cryst. Growth*, 1975, **28**, 385, (thermodyn props, uv)

Beamish, J.C. *et al.*, *Inorg. Chem.*, 1978, **17**, 2026, (synth)

Schmidbauer, H. *et al.*, *Z. Naturforsch., B*, 1987, **42**, 553, (cryst struct, solid state Ga-69 nmr)

Tuck, D.G., *Polyhedron*, 1990, **9**, 377, (rev)

Ulvenlund, S. *et al.*, *J.C.S. Dalton*, 1995, 245, (synth, Ga-71 nmr, Raman)