



>>Entry Name: Gallium nitride (GaN)

CAS Registry Number: 25617-97-4

Molecular Formula: GaN

Molecular Weight: 83.73

Accurate Mass: 82.928654

Percentage Composition: Ga 83.27%; N 16.73%

General Statement: Wurtzite struct. Cubic form with zinc blende struct. also descr.

Source/Synthesis: Synth. by dec. of GaCl₃.NH₃ at 800-1150°. Good quality cryst. films prod. by laser-assisted chemical vapour deposition of α-GaN onto sapphire at 700°

Use/Importance: Used in light emitting diodes

Physical Description: Colourless cryst. (by vap. deposition). Dissolves slowly in hot alkali. Stable towards H₂O and most acids. Oxidised slowly in air

Other Data: Band gap 3.39 eV. Specific conductivity 1-10 Ω⁻¹ m⁻¹

Fluka: 48515

References:

Runner, T., *Z. Anorg. Allg. Chem.*, 1959, **298**, 22, (*synth, props*)

Willardson, R.K. *et al.*, *Compound Semiconductors*, Reinhold, 1962, (*synth*)

Inorg. Synth., 1963, **7**, 16, (*synth*)

Maruska, H.P. *et al.*, *Appl. Phys. Lett.*, 1969, **15**, 327, (*synth*)

Van Vechten, J.A., *Phys. Rev.*, 1969, **182**, 891, (*cryst struct*)

Shintani, A. *et al.*, *J. Electrochem. Soc.*, 1976, **123**, 1725, (*use*)

O'Keefe, M. *et al.*, *Acta Cryst. B*, 1978, **34**, 3519, (*cryst struct*)

Seifert, W. *et al.*, *J. Cryst. Growth*, 1981, **52**, 257, (*synth*)

Kouvetakis, J. *et al.*, *Chem. Mater.*, 1989, **1**, 476, (*synth*)

Kubota, K. *et al.*, *J. Appl. Phys.*, 1989, **66**, 2984, (*props*)

Gladfelter, W.L., *Mater. Res. Soc. Symp. Proc.*, Boston, Fall, 1990, Abstr. E22, (*synth, cubic-form*)

Lee, S.S. *et al.*, *J. Mater. Chem.*, 1993, **3**, 347, (*synth, manuf, use, pe, struct, ed, luminescence, wurtzite-form*)