

Galaxite



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As octahedra and rounded grains, to 0.5 mm; as exsolution blebs. *Twinning:* On {111} as both twin and composition plane, the spinel law, probable.

Physical Properties: *Fracture:* Conchoidal. Hardness = 7.5 D(meas.) = 4.234
D(calc.) = [4.22]

Optical Properties: Opaque; may be translucent in thin section. *Color:* Black, red-brown, red to yellow; in transmitted light, golden yellow, brownish orange, mahogany-red, deep red to reddish black. *Streak:* Red-brown. *Luster:* Vitreous.
Optical Class: Isotropic. $n = 1.923$

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 8.258$ $Z = 8$

X-ray Powder Pattern: Synthetic MnAl_2O_4 .

2.492 (100), 2.921 (60), 1.4600 (45), 1.5896 (40), 0.8429 (30), 2.065 (25), 1.0749 (25)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
SiO ₂	0.96		0.30	MnO	34.03	39.1	39.9
TiO ₂	trace	< 0.05	0.13	CoO		0.25	
Al ₂ O ₃	45.71	56.3	48.0	ZnO	trace	0.43	
Fe ₂ O ₃		4.6	8.9	MgO	1.50	0.83	1.79
V ₂ O ₃		0.14		CaO	trace		
FeO	16.36	0.0		Total	98.56	101.7	99.0

(1) Bald Knob, North Carolina, USA; total Fe as FeO. (2) Do.; by electron microprobe, $\text{Fe}^{2+}:\text{Fe}^{3+}$ calculated from stoichiometry; corresponds to $(\text{Mn}_{0.95}^{2+}\text{Mg}_{0.04}\text{Zn}_{0.01})_{\Sigma=1.00}(\text{Al}_{1.90}\text{Fe}_{0.10}^{3+})_{\Sigma=2.00}\text{O}_4$. (3) Bonneval-sur-Arc, France; by electron microprobe, total Fe as Fe_2O_3 ; corresponds to $(\text{Mn}_{0.92}^{2+}\text{Mg}_{0.08})_{\Sigma=1.00}(\text{Al}_{1.70}\text{Fe}_{0.20}^{3+}\text{Mn}_{0.09}^{3+}\text{Si}_{0.01})_{\Sigma=2.00}\text{O}_4$.

Mineral Group: Spinel group.

Occurrence: In carbonate-rich, silica-undersaturated parts of metamorphosed manganese deposits.

Association: Alleghanyite, rhodonite, sonolite, spessartine, tephroite, kutnohorite, manganhumite, jacobsonite, kellyite, alabandite (Bald Knob, North Carolina, USA); katoptrite, magnetite, manganostibite, magnussonite, tephroite, manganhumite, manganosite (Brattfors mine, Sweden).

Distribution: Occurs near Bald Knob, Alleghany Co., North Carolina, USA. In the Brattfors and Jakobsberg mines, Värmland, Sweden. In France, found near Bonneval-sur-Arc, Haute-Savoie. In Japan, found at the Noda-Tamagawa mine and Hijikuzu, Iwate Prefecture; the Oashi mine, Tochigi Prefecture; the Taguchi mine, Aichi Prefecture; the Ioi mine, Shiga Prefecture; and the Fukumaki mine, Yamaguchi Prefecture.

Name: For Galax, Virginia, USA, close to Bald Knob, North Carolina, and for the plant, *galax*, after which the town is named.

Type Material: n.d.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 689–697. (2) Ross, C.S. and P.F. Kerr (1932) The manganese minerals of a vein near Bald Knob, North Carolina. *Amer. Mineral.*, 17, 1–18. (3) Chopin, C. (1978) Les paragenèses réduites ou oxydées de concentrations manganésifères des "schistes lustrés" de Haute-Maurienne (Alpes françaises). *Bull. Minéral.*, 101, 514–531 (in French with English abs.). (4) Essene, E.J. and D.R. Peacor (1983) Crystal chemistry and petrology of coexisting galaxite and jacobsonite and other spinel solutions and solvi. *Amer. Mineral.*, 68, 449–455. (5) (1960) NBS Circ 539, 9, 35.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.