Flurlite $ZnZn_3Fe^{3+}(PO_4)_3(OH)_2(H_2O)_7{\cdot}2H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m.* As platelets to 100 μm; in twisted accordion-like aggregates.

Physical Properties: *Cleavage*: Excellent on {001}. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = 2.89 D(calc.) = 2.84

Optical Properties: Translucent. *Color*: Bright orange-red to dark maroon-red. *Streak*: Buff. *Luster*: Pearly.
Optical Class: Biaxial (-). α = 1.60(1) β = 1.65(1) γ = 1.68(1) 2V(meas.) = n.d. 2V(calc.) = 74°
Pleochroism: Weak, *X* = pale yellow, *Y* = pale orange, *Z* = orange-brown. *Dispersion*: Weak.
Orientation: $X \approx c$, $Y \approx a$, $Z \approx b$.

Cell Data: *Space Group*: $P2_1/m$. a = 6.3710(13) b = 11.020(2) c = 13.016(3) β = 99.34(3)° Z = 2

X-ray Powder Pattern: Hagendorf-Süd pegmatite, Hagendorf, Oberpfalz, Bavaria, Germany. 12.900 (100), 2.763 (35), 4.297 (21), 6.072 (14), 8.375 (10), 5.567 (8), 3.221 (7)

Chemistry:

	(1)
ZnO	25.40
MnO	5.28
MgO	0.52
Fe_2O_3	[10.30]
FeO	[7.40]
P_2O_5	27.20
H_2O	[23.10]
Total	99.20

(1) Hagendorf-Süd pegmatite, Hagendorf, Oberpfalz, Bavaria, Germany; average of 7 electron microprobe analyses, FeO/Fe_2O_3 and H_2O from structural analysis; corresponding to $(Zn_{2.5}Mn^{2+}_{0.6}Fe^{2+}_{0.8}Mg_{0.1})_{\Sigma=4.0}Fe^{3+}(PO_4)_3(H_2O)_7{\cdot}2H_2O$.

Occurrence: A secondary mineral probably formed from the hydrothermal reaction of zinc-bearing fluids with primary Fe-Mn phosphate minerals (triphylite or zwieselite).

Association: Mitridatite, plimerite, beraunite, schoonerite, parascholzite, robertsite.

Distribution: From the Cornelia mine open cut, Hagendorf-Süd pegmatite, Hagendorf, Oberpfalz, Bavaria, Germany.

Name: Honors Mathias von *Flurl* (1756-1823), the founder of mineralogical and geological studies in Bavaria and author of the first geological map of Bavaria.

Type Material: Museum Victoria, Melbourne, Victoria, Australia (M53238).

References: (1) Grey, I.E., E. Keck, W.G. Mumme, A. Pring, C.M. Macrae, R.W. Gable, and J.R. Price (2015) Flurlite, $Zn_3Mn^{2+}Fe^{3+}(PO_4)_3(OH)_2{\cdot}9H_2O$, a new mineral from the Hagendorf Süd pegmatite, Bavaria, with a schoonerite-related structure. Mineral. Mag., 79(5), 1175-1184. (2) (2016) Amer. Mineral., 101, 1921 (abs. ref. 1). (3) Kampf, A.R., I.E. Grey, C.M. Macrae, and E. Keck (2019) Manganflurlite, $ZnMn^{2+}{}_3Fe^{3+}(PO_4)_3(OH)_2(H_2O)_7{\cdot}2H_2O$, a new schoonerite-related mineral from the Hagendorf-Süd pegmatite. Eur. J. Mineral., 31(1), 127-134. (4) (2021) Amer. Mineral., 106, 1360-1361 (abs. ref. 3).