Diegogattaite $Na_2CaCu_2Si_8O_{20}·H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As a massive 3 mm aggregate of platy crystals, individually to 0.5 mm.

Physical Properties: *Cleavage*: Good on {001}. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 5-6 D(meas.) = n.d. D(calc.) = 3.10

Optical Properties: Transparent. *Color*: Pale turquoise to teal blue. *Streak*: Very pale blue. *Luster*: Vitreous.
Optical Class: Biaxial (–). α = 1.598(2) β = 1.627(2) γ = 1.632(2) 2V(meas.) = 44.0(6)° 2V(calc.) = 44.5° *Dispersion*: Strong, $r < v$. *Pleochroism*: X = colorless, $Y = Z$ = blue-green. *Absorption:* $Y \approx Z >> X$. *Orientation*: $X = b$, $Y \approx \perp$ (001), $Z \approx a$.

Cell Data: *Space Group*: *C*2/*m*. a = 12.2439(6) b = 15.7514(4) c = 10.6008(3) β = 125.623(2)° Z = 4

X-ray Powder Pattern: Wessels Mine, Northern Cape Province, Republic of South Africa. 3.261 (100), 2.898 (89), 3.951 (77), 4.25 (75), 2.332 (66), 2.079 (64), 1.5024 (59)

Chemistry:

	(1)
Na_2O	8.07
CaO	7.3
CuO	20.5
FeO	0.36
SiO_2	62.4
H_2O	[2.34]
Total	100.97

(1) Wessels Mine, Northern Cape Province, Republic of South Africa; average of 5 electron microprobe analyses, H_2O calculated from stoichiometry; corresponding to $Na_{2.00}Ca_{1.00}Cu_{1.98}Fe_{0.04}Si_{7.99}O_{20}•H_2O$.

Occurrence: In a hydrothermally altered manganese deposit.

Association: Wesselite, aegirine, Cu-rich pectolite, sugilite, quartz, and undifferentiated Fe-Mn oxides, as well as scottyite, lavinskyite, richterite.

Distribution: From the central-eastern ore-body, Wessels Mine, Kalahari manganese fields, Northern Cape Province, Republic of South Africa.

Name: Honors Professor Diego Gatta (b. 1974), Department of Earth Sciences, University of Milan, Italy, for his contributions in the areas of crystal structures and crystal chemistry of zeolites and related silicates with cage structures.

Type Material: Museum of Natural History, London, England, (BM 2012,2).

References: (1) Rumsey, M.S., M.D. Welch, A.R. Kampf, and J. Spratt (2013) Diegogattaite, $Na_2CaCu_2Si_8O_{20}·H_2O$: a new nanoporous copper sheet silicate from Wessels Mine, Kalahari Manganese Fields, Republic of South Africa. Mineral. Mag., 77(8), 3155-3162. (2) (2014) Amer. Mineral., 99, 1807-1808 (abs. ref. 1).