



**INTERNATIONAL MINERALOGICAL ASSOCIATION
COMMISSION ON NEW MINERALS, NOMENCLATURE
AND CLASSIFICATION**

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3 February, 2025

Dear Christopher Emproto,

Congratulations on your new mineral, 2024-071_BLUERIDGEITE!

The attached summary will appear in my next memorandum to the members of the Commission on New Minerals, Nomenclature and Classification (CNMNC). You should consider the comments of the members when you write your final description.

Although the Commission has no strict rule dealing with publication, I would ask that you ensure that the first published record of your mineral is in the scientific literature.

The CNMNC has decided to announce new minerals (with or without their name, depending upon the authors' wishes) with some data on the CNMNC website, one month after their approval. The text that will appear is attached below.

One of the rules of our Commission is that the description of a new mineral must be published within **two years** of notification of the approval. If publication does not take place during that time, approval of the mineral and its name will be withdrawn.

Proof of receipt of the type specimen(s) by the curator of the collection in which the type specimen(s) have been deposited must be sent to me as soon as possible to ensure approval.

The Commission strongly disapproves of the practice of providing specimens of new species to mineral dealers prior to the full description of the new species being published in the scientific literature.

You must be sent a copy of this letter with the manuscript of your description when you submit the paper for publication. This will indicate to the editor of the journal that the mineral and its name have been approved by the CNMNC of the International Mineralogical Association as well as the comments of the CNMNC members.

Please send a reprint of the description to me when it is published.

Best regards,

Chairman CNMNC

Encl.



**Monthly announcement of new minerals on the CNMNC website and in the
Mineralogical Magazine and the *European Journal of Mineralogy*
with or without their name, with a limited number of data.**

The Commission on New Minerals, Nomenclature and Classification decided in January 2010 (Proposal 09-D: the early publication of new mineral names) that additional data would be published one month after the approval date on the CNMNC website. This data will also be published in the *Mineralogical Magazine* and in the *European Journal of Mineralogy*, under the heading of a CNMNC Newsletter.

For your newly approved mineral, the following data will be published in line with the above, unless you wish the mineral name to remain confidential until the full description is published. If this is the case, the name will be removed from the data listed below. **NOTIFY ME BY E-MAIL IF YOU DO NOT WISH TO HAVE THE NAME OF YOUR MINERAL RELEASED PRIOR TO PUBLICATION.**

IMA No. **2024-071**

Blueridgeite

$[\text{Pb}_8\text{Zn}_3\text{Cu}^{2+}(\text{OH})_{16}](\text{SO}_4)_2(\text{S}_2\text{O}_3)_2 \cdot 2\text{H}_2\text{O}$

Symbol

Redmond mine, Haywood Co., North Carolina, USA (35°40'55" N, 83°00'56" W)

Christopher Emproto*, Travis A. Olds, Anthony R. Kampf, Jason B. Smith, John M. Hughes and Chi Ma

*E-mail: emprotoc@carnegiemnh.org

New structure type

Monoclinic: $P2_1/c$; structure determined

$a = 12.1530(7)$, $b = 14.4758(7)$, $c = 11.0034(6)$ Å, $\beta = 116.212(3)^\circ$

5.449(90), 4.899(52), 4.653(48), 3.397(52), 3.097(100), 2.991(30), 2.707(69), 2.421(33)

Cotype material is deposited in the collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue numbers 76450, 76451, and 76452

How to cite: Emproto, C., Olds, T.A., Kampf, A.R., Smith, J.B., Hughes, J.M. and Ma, C. (2025) Blueridgeite, IMA 2024-071. CNMNC Newsletter 84, Eur. J. Mineral., 37, <https://doi.org/.....>

2024-071
BLUERIDGEITE

	Yes	No	Abstain
Mineral	25		1
Name	26		

Consequently, both the mineral* and the name have been **approved**

* The authors stated that they could not reliably determine the hydrogen positions in the blueridgeite structure and, therefore, were unable to apply the Ferraris and Ivaldi (1988) equations for H...O distances.

COMMENTS ON THE MINERAL:

Those who voted **YES** made the following comments:

1. Because of the poor quality of crystals, the characterization of the proposed new mineral species is quite poor. Anyway, taking into account the experience of the authors with similar minerals the existence of the species can be approved.
2. A sulphate-thiosulphate mineral from Redmond mine. The optical properties are revealed after difficulties. The sample chemical test is important.
3. Proposal with complete information, good job.
4. Very good description.
5. A nice, complete and comprehensive description.

Same remark as 2024-069_Sigogglinite: Regarding the origin: Are the authors certain that the fire-setting technique was not used in the Redmont mine, or that there were no surface wildfires or a mine timber fire inside (look for traces of charcoal in the mine and in the surface soils)? These fires and the resulting alkaline ashes contribute to the basification of waters and the formation of similar minerals. This phenomenon is known in Badenweiler in the Black Forest, Germany. Initially, it was believed that the rich paragenesis of basic sulfate and carbonates, oxy-sulphate, sulfite orthiosulphates lead minerals (chenite, elyite, hydrocerussite, kennygayite, krivovichevite, lanarkite, scotlandite, sidpietersite, steverustite, susannite, etc.) was linked to the area's basic thermal springs (36°C), but it was ultimately found to be associated with the fire-setting extraction technique. See: Maximilian F. Keim, Bernd Gassmann, Gregor Markl (2017) Formation of basic lead phases during fire-setting and other natural and man-made processes. *American Mineralogist*; 102 (7): 1482–1500. doi: <https://doi.org/10.2138/am-2017-5931>.

6. The reported $\langle S_2-O \rangle$ 1.47 Å is wrong (it should be 1.61 Å).
7. Data are in order. Interesting structure.
8. Name: after mountain range that contains type locality.

Occurrence/Paragenesis: dense radiating clusters of pseudorhombohedral with other secondary Pb-Zn-Cu sulfates and thiosulfates with galena-chalcopyrite-sphalerite-quartz-muscovite primary assemblage, formed under unusual high-pH, reducing conditions.

Chemical Analysis/Formula: Total only slightly <99% including H content calculated from structure. Minerals from this paragenesis require a check on S valence and

speciation; Raman spectrum and structure for this mineral consistent with ~1:1 sulfate: thiosulfate ratio.

Physical Properties: OK.

Optical Properties: AOK.

XRD data/Crystal Structure: OK. Unique new structure but closely related to cherokeeite and cuprocherokeeite.

Other data: Raman spectrum provided.

Type material location: OK.

Relationship to other minerals: Pb-Zn-Cu sulfate thiosulfate, chemically related to cuprocherokeeite by ordered 50% substitution of thiosulfate for sulfate and reduced water content.

9. The data provided by the authors (Raman, XRD, and EMPA) are sufficient to establish a new mineral specie. My few comments are: **1)** The value of the extinction parameter 0.00003(2) is not significant, I would remove it from the structural refinement. **2)** I guess that the crystal structure analysis was complicated by the crystal quality. The data reduction is also characterized by a high Rint (ca. 10%), which is not surprising if the XRD data quality was also an issue, because of the crystal mosaicity (as stated by the authors). The authors maybe could shortly comment on it, that is, was the problem related to mosaicity? Or to the presence of additional phases? Was the crystal a multicrystal? **3)** Could it be that the presence of residual electron density close to O10, might be also related to partial or very low S-2 occupancy of this site?
10. Good and thorough description.
11. New mineral from Redmond mine with new structure. Related to cuprocherokeeite and cherokeeite. Raman has confirmed O-H, SO₄ and S-S in S₂O₃. EMPA includes plausible data handling method for S addressing contributions from SO₄ and S₂O₃. Chain structure with characteristic cubane like Pb(-Zn,Cu)-OH clusters with sulfate, thiosulfate and water groups in inter-chain channels. The comprehensive data supports the proposal for this new mineral.

Those who **NO** made the following comments:

Those who voted **ABSTAINED** made the following comments:

1. Please include a clear explanation of how the methodology of Ferraris and Ivaldi (1988) was applied in this context, specifically addressing why the O...O equations were preferred over the O-H or H...O equations from the same source.

COMMENTS ON THE NAME:

Those who voted **YES** made the following comments:

Those who **NO** made the following comments:

Those who voted **ABSTAINED** made the following comments: