**Table 1.** Additional meteorite minerals from the published literature.

|  |  |
| --- | --- |
| **Mineral** | **Chemical Formula** |
| Addibischoffite  Asimowite  Beckettite  Butianite  Carletonmooreite Caswellsilverite  Chladniite  Czochralskiite  Djerfisherite  Edscottite  Galileiite  Joegoldsteinite  Kaitianite  Kushiroite  Machiite  Melliniite  Moraskoite  Rubinite  Suessite  Uakitite  Warkite  Xieite | Ca2Al6Al6O20  Fe2SiO4  Ca2V6Al6O20  Ni6SnS2  Ni3Si  NaCrS2  Na2CaMg7(PO4)6  Na4Ca3Mg(PO4)4  (K6(Fe,Ni,Cu)25S26Cl)  Fe5C2  NaFe4(PO4)3  (Mn0.82Fe0.23)Cr1.99S3.95  Ti3+2Ti4+O5  CaAlAlSiO6  (Al,Sc)2(Ti4+,Zr)3O9  (Ni,Fe)4P  Na2Mg(PO4)F  Ca3Ti3+2Si3O12  Fe3Si  (V0.91Cr0.07Fe0.02)1.00N1.00  Ca2Sc6Al6O20  FeCr2O4 |

**Table 2.**  Additional meteorite minerals later discovered on Earth (incomplete / not checked)

|  |  |  |
| --- | --- | --- |
| **Mineral** | **Discovery Location** | **Reference** |
| Suessite  Djerfisherite  Chladniite | Russia  Russia  Argentina | Novgorodova et al., 1984  Vallcorba et al., 2017 |

**Table 3.** Additional meteorite minerals later synthesized in a laboratory (incomplete / not started)

|  |  |
| --- | --- |
| **Mineral** | **Reference** |
| Kushiroite “synthetic CaAlAlSiO6 pyroxene”  Moraskoite has a synthetic analog  Uakitite ? “synthetic VN” |  |

**Table 5:** Additional meteorite mineral occurrence and distribution (incomplete - crystal habit not included)

|  |  |  |  |
| --- | --- | --- | --- |
| **Mineral** | **Discovery Meteorite (Chem. Class.)** | **Reference** | **Other Occurrences** |
| Addibischoffite  Asimowite  Beckettite  Butianite  Carletonmooreite  Caswellsilverite  Chladniite  Czochralskiite  Djerfisherite  Edscottite  Galileiite  Joegoldsteinite  Kaitianite  Kushiroite  Machiite  Melliniite  Moraskoite  Rubinite  Suessite  Uakitite  Warkite  Xieite | Acfer 214 (CH3)  Suizhou (L6)  Allende (CV3)  Allende (CV3)  Norton County (Aubrite)  Norton County (Aubrite)  Carlton (Iron, IAB-sLM)  Morasko (Iron, IAB-MG)  Kota-Kota (EH3; S4)  Wedderburn (Iron, IAB-sLH)  Grant (Iron, IIIAB)  Social Circle (Iron, IVA)  Allende (CV3)  ALH 85085 (CH3)  Murchison (CM2)  NWA 1054 (Acapulcoite)  Morasko (Iron, IAB-MG)  Vigarano (CV3)  North Haig (Polymict ureilite)  Uakit (Iron, IIAB)  Murchison (CM2)  Suizhou (L6) | [Ma et al., 2017](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/102/7/1556/353610/Addibischoffite-Ca2Al6Al6O20-a-new-calcium?redirectedFrom=fulltext)  [Bindi et al., 2019](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/104/5/775/570182/Discovery-of-asimowite-the-Fe-analog-of-wadsleyite?redirectedFrom=fulltext)  [Ma et al., 2016](https://www.hou.usra.edu/meetings/lpsc2016/pdf/1704.pdf)  [Ma and Beckett 2018](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/103/12/1918/567208/Nuwaite-Ni6GeS2-and-butianite-Ni6SnS2-two-new?redirectedFrom=fulltext)  [Hålenius et al., 2018](https://pubs.geoscienceworld.org/eurjmin/article/30/5/1037/566162/IMA-Commission-on-New-Minerals-Nomenclature-and)  [Okada and Keil 1982](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/67/1-2/132/104764/Caswellsilverite-NaCrS2-a-new-mineral-in-the?redirectedFrom=fulltext)  [McCoy et al., 1994](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/79/3-4/375/42893/Chladniite-Na2CaMg7-PO4-6-A-new-mineral-from-the?redirectedFrom=fulltext)  [Karwowski et al., 2016](https://pubs.geoscienceworld.org/eurjmin/article-abstract/28/5/969/519094/Czochralskiite-Na4Ca3Mg-PO4-4-a-second-new-mineral?redirectedFrom=fulltext)  [Fuchs 1966](https://science.sciencemag.org/content/153/3732/166)  [Ma and Rubin 2019](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/104/9/1351/573345/Edscottite-Fe5C2-a-new-iron-carbide-mineral-from?redirectedFrom=fulltext)  [Olsen and Steele 2010](https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1945-5100.1997.tb01593.x)  [Isa et al., 2016](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/101/5/1217/41736/Joegoldsteinite-A-new-sulfide-mineral-MnCr2S4-from?redirectedFrom=fulltext)  [Ma 2019](https://www.hou.usra.edu/meetings/metsoc2019/pdf/6098.pdf)  [Kimura et al., 2009](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/94/10/1479/44858/Kushiroite-CaAlAlSiO6-A-new-mineral-of-the?redirectedFrom=fulltext)  [Krot et al., 2020](https://www.degruyter.com/view/j/ammin.2020.105.issue-2/am-2020-7185/am-2020-7185.xml)  [Pratesi et al., 2006](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/91/2-3/451/44609/Icosahedral-coordination-of-phosphorus-in-the?redirectedFrom=fulltext)  [Karwowski et al., ‎2015](https://pubs.geoscienceworld.org/minmag/article/79/2/387/85817/Moraskoite-Na2Mg-PO4-F-a-new-mineral-from-the)  [Ma et al., 2017](https://www.hou.usra.edu/meetings/metsoc2017/pdf/6023.pdf)  [Keil et al., 1982](https://pubs.geoscienceworld.org/msa/ammin/article-abstract/67/1-2/126/104763/Suessite-Fe3Si-a-new-mineral-in-the-North-Haig?redirectedFrom=fulltext)  [Sharygin et al., 2018](https://www.hou.usra.edu/meetings/metsoc2018/pdf/6252.pdf)  [Ma et al., 2015](https://www.hou.usra.edu/meetings/metsoc2015/pdf/5025.pdf)  [Chen et al., 2008](https://link.springer.com/article/10.1007/s11434-008-0407-1#article-info) | St. Mark’s (EH5)  Vigarano (CV3), Allende (CV3), and Efremovka (CV3)  Vigarano (CV3), Acfer 182 (CH) |

**Table 6:** Additional meteorite mineral crystallographic properties (not finished / checked)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mineral | Unit Cell | Crystal System | Hardness | Density (g/cm3) | Cleavage / Fracture |
| Addibischoffite  Asimowite  Beckettite  Butianite  Carletonmooreite  Caswellsilverite  Chladniite  Czochralskiite  Djerfisherite  Edscottite  Galileiite  Joegoldsteinite  Kaitianite  Kushiroite  Machiite  Melliniite  Moraskoite  Rubinite  Suessite  Uakitite  Warkite  Xieite | a = 10.367 Å,  b = 10.756 Å,  c = 8.895 Å;  β = 96°,  V = 739.7 Å³;  Z = 2  a = 5.748 Å,  b = 11.576 Å,  c = 8.363 Å;  V = 556.52 Å3;  Z = 8  a = 10.367 Å,  b = 10.756 Å,  c = 8.895 Å,  β = 96.0°,  V = 739.7 Å3;  Z = 2  a = 3.65 Å,  c = 18.14 Å;  V = 241.7 Å3;  Z = 2  a = 3.51 Å  a = 3.55 Å,  c = 19.5 Å  a = 14.967,  c = 42.595 Å  a = 17.9230 Å,  b = 10.7280 Å,  c = 6.7794 Å;  V = 1303.53Å3;  Z = 4  a = 11.57 Å,  b = 4.57 Å,  c = 5.06 Å;  β = 97.7 °;  V = 265.1 Å3;  Z = 4  a = 10.11 Å;  V = 1033.4 Å3;  Z = 8  a = 9.609 Å,  b = 8.652 Å,  c = 5.274 Å  a = 17.10 Å,  b = 5.03 Å,  c = 7.06 Å;  β = 107°;  V = 581 Å3;  Z = 4  a = 6.025 Å;  V = 218.71 Å3;  Z = 4  a = 5.2117 Å,  b = 13.711 Å,  c = 11.665 Å;  V = 833.6 Å3;  Z = 8  a = 12.1875 Å;  V = 1810.27 Å3;  Z = 8  V = 22.93Å3  a = 4.1328 Å;  V = 70.588 Å3;  Z = 4  a = 9.462 Å,  b = 9.562 Å,  c = 2.916 Å | Isometric    Hexagonal  Monoclinic  Cubic | 2  4.5 - 5  4 - 5  8 - 8.5  4 – 5  9 - 10 | 3.41 (calc)  7.62 (calc)  3.23 (calc)  3.017 (calc)  3.148 (calc)  7.62 (calc)  4.27 (calc)  7.88 (calc)  2.925g/cm-3 (calc)  3.63 (calc)  6.128 (calc) | Irregular  Uneven  Irregular, Conchoidal  None |

**Table 7:** Additional meteorite mineral optical properties (not started)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mineral | Color | Lustre | Diaphaneity | Optics |
| Addibischoffite  Asimowite  Beckettite  Butianite  Carletonmooreite Caswellsilverite  Chladniite  Czochralskiite  Djerfisherite  Edscottite  Galileiite  Joegoldsteinite  Kaitianite  Kushiroite  Machiite  Melliniite  Moraskoite  Rubinite  Suessite  Uakitite  Warkite  Xieite |  |  |  |  |

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