**Crystal Data**: Hexagonal. *Point Group*: 3*m*. As grains with roughly rectangular outlines to 100 $\mu$m within pyrite.

**Physical Properties**: *Cleavage*: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = 2.5-3
D(meas.) = n.d. D(calc.) = 7.54

**Optical Properties**: Opaque. *Color*: Silver gray in reflected light. *Streak*: Black. *Luster*: Metallic. *Optical Class*: *Anisotropism*: Weak. *Bireflectance*: Weak. Non-pleochroic. No internal reflections. $R_1$-$R_2$: (470) 38.5-41.8 (27.7-30.2)$_{oil}$, (546) 38.8-41.5 (28.0-29.0)$_{oil}$, (589) 38.4-41.1 (28.2-28.4)$_{oil}$, (650) 38.1-40.7 (28.3-28.3)$_{oil}$

**Cell Data**: *Space Group: P*3*m*1. $a$ = 4.220(1) $c$ = 27.02(4) Z = 1

**X-Ray Diffraction Pattern**: Fudotaki deposit, Hitachi mine, Hitachi, Ibaraki Prefecture, Japan.
3.039 (100), 3.391 (59), 2.114 (56), 3.541 (35), 1.793 (18), 1.735 (18), 2.177 (14)

**Chemistry**:

| | (1) |
|---|---|
| Pb | 52.01 |
| Bi | 23.06 |
| Fe | 0.69 |
| Sb | 0.17 |
| Te | 13.74 |
| S | 9.71 |
| Se | 0.54 |
| Total | 100.04 |

(1) Fudotaki deposit, Hitachi mine, Hitachi, Ibaraki Prefecture, Japan; average electron microprobe analysis; corresponds to $(Pb_{4.75}Fe_{0.23})_{\Sigma=4.98}(Bi_{2.09}Sb_{0.03})_{\Sigma=2.12}Te_{2.04}(S_{5.73}Se_{0.13})_{\Sigma=5.86}$.

**Polymorphism & Series**: Possible homologous series among $Bi_2Te_2S \cdot nPbS$ minerals.

**Mineral Group**: Tetradymite group.

**Occurrence**: From a volcanogenic massive sulfide deposit (Cu-Zn with small amounts of Pb). The sulfide deposit was metamorphosed to lower epidote-amphibole facies.

**Association**: Pyrite, chalcopyrite, sphalerite, pyrrhotite, galena, marcasite.

**Distribution**: From the Fudotaki deposit, Hitachi mine, Hitachi, Ibaraki Prefecture, Japan.

**Name**: For the mine where the studied samples were collected.

**Type Material**: National Museum of Nature and Science, Tokyo, Japan (NSMM45821).

**References**: (1) Kuribayashi, T., T. Nagase, T. Nozaki, J. Ishibashi, K. Shimada, M. Shimizu, and K. Momma (2019) Hitachiite, $Pb_5Bi_2Te_2S_6$, a new mineral from the Hitachi mine, Ibaraki Prefecture, Japan. Mineral. Mag., 83, 733-739.