Smrkovecite  \( \text{Bi}_2\text{O(PO}_4\text{)}\text{(OH)} \)

\( \text{Crystal Data:} \) Monoclinic. \( \text{Point Group:} \) 2/\( m \). As crystals, to 0.1 mm, in spherical and mammillary aggregates and crusts. \( \text{Twinning:} \) According to an unknown law, common.

\( \text{Physical Properties:} \) Cleavage: On \{010\}, indistinct. Fracture: Subconchoidal. Hardness = 4–5  \( \text{D(meas.)} = \text{n.d.} \)  \( \text{D(calc.)} = 6.69 \)

\( \text{Optical Properties:} \) Transparent to translucent. Color: White to pale yellow, may be zoned. Luster: Vitreous to adamantine.

Optical Class: Biaxial (+). Dispersion: \( r > v \), distinct. \( \alpha = 2.05(6) \)  \( \beta = 2.06(7) \)  \( \gamma = 2.09(6) \)  2\( V\)(meas.) = 58.0(6)°  2\( V\)(calc.) = 61°

\( \text{Cell Data:} \) Space Group: \([P2_1/c]\) (by analogy to atelestite).  \( a = 6.954(2) \)  \( b = 7.494(4) \)  \( c = 10.869(6) \)  \( \beta = 107.00(6)° \)  \( Z = 4 \)

\( \text{X-ray Powder Pattern:} \) Smrkovec, Czech Republic.
3.254 (100), 3.271 (51), 3.145 (34), 2.727 (29), 4.268 (17), 1.885 (16), 1.885 (16), 2.544 (14)

\( \text{Chemistry:} \)

\[
\begin{array}{ccc}
P_2\text{O}_5 & 12.74 & 13.00 \\
\text{As}_2\text{O}_5 & 0.17 & \\
\text{V}_2\text{O}_5 & 0.03 & \\
\text{SiO}_2 & 0.02 & \\
\text{Bi}_2\text{O}_3 & 85.16 & 85.35 \\
\text{H}_2\text{O} & [1.65] & 1.65 \\
\hline
\text{Total} & [99.77] & 100.00 \\
\end{array}
\]

(1) Smrkovec, Czech Republic; by electron microprobe, average of five analyses, \( \text{H}_2\text{O} \) calculated for stoichiometry; corresponds to \( \text{Bi}_{2.01}\text{O}_{1.00}[(\text{PO}_4)_{0.98}\text{(AsO}_4)_{0.01}]_{\Sigma=0.99}\text{(OH)}_{1.00} \).

(2) \( \text{Bi}_2\text{O(PO}_4\text{)}\text{(OH)} \).

\( \text{Occurrence:} \) A rare secondary mineral formed by weathering, found in old mine dumps at an Ag–Bi–As–U deposit.

\( \text{Association:} \) Quartz, atelestite, bismutite, bismutoferrite, eulytite, metatorbernite, petitjeanite, preisingerite, pucherite, retgersite, sillinite.

\( \text{Distribution:} \) From near Smrkovec, Slavkovský Les Mountains, about 10 km north-northeast of Mariánské Lázně (Marienbad), Czech Republic.

\( \text{Name:} \) For its first-noted occurrence near Smrkovec, Czech Republic.

\( \text{Type Material:} \) National Museum, Prague, Czech Republic, P1N84596.