

substance: FeAsS
property: physical properties

energy gap

$E_{g,th}$	0.3...0.5 eV	from $\log \rho \propto E_g/2kT$ measured on minerals and sintered samples	59H
	0.06 eV	from resistivity measurements at 180...470 K on a mineral sample	62W

far infrared absorption: for spectrum in the range 60...550 cm^{-1} , see [83L].

decomposition temperature

T_{dec}	$\approx 970 \text{ K (?)}$	62W
	$< 560...970 \text{ K}$	65K

$\text{FeAs}_{1+x}\text{S}_{1-x}$: According to published analyses the composition of natural arsenopyrites varies from $\text{FeAs}_{1.2}\text{S}_{0.8}$ to $\text{FeAs}_{0.9}\text{S}_{1.1}$, 2/3 of the minerals being sulfur-rich, corresponding to a lower growth temperature. In pure Fe arsenopyrites the As to S ratio, however, appears to be closer to 1 [65K].

$\text{Fe}_{1-x}\text{Co}_x\text{AsS}$: monoclinic structure up to $x = 0.25$ [65K].

$\text{Fe}_{1-x}\text{Ni}_x\text{AsS}$: monoclinic structure up to $x = 0.15$ [65K].

For structure, chemical bond and comparative tables on crystallographic and physical properties of transition metal-V-VI compounds, see documents , , , .

References:

- 59H Hulliger, F.: *Helv. Phys. Acta* 32 (1959) 615.
- 62W Wintenberger, M.: *Bull. Soc. Fr. Minéral. Cristallogr.* 85 (1962) 107.
- 65K Klemm, D. D.: *Neues Jahrb. Mineral. Abhandl.*, 103 (1965) 205.
- 83L Lutz, H. D., Schneider, O., Kliche, G.: *Phys. Chem. Minerals* 9 (1983) 109.