

substance: MnP₄

property: physical properties

monoclinic modification (8L – MnP₄)

energy gap

E_g	0.28 eV	given as $E_A = 0.14$ eV, from $\log \rho \propto E_A/kT$	75J
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resistivity

ρ	30 Ω cm	RT	four-probe technique, crystals prepared at 1500...1700 K and 30...35 kbar, unknown orientation	75J
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triclinic 6-layer modification (6L – MnP₄)

energy gap

E_g	0.54 eV	given as $E_A = 0.27$ eV, from $\log \rho \propto E_A/kT$ between 300 and 420 K, crystals from tin flux	80J
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triclinic 2-layer modification (2L – MnP₄)

energy gap

E_g	> 0.08 eV	intrinsic conductivity range not reached at 420 K, crystals prepared by a transport reaction with iodine	80J
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Crystals of all three MnP₄ modifications are shiny black, stable in air and in nonoxidizing acids; diamagnetic at room temperature [75J, 80J].

For structure, chemical bond and comparative tables of crystallographic properties of transition metal tetraphosphides, see documents , , .

References:

- 75J Jeitschko, W., Donohue, P. C.: Acta Crystallogr. B31 (1975) 574.
80J Jeitschko, W., Rühl, R., Krieger, U., Heiden, C.: Mat. Res. Bull. 15 (1980) 1755.