

substance: RuP₄

property: physical properties

RuP₄ (r) (CdP₄-type modification)

energy gap

E_g	0.38 eV		given as $E_A = 0.19$ eV, from $\log \rho \propto E_A/kT$, $T = 300...500$ K	82F
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electrical resistivity

ρ	800 Ω cm	RT	pressed pellets of microcrystalline powder from tin flux; two-probe method (ρ estimated to be correct to within a factor of 3). Data from graphical representation.	82F
	125 Ω cm	$T = 400$ K		
	45 Ω cm	$T = 500$ K		

magnetic susceptibility

χ_m	$-95.5 \cdot 10^{-6}$ $\text{cm}^3 \text{mol}^{-1}$	RT	Faraday balance; no dependence on field strength; χ in CGS-emu.	82F
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stability range

$T < 900$ K, converts irreversibly into the high-temperature modification by annealing at 1073 K [82F].

RuP₄ (h)

energy gap

E_g	0.64 eV		given as $E_A = 0.32$ eV, from $\log \rho \propto E_A/kT$, $T = 400...550$ K	82F
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electrical resistivity

ρ	$\approx 5 \cdot 10^5$ Ω cm	RT	pressed powder from tin flux; two-probe method (ρ estimated to be correct to within a factor of 3)	82F
	$\approx 1 \cdot 10^5$ Ω cm	$T = 400$ K		

magnetic susceptibility

χ_m	$-93.9 \cdot 10^{-6}$ $\text{cm}^3 \text{mol}^{-1}$	RT	Faraday balance, no field dependence; χ in CGS-emu	82F
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For structure, chemical bond and comparative tables of crystallographic properties of transition metal tetraphosphides, see documents , , .

References:

82F Flörke, U., Jeitschko, W.: J. Less-Common Met. 86 (1982) 247.