

substance: Gd₂O₃

property: crystal structure, physical properties

Gd₂O₃ [88L]

structure: monoclinic

activation energy for conductivity

E_A	2.44 eV	$T = 800...1200$ K,	energy band diagram: Fig. 1
		val.-cond. band	

conductivity

σ	$8.75 \cdot 10^2 \Omega^{-1}m^{-1}$	p-type
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mobility

μ_p	$0.076 \text{ cm}^2V^{-1}s^{-1}$	$T = 900$ K
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μ_n	$0.046 \text{ cm}^2V^{-1}s^{-1}$	$T = 900$ K
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structure: cubic

activation energy for conductivity

E_A	2.64 eV	$T = 800...1200$ K,	energy band diagram: Fig. 1
		val.-cond. band	

conductivity

σ	$4.60 \cdot 10^2 \Omega^{-1}m^{-1}$	p-type
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mobility

μ_p	$0.126 \text{ cm}^2V^{-1}s^{-1}$	$T = 900$ K
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μ_n	$0.117 \text{ cm}^2V^{-1}s^{-1}$	$T = 900$ K
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References:

88L Lal, H.B., Kanchan Gaur: J. Mater. Sci. 23 (1988) 919.

Fig. 1.

Energy band diagram for rare-earth sesquioxides [88L].

