

General information**Typical uses**

Wide-band filters and pulse applications.

Composition overview**Compositional summary**

Manganese-Zinc ferrite

Price

Price	* 3,59	-	3,94	BRL/kg
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Mechanical properties

Young's modulus	124		GPa	
Yield strength (elastic limit)	48	-	50	MPa
Tensile strength	48	-	50	MPa
Elongation	0,04		% strain	
Compressive strength	* 400	-	420	MPa
Flexural modulus	124		GPa	
Shape factor	15			
Hardness - Vickers	650		HV	
Elastic stored energy (springs)	9,29	-	10,1	kJ/m ³

Thermal properties

Thermal conductivity	4	-	4,4	W/m.°C
Specific heat capacity	1,05e3			J/kg.°C
Thermal expansion coefficient	8	-	10	µstrain/°C
Thermal shock resistance	39,4	-	49,5	°C
Thermal distortion resistance	* 0,416	-	0,529	MW/m

Electrical properties

Electrical resistivity	2,5e7		µohm.cm
Electrical conductivity	6,9e-6		%IACS

Magnetic properties

Magnetic type	Magnetic			
Remanent induction Br	0,15		T	
Saturation induction Bs	0,37		T	
Coercive force Hc	2,4		A/m	
Maximum permeability	1,5e4			
Curie temperature	120	-	125	°C

Optical, aesthetic and acoustic properties

Transparency	Opaque
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Critical materials risk

Contains >5wt% critical elements?	No
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Durability

UV radiation (sunlight)	Excellent
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Primary production energy, CO2 and water

Embodied energy, primary production	38,1	-	42,1	MJ/kg
Sources 29.1 MJ/kg (Ecoinvent v2.2); 51 MJ/kg (Kemna et al. 2005)				
CO2 footprint, primary production	2,74	-	3,02	kg/kg
Sources 1.51 kg/kg (Ecoinvent v2.2); 4.24 kg/kg (Kemna et al. 2005)				
Water usage	* 16,4	-	18,1	l/kg

Recycling and end of life

Recycle	✗	
Recycle fraction in current supply	0,1	%
Downcycle	✓	
Combust for energy recovery	✗	
Landfill	✓	
Biodegrade	✗	

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Mechanical properties

Young's modulus	124	GPa	
Yield strength (elastic limit)	48	MPa	
Tensile strength	48	MPa	
Elongation	0,04	% strain	
Compressive strength	* 410	- 415	MPa
Flexural modulus	124	GPa	
Shape factor	15		
Hardness - Vickers	650	HV	
Elastic stored energy (springs)	9,29	kJ/m^3	

Thermal properties

Thermal conductivity	4,2	W/m.°C	
Specific heat capacity	1,05e3	J/kg.°C	
Thermal expansion coefficient	8	- 10	μstrain/°C
Thermal shock resistance	38,7	- 48,4	°C
Thermal distortion resistance	* 0,42	- 0,525	MW/m

Electrical properties

Electrical resistivity	4e7	μohm.cm
Electrical conductivity	4,31e-6	%IACS

Magnetic properties

Magnetic type	Magnetic		
Remanent induction Br	0,14	T	
Saturation induction Bs	0,38	T	
Coercive force Hc	3,2	A/m	
Maximum permeability	1e4		
Curie temperature	120	- 130	°C

Optical, aesthetic and acoustic properties

Transparency	Opaque
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Critical materials risk

Contains >5wt% critical elements?	No
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Durability

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Primary production energy, CO2 and water

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Water usage * 16,4 - 18,1 l/kg

Recycling and end of life

Recycle	✗
Recycle fraction in current supply	0,1 %
Downcycle	✓
Combust for energy recovery	✗
Landfill	✓
Biodegrade	✗

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Typical uses

Applications in which high permeability and flux density and low power loss are required.

Composition overview

Compositional summary

Manganese-Zinc ferrite

Form	Other
Material family	Ceramic (technical)
Base material	Oxide

Price

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Mechanical properties

Young's modulus	124	GPa	
Yield strength (elastic limit)	48	MPa	
Tensile strength	48	MPa	
Elongation	0,04	% strain	
Compressive strength	* 410	- 415	MPa
Flexural modulus	124	GPa	
Shape factor	15		
Hardness - Vickers	650	HV	
Elastic stored energy (springs)	9,29	kJ/m^3	

Thermal properties

Thermal conductivity	4,2	W/m.°C	
Specific heat capacity	1,05e3	J/kg.°C	
Thermal expansion coefficient	8	- 10	μstrain/°C
Thermal shock resistance	38,7	- 48,4	°C
Thermal distortion resistance	* 0,42	- 0,525	MW/m

Electrical properties

Electrical resistivity	1e8	μohm.cm
Electrical conductivity	1,72e-6	%IACS

Magnetic properties

Magnetic type	Magnetic		
Remanent induction Br	0,1	T	
Saturation induction Bs	0,45	T	
Coercive force Hc	5,6	A/m	
Maximum permeability	5e3		
Curie temperature	165	- 170	°C

Optical, aesthetic and acoustic properties

Transparency	Opaque
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Critical materials risk

Contains >5wt% critical elements?	No
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Durability

UV radiation (sunlight)	Excellent
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