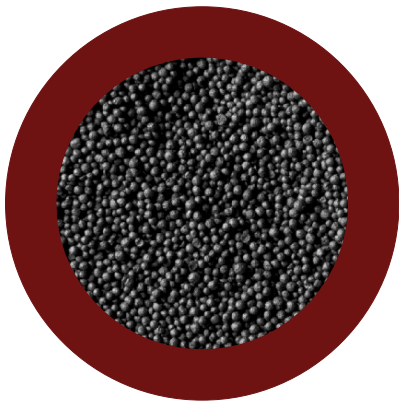




CASTBALL

SUPERIOR PERFORMANCE SPHERICAL CERAMIC SAND TO
PRODUCE MOLDS & CORES FOR METALCASTING



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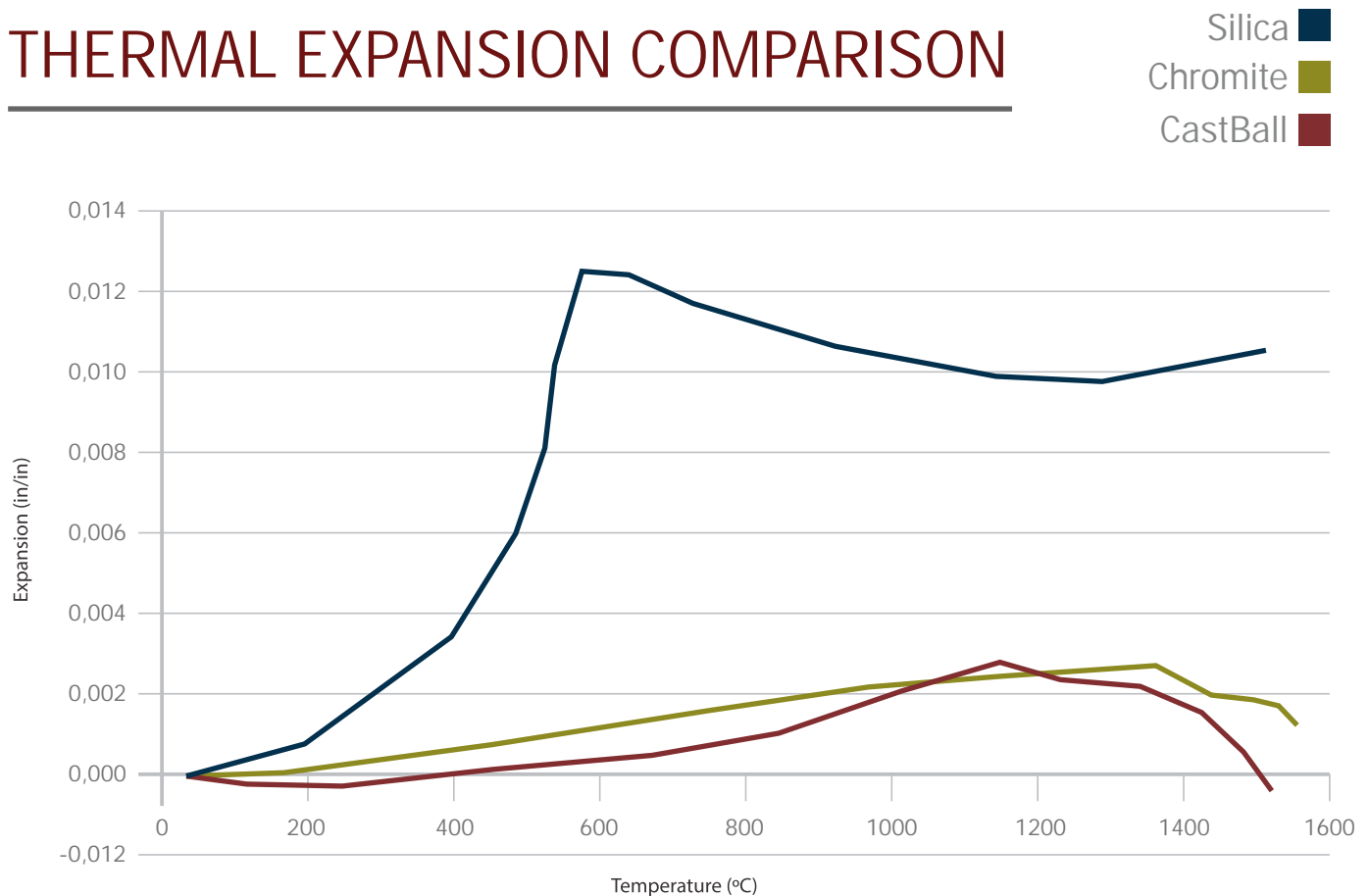
CASTBALL

Manufactured and distributed by
Curimbaba Group.

CASTBALL unique properties allow exceptional benefits in the cores and mold process for metal casting industries reducing costs, improving quality, increasing production, improving health-safety & sustainability environment.

- Low thermal expansion eliminating veining defects.
- Granulometric size distribution customized to avoid penetration flaws.
- High permeability spherical material, reducing or eliminating gas defects.
- Inert material, avoiding undesirable reactions with different metals & alloys, resins and additives used in the casting process.
- High strength and thermal stability to cast complex geometric and thin parts.
- Low deterioration effect in the reclaimed sand process, chemical properties still as the original material producing again same high quality casting.
- Non crystalline silica, eliminate health hazards associated with crystalline silica exposure, meeting the new OSHA silica PEL regulations.

THERMAL EXPANSION COMPARISON



PHYSICAL AND THERMAL PROPERTIES COMPARISON

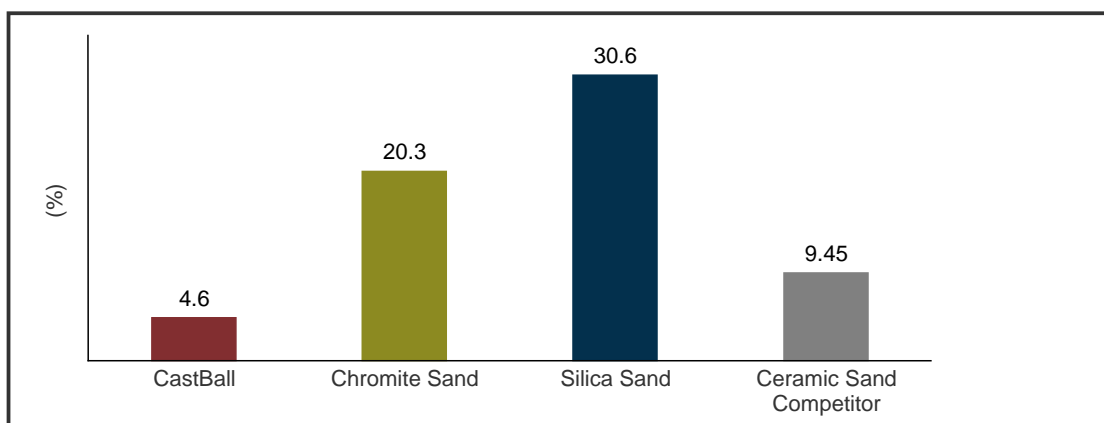
		CASTBALL	Chromite Sand	Silica Sand
Bulk Density	g/cm³	2.00	2.60	1.59
Bulk Density	lb/ft³	124.9	162.3	99.3
Specific Heat @ 1,100 °C	J/g.°C	0.4093	-	-
	cal/g.°C	0.0978	-	-
Thermal Conductivity @ 1,100 °C	W/m.°C	0.255	-	-
Thermal Expansion @ 1,100 °C	in/in	0.002533	0.002336	0.010058
	%LC	0.253	0.234	1.006

SIEVE ANALYSIS AND SHAPE

		CASTBALL							
Sieve No	Microns	AFS 40	AFS 45	AFS 50	AFS 55	AFS 65	AFS 75	AFS 85	
20	850	-	-	-	-	-	-	-	
30	600	2	-	-	-	-	-	-	
40	425	28	21	1	-	-	-	-	
50	300	55	34	25	16	8	2	-	
70	212	12	29	60	54	39	15	13	
100	150	3	13	13	25	44	59	44	
140	106	-	2	1	5	7	20	29	
200	75	-	1	-	-	1	4	14	
270	53	-	-	-	-	1	-	-	
Fines		1	-	-	-	-	-	-	
Grain Fineness number GFN		41.5	46.9	50.4	55.9	63.9	75.2	85.9	
Base Permeability		281	227	162	136	104	-	-	
Grains Format		Spherical					Semi Spherical		

GRAIN FINENESS NUMBER INCREASE AFTER CRUSH @ 527,7 kgf/cm²

$[(\text{Final GFN} - \text{Initial GFN}) / \text{Initial GFN}] \times 100$



CHEMICAL AND MINERALOGICAL ANALYSIS

		CASTBALL	
Chemical Composition, (%)	Al ₂ O ₃		74.0
	Fe ₂ O ₃		14.5
	SiO ₂		6.0
	TiO ₂		1.8
	Other		3.7
Mineralogical Analysis, (%)	Corindon-αAl ₂ O ₃		90.7
	Hematite-αFe ₂ O ₃		5.3
	Maguemite-γFe ₂ O ₃		2.8
	Pseudobrookite-Fe ₂ O ₃		1.2



OTHER PROPERTIES

		CASTBALL	
Loss on ignition	%		<0.10
Moisture	%		<0.10
pH	-		7.0
Acid Demand Value	-		1.05



MOLDS & CORES APPLICATIONS USING **CASTBALL**

- Aluminum automotive engine parts
- Stainless steel marine components
- Cast iron valves
- Alloys for heavy engine parts
- Carbon steel turbines
- Non ferrous alloys aircraft parts
- Special non ferrous alloys for complex & thin walls components

