

CARBOBEAD HTM

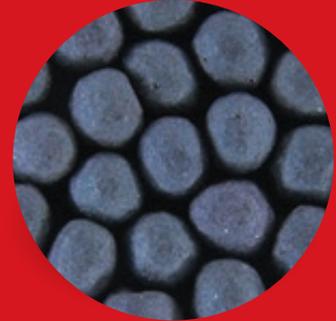
High-performance ceramic heat transfer media to enhance efficiencies in renewable energy systems

Features and benefits

- High thermal absorptance
- Superior durability
- High operating temperature >700°C
- Low metal erosion
- Chemically inert and non-hazardous
- Low emissivity
- Proudly made in the USA

Applications

- Concentrated Solar Power (CSP) particles
- Heat storage media
- Waste heat recovery media
- Heat transfer media



Media engineered to absorb, store and deliver heat

The CARBOBEAD® HTM family of high-performance ceramic media technologies is engineered to provide a unique combination of consistent thermal, physical and chemical properties. These characteristics provide economic and performance advantages in a wide variety of heat transfer and storage applications as compared to sand and other competing synthetic media types.

Physical properties

Density and thermal properties

Typical properties	LD	MAX LD	ID	HD	MAX HD
Roundness	0.9	0.9	0.9	0.9	0.9
Sphericity	0.9	0.9	0.9	0.9	0.9
Bulk density (lb/ft ³)	97	103	119	131	134
(g/cm ³)	1.55	1.65	1.9	2.1	2.15
Absolute density (g/cm ³)	2.7	2.8	3.3	3.6	3.6
Vicker's hardness	816	1065	1120	1248	1431
Solar absorptance	0.75		0.90	0.93	
Thermal emittance	0.70		0.76	0.86	

Thermal conductivity	LD	ID	HD
Ambient	0.27	0.28	0.32
400	0.44	0.43	0.50
800	0.61	0.57	0.77
1200	0.78	0.70	0.97

Heat capacity	LD	ID	HD
Ambient	0.16	0.15	0.15
400	0.18	0.18	0.18
800	0.20	0.21	0.20
1200	0.25	0.30	0.28

*Temperatures listed in °C

CARBOBEAD HTM

High-performance ceramic heat transfer media to enhance efficiencies in renewable energy systems

Physical properties, *continued*

Typical sieve analysis
(weight % retained)

Mean particle diameter in Micrometers	LD					ID							
	1400	1000	750	500	350	1350	950	700	450	300	275	225	200
Sieve size (mesh)	Microns												
-8+12	-2360+1700	4				2							
-12+16	-1700+1180	91	5			82	3						
-16+20	-1180+850	5	93			16	74	4					
-20+30	-850+600		2	7			23	75	3				
-30+40	-600+425			90	4			21	68	3			
-40+50	-425+300			3	90	5			28	70	37	22	
-50+70	-300+212				6	72			1	26	45	38	35
-70+100	-212+150					22				1	16	32	43
-100+140	-150+106					1					2	8	21
-140+200	-106+75												1

Mean particle diameter in Micrometers	MAX LD			HD				MAX HD			
	950	800	600	1300	950	700	500	350	950	800	600
Sieve size (mesh)	Microns										
-8+12	-2360+1700			1							
-12+16	-1700+1180			70	3						
-16+20	-1180+850	100		29	85	4			100		
-20+30	-850+600		100		12	85	5			100	
-30+40	-600+425			100		11	87				100
-40+50	-425+300						8	73			
-50+70	-300+212							26			
-70+100	-212+150							1			
-100+140	-150+106										
-140+200	-106+75										

Chemical composition

(weight %)	LD	ID	HD
Al ₂ O ₃	40-50	70-80	75-85
SiO ₂	40-50	10-20	7-12
Fe ₂ O ₃	<2	5-10	7-12
TiO ₂	1-5	1-5	1-5

Talk to CARBO to find out how we can help increase efficiency in your energy storage systems.

+1 800 551 3247

carboceramics.com

CARBO

 Proudly Made in the USA