

ACCUCAST HT

Intermediate-density, high-temperature ceramic casting media

Features

- High refractoriness
- Low linear thermal expansion
- Spherical shape with high hardness
- High permeability
- Chemically inert and non-hazardous, contains no crystalline silica

Benefits

- Withstands high temperature pours of various metal castings
- Increases dimensional precision and ability to pour complex parts
- Reduces expansion-related defects
- Reduces casting cleaning times
- Increases production, reduces particle breakdown and supports recycle use
- Reduces gas related defects and associated costs
- Lowers environmental, safety and health concerns

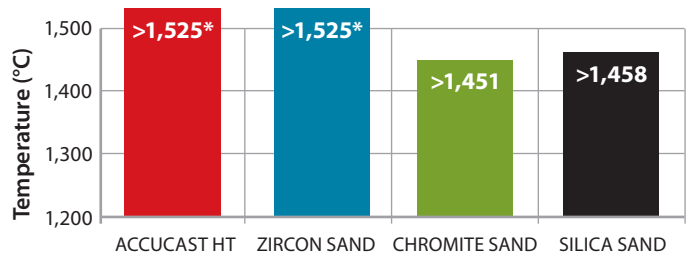


Superior performance and value for metal casting

ACCUCAST® HT ceramic media is produced with a unique combination of consistent thermal, physical and chemical properties that provide economic and performance advantages compared to various sand products used for metal casting production.

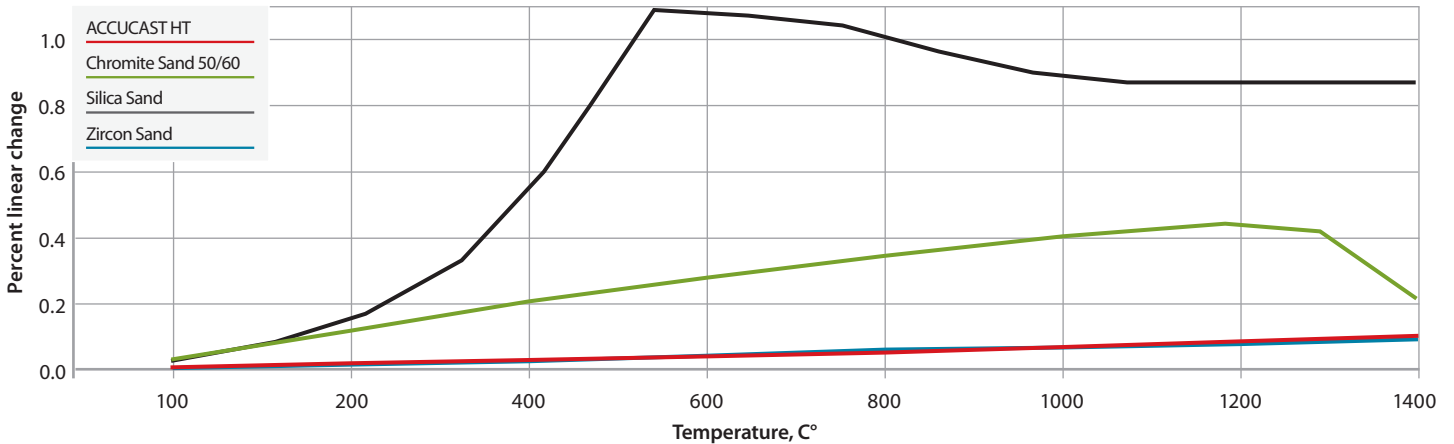
The ACCUCAST HT product is engineered to withstand high pouring temperatures and long-term heat loads that come with making very large steel and iron castings while minimizing defects.

Product sintering temperature comparison



*Exceeds upper test limit

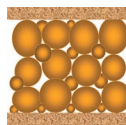
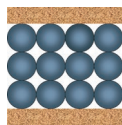
Thermal expansion product comparison



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Particle size and permeability properties

Ceramic media, designed for uniform size and shape, maximizes porosity and enhances permeability and strength to resist gas defects and pellet breakdown.



Broadly sieved and irregularly shaped media, such as naturally occurring sands, pack more tightly, resulting in reduced porosity and permeability.

Physical and thermal properties (@1100°C)

Ceramic media produces a low linear thermal expansion that avoids the occurrence of expansion-related defects such as veining, penetration and burn-on and their associated costs to clean, correct or scrap the part. The low linear expansion properties increase the dimensional accuracy of the casting and provide the capability to cast more complex and thin wall parts.

| | HT 50 | HT 70 | HT 80 | Zircon | Chromite | Silica |
|--|--------|--------|--------|--------|----------|--------|
| GFN | 49 | 68 | 85 | 110 | 50 | 60 |
| Loose BD (lb/ft3) | 107 | 109 | 108 | 168 | 163 | 100 |
| Packed BD (lb/ft3) | 117 | 119 | 118 | 189 | 183 | 110 |
| Apparent density (g/cc) | 3.11 | 3.21 | 3.24 | 4.65 | 4.51 | 2.65 |
| Permeability | 168 | 85 | 56 | 37 | 98 | 63 |
| Thermal expansion (PLE) | 0.075 | 0.075 | 0.075 | 0.07 | 0.43 | 0.87 |
| Coefficient of expansion (1E-6 in/in-°C) | 0.70 | 0.70 | 0.70 | 0.68 | 3.99 | 8.14 |
| Thermal conductivity (W/m-°C) | 0.58 | 0.58 | 0.58 | 0.63 | 0.94 | 1.14 |
| Heat capacity (cal/g-°C) | 0.23 | 0.23 | 0.23 | 0.23 | 0.27 | 0.26 |
| Thermal diffusivity (cm2/s) | 0.0034 | 0.0034 | 0.0034 | 0.0022 | 0.0029 | 0.0060 |
| Heat diffusivity 106(W2s)/(m4°C2) | 0.998 | 0.998 | 0.998 | 1.79 | 3.06 | 2.17 |
| Square root of heat diffusivity (Ws1/2)/(m2°C) | 999 | 999 | 999 | 1,340 | 1,750 | 1,470 |
| Sintering temperature (°C) | 1,525 | 1,525 | 1,525 | 1,525 | 1,451 | 1,458 |

Typical sizing (%)

| Sieve No. | Microns | HT 50 | HT 70 | HT 80 | Zircon | Chromite | Silica |
|-----------|---------|-------|-------|-------|--------|----------|--------|
| 20 | 850 | | | | | | |
| 30 | 600 | | | | | 3 | 2 |
| 40 | 425 | | | | | 17 | 10 |
| 50 | 300 | 42 | | | 1 | 27 | 25 |
| 70 | 212 | 44 | 35 | 9 | 10 | 27 | 30 |
| 100 | 150 | 14 | 46 | 40 | 37 | 15 | 24 |
| 140 | 106 | | 19 | 48 | 46 | 9 | 8 |
| 200 | 75 | | | 3 | 6 | 2 | 1 |
| AFS GFN | | 49 | 68 | 85 | 110 | 50 | 60 |

Chemical composition (weight %)

| | Al ₂ O ₃ | SiO ₂ | TiO ₂ | Fe ₂ O ₃ | LOI (%) | Moisture (%) | pH | ADV@pH5 | ADV@pH7 |
|-------------|--------------------------------|------------------|------------------|--------------------------------|---------|--------------|-----|---------|---------|
| ACCUCAST HT | 72-80 | 9-21 | 1-4 | 1-5 | 0.1 | 0.02 | 7.0 | 1.0 | 0.6 |

ACCUCAST media is chemically inert and has proven compatible with various metals, resins and additives used in metal casting processes. Unlike zircon (radiation), chromite (chrome) and silica (quartz) sands, ACCUCAST poses no hazards and lowers environmental, safety, and health concerns.

Talk to CARBO to find out how we can help you enhance your production.

+1 800 551 3247
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