



Material Data Sheet

With over 15 years of experience in the manufacture of ceramic cores, DAI Ceramics, Inc. is at the cutting edge of ceramic core technology.

DAI has significant experience in the manufacture of complex geometry cores used in the casting of equiax and high performance DS and SC gas turbine engine components for both aerospace and industrial applications.

As a leading provider of ceramic cores, DAI maintains an extensive quality control and R&D lab to ensure it's materials meet specification and to assist with development of tomorrow's high performance core materials.

The information and data presented herein are typical or average values and are not a guarantee of maximum or minimum values. Applications specifically suggested for material described herein are made solely for the purpose of illustration to enable the reader to make his own evaluation and are not intended as warranties, either express or implied, of fitness for these or other purposes. There is no representation that the recipient of this literature will receive updated editions as they become available.

D-400 Core Material

Application:

High zircon core with very good high temperature stability. Used for equiax castings where metal reaction is a concern. Material is suitable for use with stainless steels and other alloy steels.

Material Composition (%)

Silica (SiO ₂)	40.0
Zircon (ZrSiO ₄)	57.5
Alumina (Al ₂ O ₃)	2.5

Trace Element Analysis

<u>Element</u>	<u>Typical ppm</u>
Lead (Pb)	< 10
Bismuth (Bi)	< 0.2
Silver (Ag)	< 10
Antimony (Sb)	< 5
Zinc (Zn)	25
Tin (Sn)	< 1
Iron (Fe)	425

% Cristobalite

As fired	8
After 60 min at 2300°F	10

% Process Shrinkage (Mold to fired)

General	1.2
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Modulus of Rupture (MOR)

Ceramic only @ RT	1900 psi
Impregnated ceramic @ RT	4900 psi

% Thermal Expansion

@ 1000°C	0.345
@ 1260°C	0.385

Physical Properties

Bulk density	2.14
Apparent density	3.15
Porosity	32.00

Creep/Sag Test

After 60 min @ 2300°F (in.)	0.004
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