

SR[®]-90, SR-99, SR-99 LS Firebrick

Datasheet Code US: 1-14-1

Updated: 02/2016

Product Description

The SR-90, SR-99, and SR-99LS firebricks are premium high alumina firebricks that are capable of handling very difficult applications. These premium bricks are very dense and have excellent load bearing strength at temperatures above 3000°F (1649°C) and they provide excellent thermal shock resistance. The extremely low silica content of both products make them ideal for hydrogen atmospheres.

Features

- 90% and 99% alumina firebrick
- Low SiO₂ contents for use in hydrogen atmospheres
- Very high service temperature (>3000°F)
- Excellent high temperature stability

Applications

- Sulphur recovery units
- Incinerators
- Secondary ammonia reformers



Availability

Product	Straights, standard size, in
SR-90	9 x 4.5 x 2.5
SR-99	9 x 4.5 x 3
SR-99 LS	

IFB and Firebrick Product Name	SR-90	SR-99	SR-99LS
Material Class	Crystalline Silica	No Class required GHS	No Class required GHS
Physical Properties			
Color	white	white	white
Hot Face use Temperature, °F	3100	3200	3200
Hot Face use Temperature, °C	1704	1760	1760
Melting Temperature, °F	3480	3660	3660
Melting Temperature, °C	1915	2016	2016
Porosity, ASTM C 20, %	18	17	20
Density, ASTM C 134, pcf			
fired	176	192	192
lb/9 in straight	10.6	11.3	-
Density, ASTM C 134, kg/m ³			
fired	2821	3091	3091
kg/229 mm straight	4.8	0.08	-

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IFB and Firebrick Product Name	SR-90	SR-99	SR-99LS
Modulus of Rupture, MOR, ASTM C 133, psi			
ambient	1800	2800	3200
2000°F	2500	1900	-
2300°F	2200	1600	2000
2600°F	1600	800	800
2800°F	1300	650	-
Modulus of Rupture, MOR, ASTM C 133, MPa			
ambient	12.4	19.3	22.1
1093°C	17.2	20	-
1260°C	15.2	11	13.8
1427°C	11.0	5.5	5.5
1538°C	9.0	4.5	-
Cold crushing strength, CCS, ASTM C 133, psi			
ambient	9000	10000	9000
Cold crushing strength, CCS, ASTM C 133, MPa			
ambient	62.1	69.0	62.1
Deformation under hot load, ASTM C 16, 10 psi (0.07 MPa), %			
1.5 hrs @ 2640°F (1449°C)	0 to 0.1	0 to 0.3	-
1.5 hrs @ 2800°F (1538°C)	-0.2 to 0.2	0 to 0.3	-
1.5 hrs @ 3000°F (1649°C)	0 to 0.5	-	-
1.5 hrs @ 3200°F (1760°C)	0 to 1.0	-	-
150 hrs @ 3200°F (1760°C)	<0.25	-	-
Permanent Linear Shrinkage, ASTM C 210, 24 hours, %			
5 hrs @ 3200°F (1760°C)	1.5	-	-
24 hrs @ 3200°F (1760°C)	-	-0.3	-
Chemical Analysis, % weight basis after firing			
Alumina, Al ₂ O ₃	90.4	99.2	99.5
Silica, SiO ₂	9.2	0.4	0.1
Ferric Oxide, Fe ₂ O ₃	0.1	0.1	trace
Titanium Oxide, TiO ₂	trace	trace	trace
Calcium Oxide, CaO	0.1	0.1	0.1
Magnesium Oxide, MgO	0.1	0.1	trace
Alkalies as Na ₂ O and K ₂ O	0.2	0.2	0.2
Thermal Conductivity, BTU•in/hr•ft², per ASTM C201			
Mean temperature @500°F	24.6	38.9	38.9
1000°F	21.5	30.7	30.7
1500°F	19.4	25.5	25.5
2000°F	17.7	21.6	21.6
2500°F	16.5	19.1	19.1
Thermal Conductivity, W/m•K, per ASTM C201			
Mean temperature @260°C	3.55	5.61	5.61
538°C	3.1	4.42	4.42
815°C	2.8	3.68	3.68
1093°C	2.55	3.11	3.11
1371°C	2.38	2.75	2.75

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Morgan Advanced Materials office to obtain current information.