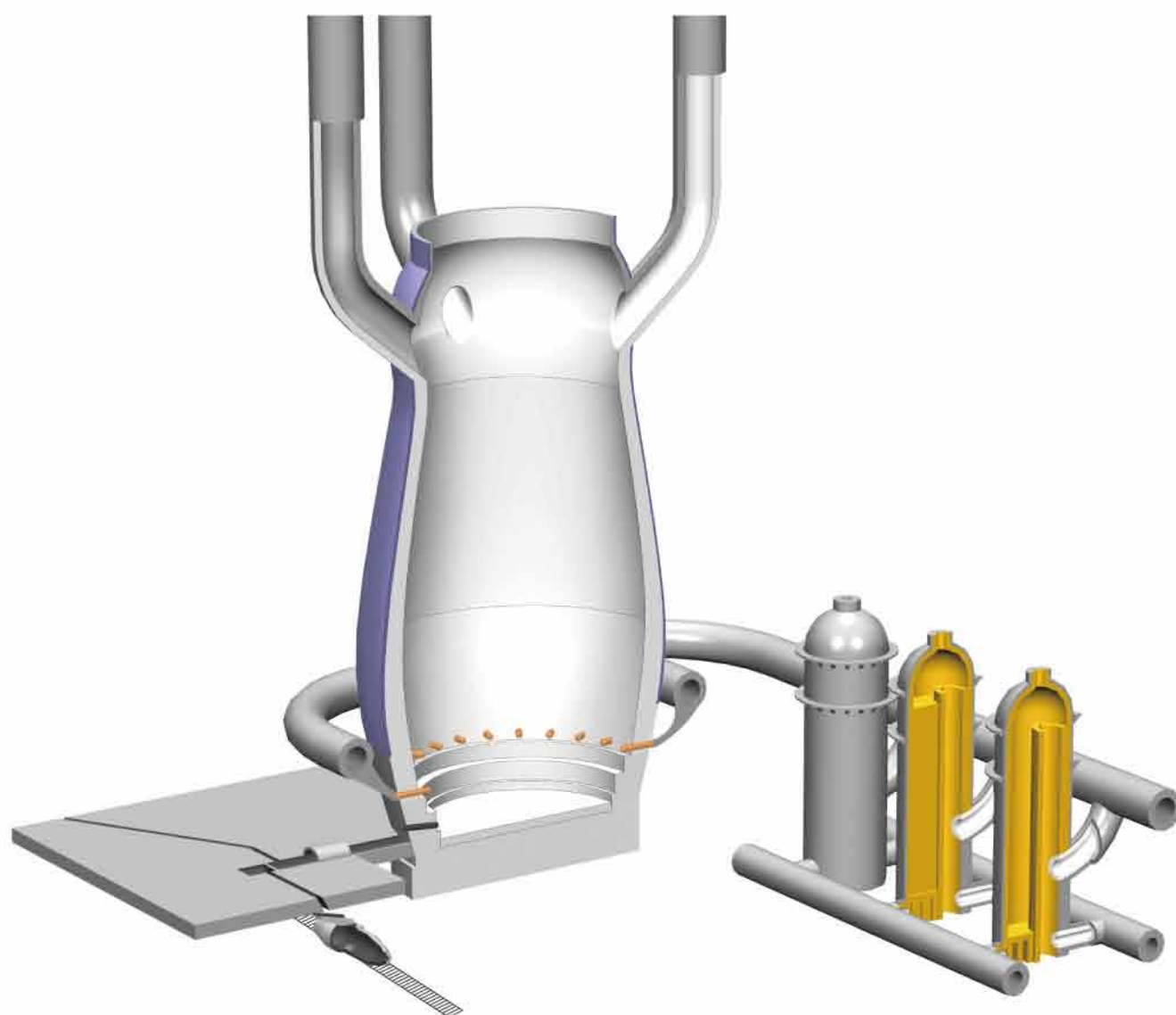


高爐、熱風爐耐火材料



■ Hot Stove : SGM-1300、SGM-A45、SGM-AR、SGM-1600LI、SCA-151、SCA-1300、SCA-1300HS、SCA-1600LI

■ Tuyere Stocks : SCA-1550

Refractories for Blast Furnace and Hot Stove

Product Specification

Properties	Brand	SCA-1550	MCC-160H	Non-Expansion Silicon Brick
Apparent Porosity (%)		≤15	≤17 ***	≤22
Bulk Density (g/cm ³)		≥2.30	≥2.35 ***	≥1.70
Cold Crushing Strength(Kg/cm ²)		≥500	≥500 ***	≥150
Chemical Composition(%)	Al ₂ O ₃	≥46	≥55	≤3
	SiO ₂	≤45	≤39	≥94
	CaO	3.0~8.0	≤2.9	---
	Fe ₂ O ₃	---	≤0.6	≤0.5
Characteristics		Precasted block		Brick
Application		Tuyere Stocks	Cooling Box	Coke Oven

** At 1500°C X 3Hrs *** At 1400°C X 5Hrs

Properties \ Brand		SGM-1300	SGM-A45	SGM-AR	SGM-1600LI	SCA-151	SCA-1300	SCA-1300HS	SCA-1600LI
Apparent Porosity (%)		≤25	≤30 **	≤20	≤25	≥40	≤25	≤25	≤20
Bulk Density (g/cm³)		≥1.95	≥1.80 **	≥2.30	≥1.90	≥1.50	≥2.10	≥2.05	≥2.10
Cold Crushing Strength (Kg/cm²)		≥160	≥250 **	≥370	≥160	≥80	≥150	≥350	≥350
Chemical Composition(%)	Al ₂ O ₃	≥36	≥45	≥36	≥45	≥26	≥36	≥37	≥45
	SiO ₂	≤47	≤51	≤9	≤43	≤54	≤47	≤49	≤47
	CaO	≤15***	----	≤40 ***	3.0~8.0	6.0~15.0	4.0~9.0	8.0~14.0	3.0~8.0
	Fe ₂ O ₃	----	----	≤18	≤1	----	----	----	≤1
Characteristics		Dry Gunning				Castable	Casting		
Application		Hot Stove							

** At 1500°C X 3Hrs *** CaO+MgO

Properties	Brand	STA-01	STA-02	STA-03	STA-04
After heat treatment for 3 hours at 600°C	Bulk Density (g/cm ³)	≥1.9	≥1.9	≥1.9	≥1.9
	Cold Crushing Strength (Kg/cm ²)	≥60	≥65	≥60	≥60
	Modulus of Rupture (Kg/cm ²)	≥25	≥27.5	≥27	≥26.5
Chemical Composition (%)	Al ₂ O ₃	≥37	≥43	≥40	≥39
	SiC+Si ₃ N ₄	≥13	≥13	≥15	≥15
Application		Mud for Blast Furnace			

高爐流道耐火材料

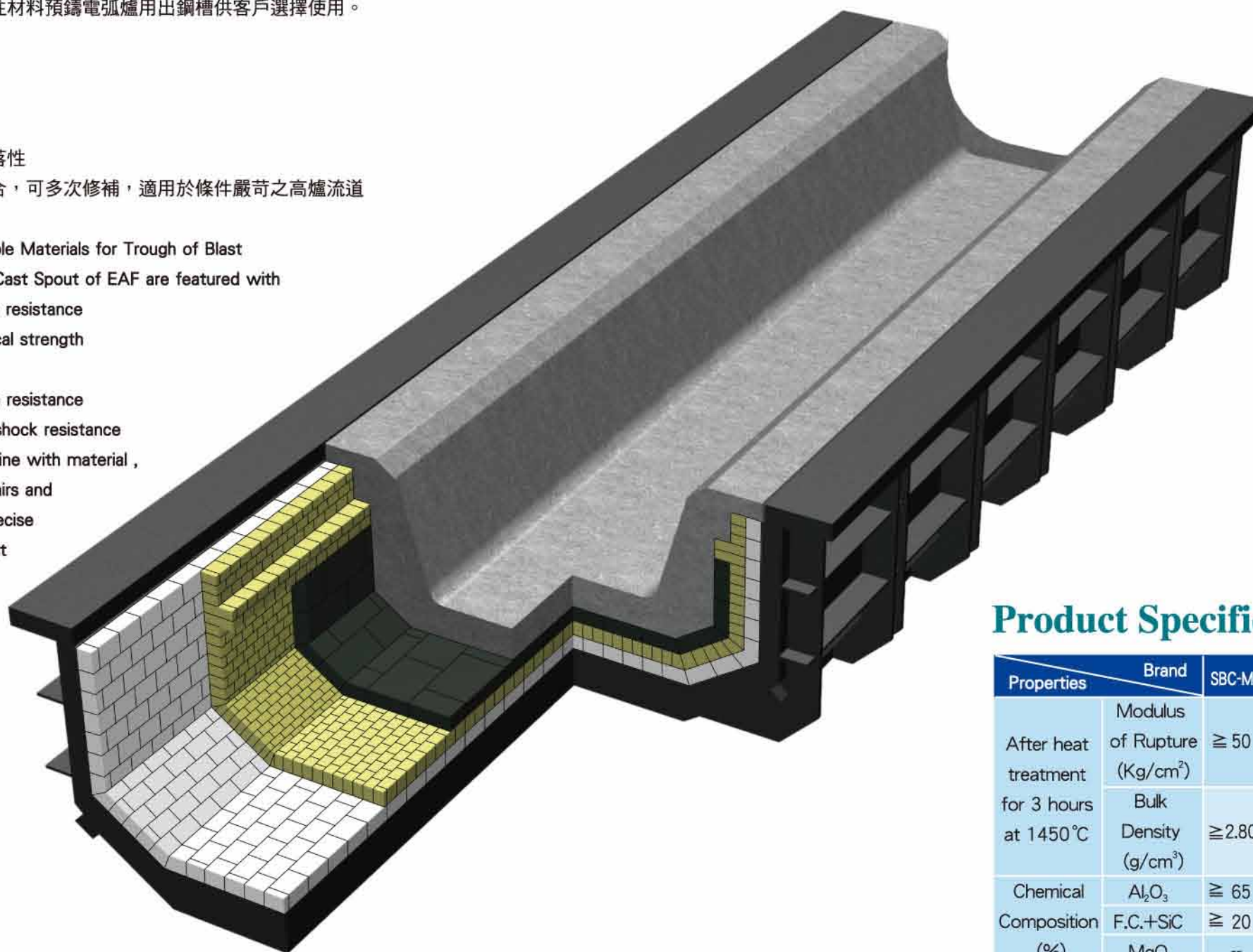
本公司開發製造之高爐流道具有下列特性：
本公司並以澆注材料預鑄電弧爐用出鋼槽供客戶選擇使用。

1. 高耐蝕性
2. 高機械強度
3. 低氣孔率
4. 高耐氧化鋅
5. 耐熱震、剝落性
6. 易與原料結合，可多次修補，適用於條件嚴苛之高爐流道

Sunward Castable Materials for Trough of Blast
Furnace & Pre-Cast Spout of EAF are featured with

- 1.High corrosion resistance
- 2.High mechanical strength
- 3.Low porosity
- 4.High oxidation resistance
- 5.High thermal shock resistance
- 6.Easy to combine with material ,

numerous repairs and
suitable for precise
Trough of Blast
Furnace



■ Slag & Iron Zone : SBC-M81、SBC-M82、BFR-MTA、BFR-MTH

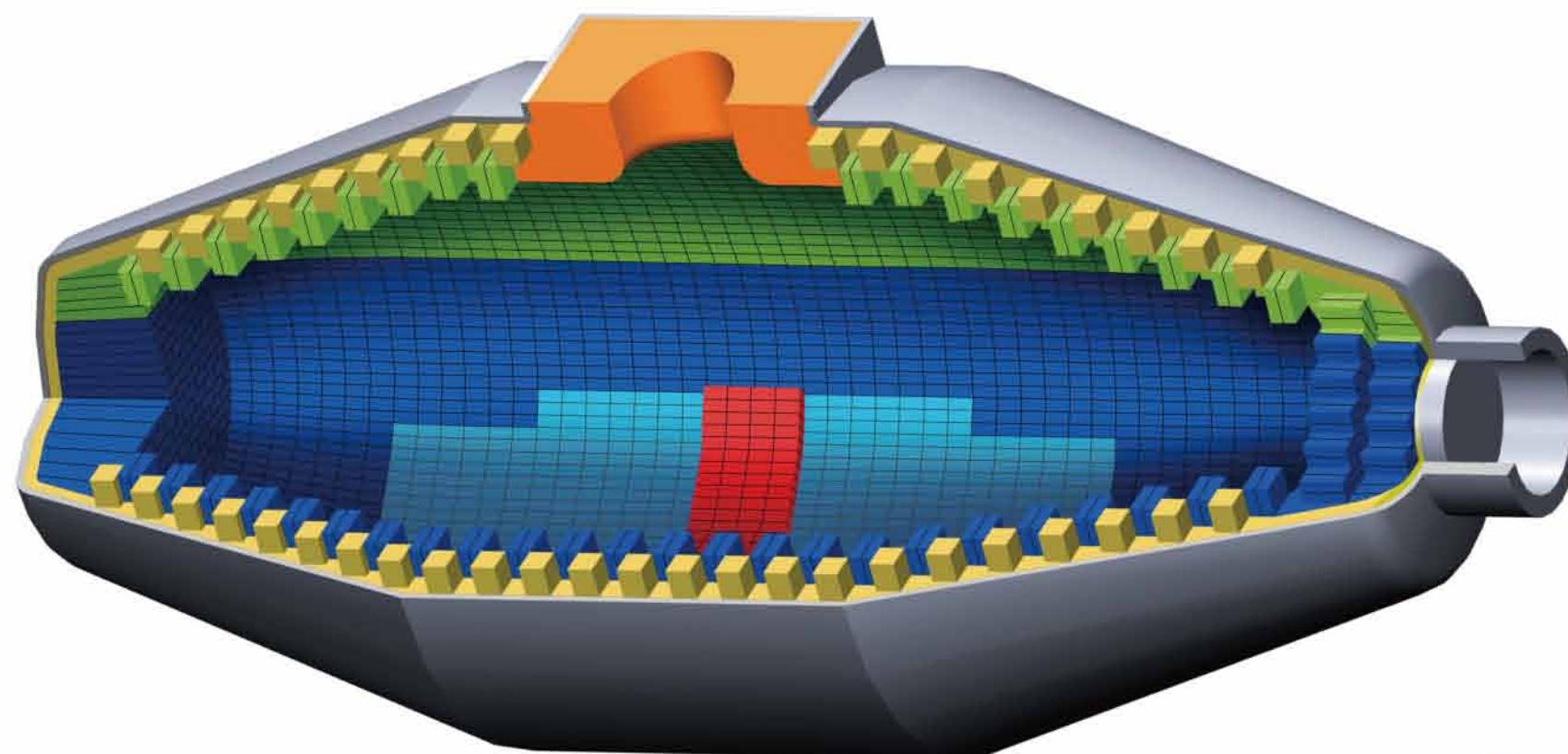
■ Safety Lining : MRL-75L

Repairing : MT-RG2、SPNG-TS1、SPNG-TM2

Product Specification

Properties		Brand	SBC-M81	SBC-M82	SNC-B20	SNC-B17	BFR-MTA	BFR-MTH	MT-RG2	SPNG-TS1	SPNG-TM2	MRL-75L
After heat treatment for 3 hours at 1450°C	Modulus of Rupture (Kg/cm ²)		≥ 50	≥ 70	≥ 65	≥ 100	≥ 29	≥ 25	≥ 10	≥ 50	≥ 50	≥ 800
	Bulk Density (g/cm ³)		≥ 2.80	≥ 2.80	≥ 2.7	≥ 2.82	≥ 2.50	≥ 2.50	≥ 2.20	≥ 2.80	≥ 2.85	≥ 2.5
Chemical Composition (%)	Al ₂ O ₃		≥ 65	≥ 55	≥ 65	≥ 75	≥ 60	≥ 60	≥ 60	≥ 52	≥ 65	≥ 72
	F.C.+SiC		≥ 20	≥ 35	≥ 10	≥ 13	≥ 20.5	≥ 23	≥ 22	≥ 30	≥ 10	--
	MgO		--	--	≤ 10	--	--	--	--	--	≥ 5	--
Characteristics			Casting	Casting	Casting	Casting	Ramming	Ramming	Gunning	Wet-Gunning	Wet-Gunning	Brick
Application			Slag & Iron Zone of Main-Trough	Slag Zone of Main-Trough	Iron Zone of Main-Trough	Iron Runner	Iron Zone of Main-Trough	Slag Zone of Main-Trough	Repairing	Slag Zone of Main-Trough	Iron Zone of Main-Trough	Safety Zone

魚雷車耐火材料



Refractories for Torpedo Car

- Mouth : SNC-W60
- Safety Lining : F1
- Slag Zone : SAS-TS1
- Impact Zone : SAS-TP1
- Roof Zone : SAS-TR1
- Iron Line : SAS-TC1
- Repairing : SGM-A60、SPNG-ASC60、SPNG-ASC70、TL-WG

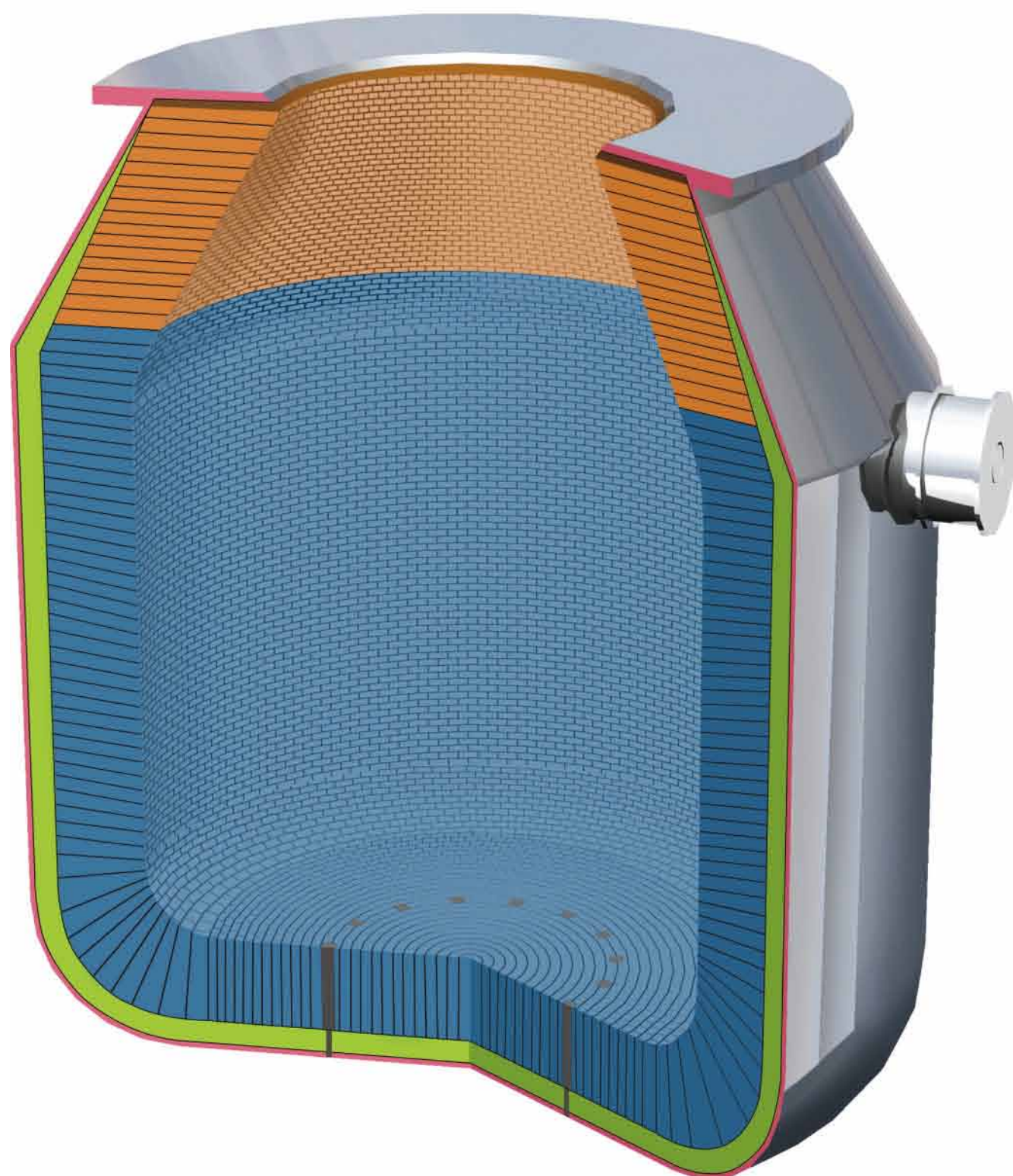
Product Specification

Properties	Brand	SAS-TP1	SAS-TR1	SAS-TS1	SAS-TC1	F1	Desulfurization Tube
Refractoriness (SK)		----	----	----	----	34	----
Apparent Porosity (%)		≤11	≤7	≤11	≤7	≤24	≤20 **
Cold Crushing Strength(kg/cm ²)		≥300	≥300	≥300	≥300	≥200	≥500 **
Modulus of Rupture(kg/cm ²)		----	----	----	----	----	----
Bulk Density (g/cm ³)		≥2.85	≥2.9	≥2.9	≥2.9	≥2	≥2.10 **
Chemical Composition(%)	Al ₂ O ₃	≥60	≥63	≥65	≥62.5	≥40	≥55
	SiC+C	≥13.5	≥14	≥15	≥13	----	≤30(SiO ₂)
	CaO	----	----	----	----	----	----
	Fe ₂ O ₃	----	----	----	----	≤3	----
Characteristics		Brick	Brick	Brick	Brick	Brick	Precasted block
Application		Impact Zone	Roof Zone	Slag Zone	Iron Zone	Safety Zone	Torpedo Car

** At 1500°C X 3Hrs *** At 1400°C X 5Hrs

Product Specification

Properties	Brand	SMO-AS1	SNC-W60	SGM-A60	SPNG-ASC60	SPNG-ASC70	TL-WG
Refractoriness (SK)		---	---	---	---	---	---
Apparent Porosity (%)		---	≤23 1500°Cx3hrs	≤25 1500°Cx3hrs	≤23 1450°Cx3hrs	≤23 1450°Cx3hrs	≤22 1450°Cx3hrs
ColdCrushing Strength(kg/cm ²)		---	≥400 1500°Cx3hrs	≥200 1500°Cx3hrs	≥500 1450°Cx3hrs	≥300 1450°Cx3hrs	≥400 1450°Cx3hrs
Modulus of Rupture(kg/cm ²)		≥3 1400°Cx2hrs in Coke	≥60 1500°Cx3hrs	≥50 1500°Cx3hrs	≥100 1500°Cx3hrs	≥50 1450°Cx3hrs	≥10 1450°Cx3hrs
Bulk Density (g/cm ³)		---	≥2.40	≥2.10	≥2.75 1450°Cx3hrs	≥2.85 1450°Cx3hrs	≥2.35 1450°Cx3hrs
Chemical Composition (%)	Al ₂ O ₃	≥70.0	≥60.0	≥60.0	≥64.0	≥72.0	≥50
	SiC+C	≥5.0	---	---	≥12.5	≥15.0	≥10
	CaO	---	≤2.0	---	---	---	---
	Fe ₂ O ₃	---	---	---	---	---	---
Characteristics		Mortar	Casting	Gunning	Wet-Gunning	Wet-Gunning	Wet-Gunning
Application		---	Mouth	Repair	Repair	Repair	Repair



- Safety Lining : MA-90 、MA-95
- Upper Cone : SMGC-038
- Wall Zone : SMGC-032 、SMGC-033 、SMGC-035 、SMGC-036

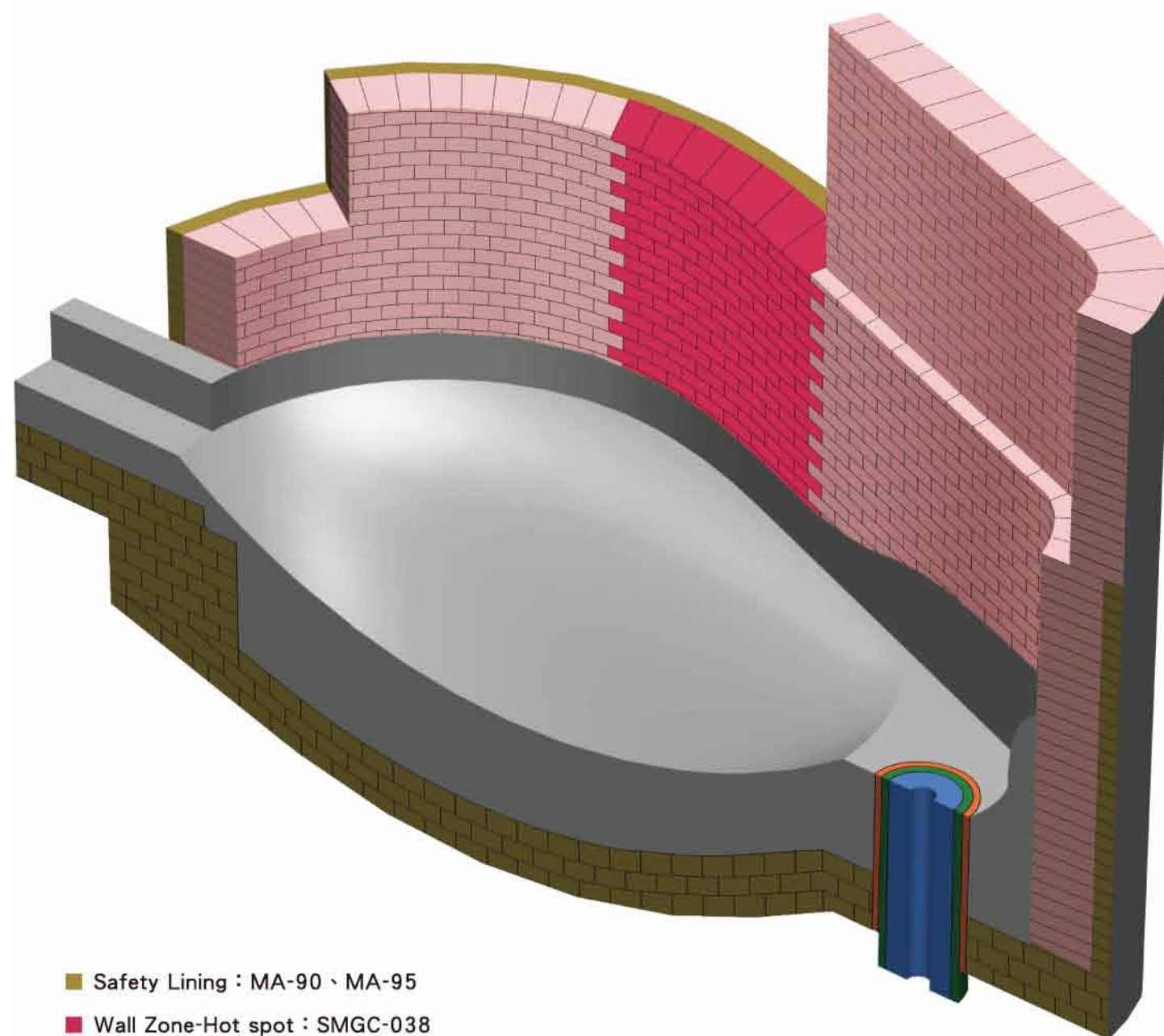


Product Specification

Properties	Brand	SMGC-032	SMGC-033	SMGC-035	SMGC-036	SMGC-038	MA-90	MA-95
Refractoriness		---	---	---	---	---	40	40
Apparent Porosity (%)		≤5	≤5	≤5	≤4	≤4	≤20	≤20
Bulk Density (g/cm ³)		≥2.80	≥2.80	≥2.82	≥2.9	≥2.84	≥2.75	≥2.80
Cold Crushing Strength (Kg/cm ²)		≥300	≥300	≥300	≥300	≥310	≥400	≥400
Chemical Composition (%)								
MgO		≥76.0	≥76.0	≥76.0	≥81.0	≥75.0	≥90	≥94
F.C.		≥17.0	≥17.5	≥17	≥12.0	≥15.0		
Characteristics		Brick						
Application		Wall Zone				Upper Cone	Safety Lining	

電弧爐耐火材料

Refractories for Electric Arc Furnace



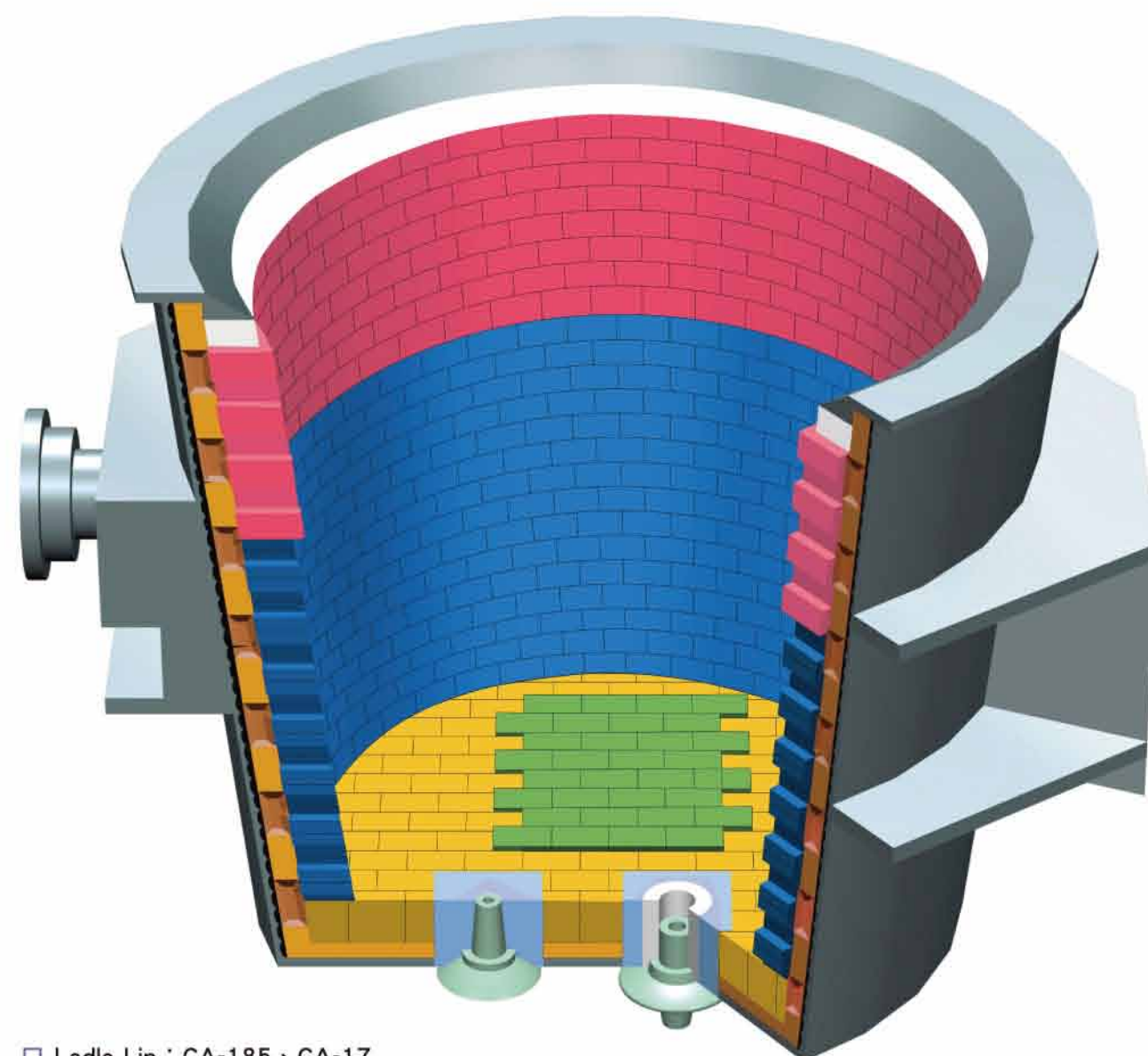
- Safety Lining : MA-90 、MA-95
- Wall Zone-Hot spot : SMGC-038
- Wall Zone : SMGC-025
- Tapping Hole : ZGK-A 、ZGK-B

Product Specification

Properties	Brand	SMGC-025	SMGC-038	MA-90	MA-95	SGM-M12	SGM-M15	SGM-M19
Refractoriness (SK)		—	—	40	40	—	—	----
Apparent Porosity (%)		≤4	≤4.0	≤20	≤20	—	—	≤25
Bulk Density (g/cm ³)		≥2.92	≥2.84	≥2.75	≥2.80	≥2.45 at 1500°Cx3hrs	≥2.20 at 1500°Cx3hrs	≥2.10 at 1500°C x3hrs
Cold Crushing Strength (kg/cm ²)		≥350	≥310	≥400	≥400	≥60 at 1500°Cx3hrs	≥80 at 1500°Cx3hrs	≥80 at 1500°C x3hrs
Characteristics Composition (%)	MgO	≥80.0	≥75.0	≥90	≥94	≥85	≥80	≥70
	F.C.	≥10.0	≥15.0	—	—	—	—	≥4(CaO)
Characteristics	Brick			Gunning				
Application	Wall Zone			Bottom Zone		Wall Zone		

Properties	Brand	ZGK-A	ZGK-B
Cold Crushing Strength(Mpa)		≥45	≥45
Moduius of Rupture at Temperature,1400°C×30min(Mpa)		≥12	≥12
Bulk Density(g/cm ³)		≥2.98	≥2.95
Application Porosity(%)		≤3	≤3
Chemical composition(%)	MgO	≥80	≥75
	C	≥10	≥15
Application	Topping Hole Brick		

盛鋼桶及精煉爐耐火材料



□ Ladle Lip : CA-185、CA-17

■ Slag Zone : SMGC-026、SMGC-029、MG-15C

■ Wall Zone : SHA-L08、SSP-001、SAM-007、RK-28、SAMG-007、SAMG-008

■ Bottom : SSP-001、SAM-007、SAS-P10

■ Impact Zone : SSP-001、SAM-007、SAS-P10

■ Well Block : SNC-90C

■ Repairing : SGM-A70、SPNG-LDI

■ Safety Lining : HA、HS、H1-1、H1、H2-1、H2、H3-1

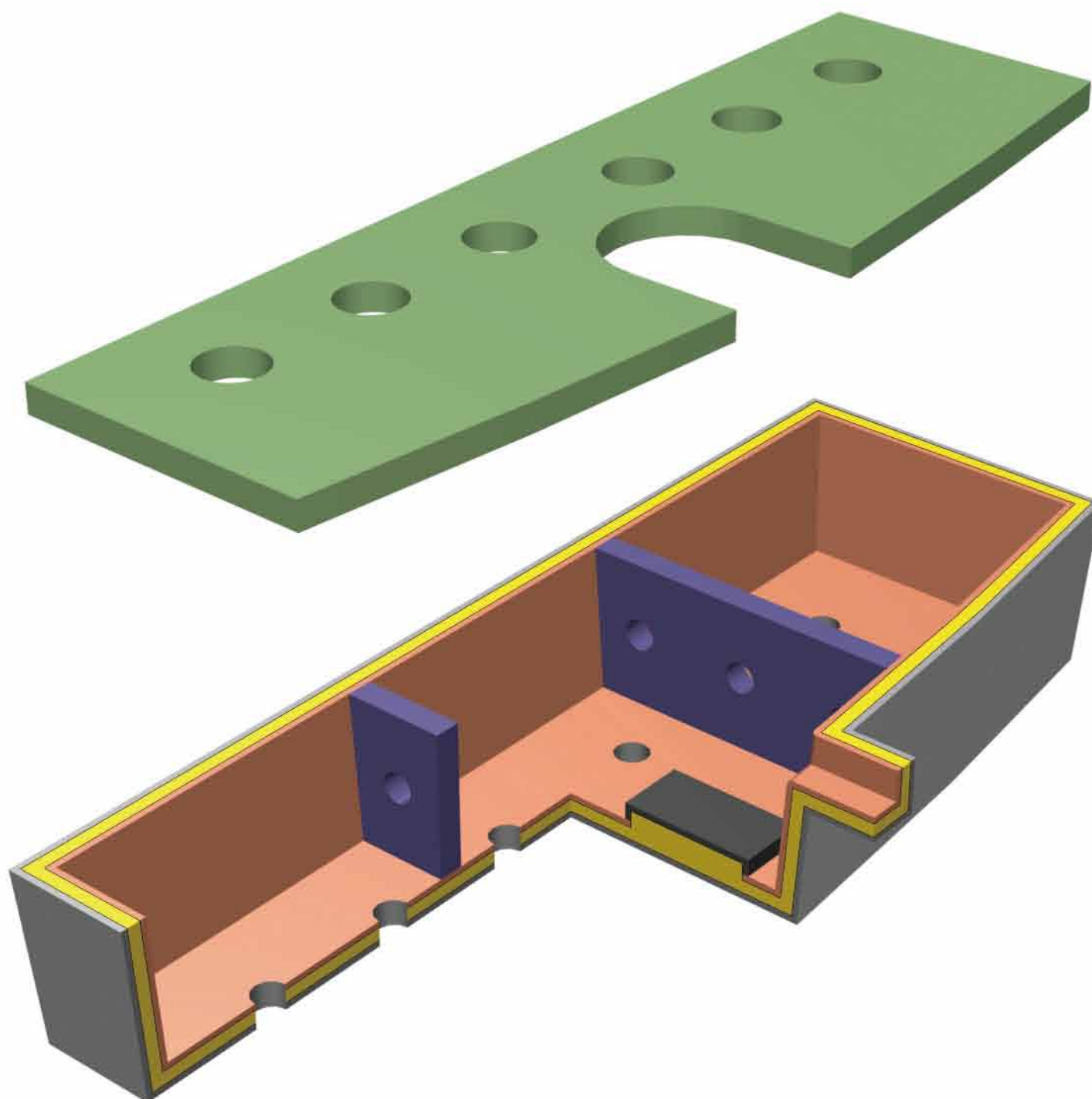
Refractories for Ladle (Furnace) and Refining Furnace

Product Specification

Properties	Brand	HA	HS	H1-1	H1	H2-1	H2	H3-1
Refractoriness (SK)		39	38	38	38	37	37	36
Apparent Porosity (%)		≤20	≤27	≤22	≤27	≤22	≤27	≤25
Bulk Density (g/cm ³)		≥2.6	≥2.4	≥2.5	≥2.3	≥2.4	≥2.2	≥2.3
Cold Crushing Strength(kg/cm ²)		≥600	≥249	≥500	≥294	≥500	≥294	≥300
Chemical Composition(%)								
Al ₂ O ₃		≥90	≥80	≥70	≥70	≥60	≥60	≥50
Fe ₂ O ₃		≤2.0	≤2.0	≤2.5	≤2.5	≤2.5	≤2.0	≤2.5
Application		safety Lining						

Properties	Brand	SSP-001	SAM-007	CA-185	CA-18	CA-17	SGM-A70	SPNG-LD1	HMO	MGM
Cold Crushing Strength (kg/cm ²) at °C×3hrs		≥300 1500℃	≥400 1500℃	≥300 1500℃	≥450 1500℃	≥300 1400℃	≥200 1500℃	≥500 1500℃	— —	— —
Modulus of Rupture(kg/cm ²) at °C×3hrs		≥100 1500℃	≥150 1500℃	≥80 1500℃	≥90 1500℃	≥75 1400℃	— —	≥150 1500℃	≥50 (Bonding Strength) 1500℃	≥35 (Bonding Strength) 1500℃
Bulk Density (g/cm ³) at °C×3hrs		≥2.75 1500℃	≥2.70 1500℃	≥2.65 1500℃	≥2.75 1500℃	≥2.20 1400℃	≥2.15 1500℃	≥2.70 1500℃	— —	— —
Chemical Composition (%)										
Al ₂ O ₃		≥90	≥90	≥95	≥89	≥60	≥70	≥80	≥85	≥92
MgO		≥5	≥5	—	—	—	—	≥5	—	—
SiO ₂		—	—	—	—	—	—	—	—	—
F.C.		—	—	—	—	—	—	—	—	—
Characteristics		Casting	Casting	Castable			Gunning	Wet-Gunning	Mortar	Mortar
Application		Wall & Bottom	Wall & Bottom	Coner of Wall & Bottom ,Mouth			Repair	Repair	—	—

Properties	Brand	RK-28	SHA-L08	SMGC-026	SMGC-029	SAS-P10	SAMG-007	SAMG-008
Cold Crushing Strength (kg/cm ²)		≥250	≥600	≥330	≥250	≥500	≥400	≥450
Bulk Density (g/cm ³)		≥2.18	≥2.80	≥2.88	≥2.80	≥3.10	≥2.85	≥3.00
Chemical Composition (%)								
Al ₂ O ₃		≤18	≥80	—	—	≥75	≥75	≥60
MgO		—	—	≥75	≥75	—	≥15	≥25
SiO ₂		≥78	—	—	—	—	—	—
F.C.		—	—	≥12.5	≥13	≥5	≥7	≥8
Characteristics		Brick	Shape-Brick	Shape-Brick	Shape-Brick	Shape-Brick	Shape-Brick	Shape-Brick
Application		Wall-Zone	Wall-Zone	Slag-Zone	Slag-Zone	Bottom	Wall-Zone	Wall-Zone



- Coating for Working-Lining : TD-C-L1
- Working-Lining : SNC-W60、SNC-W70
- Dam : SNC-W45、SNC-W55
- Cover : SNC-W60、SNC-W70
- Impact Brick : SAS-P07、SAS-P10

Product Specification

Properties	Brand	SK38	SAS-P10	SAS-P07
Cold Crushing Strength (kg/ cm ²) at 1500°Cx 3hrs		≥ 500	≥ 500	≥ 400
Bulk Density (g/ cm ³) at 1500°Cx 3hrs		≥ 2.60	≥ 3.10	≥ 3.05
Apparent Porosity (%) at 1500°C x3hrs		≤ 22	≤ 6	≤ 6
Chemical Composition (%)	Al ₂ O ₃	≥ 70	≥ 75	≥ 75
	Fe ₂ O ₃	≤ 1.5	----	----
	F.C.	----	≥ 5.0	≥ 5.0
Characteristics		Brick		
Application		Impact Zone		

Properties	Brand	SNC-W45	SNC-W55	SNC-W60	SNC-W70	TD-C-L1	SPNG-TD1
Cold Crushing Strength (kg/cm ²) at 1500°Cx3hrs		≥ 600	≥ 600	≥ 550	≥ 500	≥ 50	≥ 50
Modulus of Rupture(kg/cm ²) at 1500°Cx3hrs		≥ 100	≥ 100	≥ 80	≥ 80	≥ 20	≥ 10
Bulk Density (g/cm ³) at 1500°Cx3hrs		≥ 2.10	≥ 2.30	≥ 2.40	≥ 2.65	≤ 1.87	≤ 2.00
Chemical Composition (%)	Al ₂ O ₃	≥ 45	≥ 55	≥ 60	≥ 70	—	—
	MgO	—	—	—	—	≥ 82	≥ 82.5
	CaO	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.0	—	—
Water Require (%)		7.8~8.5	6.5~7.5	6.5~7.5	6.0~7.0	20~25	20-25
Characteristics		Casting				Coating	Cunning
Application		Dam		Working-Lining,Cover		Coating for Working-Lining	