



SOFC & SOEC

Materials



Registered
ISO 9001:2015
ISO 14001:2015

K CERACELL

K CERACELL, a SOFC/SOEC-specialized company, was founded based on a governmental grant encouraging the renewable energy sector in March 2010.

SOFC is one of the promising energy fields for solving environmental problems.

We have always focused on the R&D of high-power intermediate-temperature SOFC using core materials and natural/bio-gas directly.

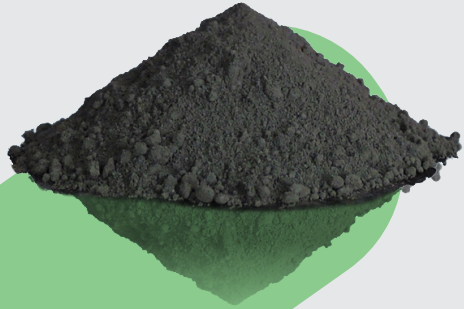
We can guarantee that we will do our utmost for the development of future green energy as a SOFC/SOEC specialized company.

Lim Kyoung tae, CEO



We stand developing new materials and ideal synthetic cells. Various self-developed materials are applied to SOFC/SOEC cells and evaluated through continuous research and development for the commercialization of SOFC/SOEC.

01 Cathode Materials



Lanthanum Strontium Manganite

Name	Composition	SSA	PSD(d50)
LSM-HS	$(La_{0.7}Sr_{0.3})_{0.95}MnO_3$	10-15 m ² /g	0.2-0.4 μm
LSM-MS		5-10 m ² /g	0.3-0.6 μm
LSM-LS		1-5 m ² /g	0.6-1.0 μm

Lanthanum Strontium Cobalt Ferrite

Name	Composition	SSA	PSD(d50)
LSCF-HS	$(La_{0.6}Sr_{0.4})_{0.97}Co_{0.2}Fe_{0.8}O_3$	10-15 m ² /g	0.2-0.4 μm
LSCF-MS		5-10 m ² /g	0.4-0.7 μm
LSCF-LS		1-5 m ² /g	0.7-1.5 μm

Lanthanum Strontium Cobaltite

Name	Composition	SSA	PSD(d50)
LSC-HS	$La_{0.6}Sr_{0.4}CoO_3$	10-15 m ² /g	0.2-0.4 μm
LSC-MS		5-10 m ² /g	0.4-0.7 μm
LSC-LS		1-5 m ² /g	0.7-1.5 μm

Lanthanum Strontium Ferrite

Name	Composition	SSA	PSD(d50)
LSF	$La_{0.6}Sr_{0.4}FeO_3$	4-8 m ² /g	0.4-0.7 μm

Lanthanum Nickel Cobaltite

Name	Composition	SSA	PSD(d50)
LNC	$LaNi_{0.6}Co_{0.4}O_3$	4-8 m ² /g	0.4-0.7 μm

Compositions and specifications modifiable on demand

Lanthanum Nickel Ferrite

Name	Composition	SSA	PSD(d50)
LNF	$LaNi_{0.6}Fe_{0.4}O_3$	4-8 m ² /g	0.3-0.7 μm
LNFC	$LaNi_{0.6}Fe_{0.3}Cu_{0.1}O_3$	4-8 m ² /g	0.3-0.7 μm

Praseodymium Strontium Ferrite

Name	Composition	SSA	PSD(d50)
PSF	$Pr_{0.6}Sr_{0.4}FeO_3$	4-8 m ² /g	0.3-0.7 μm

Praseodymium Strontium Cobaltite

Name	Composition	SSA	PSD(d50)
PSC	$Pr_{0.5}Sr_{0.5}CoO_3$	4-8 m ² /g	0.3-0.7 μm

Samarium Strontium Cobaltite

Name	Composition	SSA	PSD(d50)
SSC	$Sm_{0.5}Sr_{0.5}CoO_3$	4-8 m ² /g	0.3-0.7 μm

Barium Strontium Cobalt Ferrite

Name	Composition	SSA	PSD(d50)
BSCF	$Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_3$	4-8 m ² /g	0.5-0.8 μm

Compositions and specifications modifiable on demand

02 Electrolyte Materials



Stabilized Zirconia

Name	Composition	SSA	PSD(d50)
10Sc0.5Ce0.5GdSZ	$(\text{Sc}_2\text{O}_3)_{0.1}(\text{CeO}_2)_{0.005}(\text{Gd}_2\text{O}_3)_{0.005}(\text{ZrO}_2)_{0.89}$	10-15 m ² /g	0.1-0.3 μm
9.5Sc0.5Gd0.5YbSZ	$(\text{Sc}_2\text{O}_3)_{0.095}(\text{Gd}_2\text{O}_3)_{0.005}(\text{Yb}_2\text{O}_3)_{0.005}(\text{ZrO}_2)_{0.895}$	10-15 m ² /g	0.1-0.3 μm
6Yb4ScSZ	$(\text{Yb}_2\text{O}_3)_{0.06}(\text{Sc}_2\text{O}_3)_{0.04}(\text{ZrO}_2)_{0.9}$	10-15 m ² /g	0.1-0.3 μm
8YSZ	$(\text{Y}_2\text{O}_3)_{0.08}(\text{ZrO}_2)_{0.92}$	10-15 m ² /g	0.1-0.3 μm
New Electrolyte only for SOEC	Disclosed by Agreement		

Doped Ceria

Name	Composition	SSA	PSD(d50)
GDC-LTS	Zn doped GDC		
GDC-10-HS	Gd _{0.1} Ce _{0.9} O _{1.95}	10-15 m ² /g	0.1-0.2 μm
GDC-10-MS		5-10 m ² /g	0.2-0.4 μm
GDC-10-LS		1-5 m ² /g	0.4-0.8 μm
GDC-20-HS	Gd _{0.2} Ce _{0.8} O _{1.9}	10-15 m ² /g	0.1-0.2 μm
GDC-20-MS		5-10 m ² /g	0.2-0.4 μm
GDC-20-LS		1-5 m ² /g	0.4-0.8 μm
SDC-20-HS	Sm _{0.2} Ce _{0.8} O _{1.9}	10-15 m ² /g	0.1-0.2 μm
SDC-20-MS		5-10 m ² /g	0.2-0.4 μm
SDC-20-LS		1-5 m ² /g	0.4-0.8 μm

Perovskite Electrolyte

Name	Composition	SSA	PSD(d50)
LSGM-9182	$\text{La}_{0.9}\text{Sr}_{0.1}\text{Ga}_{0.8}\text{Mg}_{0.2}\text{O}_{2.85}$	4-8 m ² /g	0.4-0.6 μm
LSGM-8282	$\text{La}_{0.8}\text{Sr}_{0.2}\text{Ga}_{0.8}\text{Mg}_{0.2}\text{O}_{2.8}$	4-8 m ² /g	0.4-0.6 μm
LSGMZ	$\text{La}_{0.8}\text{Sr}_{0.2}\text{Ga}_{0.8}\text{Mg}_{0.18}\text{Zn}_{0.02}\text{O}_{2.8}$	4-8 m ² /g	0.4-0.6 μm
BZCYY	$\text{BaZr}_{0.8-x}\text{Ce}_x\text{Y}_{0.1}\text{Yb}_{0.1}\text{O}_3$	4-8 m ² /g	0.6-1.0 μm
BZ doped BCZYY	Disclosed by Agreement		

Compositions and specifications modifiable on demand

Nickel Oxide

Name	Composition	SSA	PSD(d50)
NiO-HS	NiO	10-15 m ² /g	0.1-0.3 μm
NiO-MS		5-10 m ² /g	0.3-0.6 μm
NiO-LS		1-5 m ² /g	0.6-1.2 μm

Stabilized Zirconia

Name	Composition	SSA	PSD(d50)
8YSZ-AS	$(\text{Y}_2\text{O}_3)_{0.08}(\text{ZrO}_2)_{0.92}$	5-10 m ² /g	0.3-0.8 μm

Lanthanum Strontium Titanate

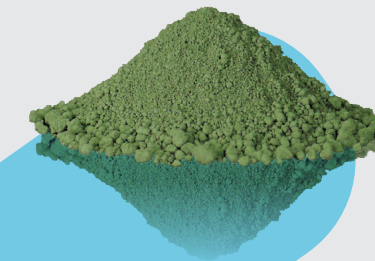
Name	Composition	SSA	PSD(d50)
LST	$\text{La}_{1-x}\text{Sr}_x\text{TiO}_3$	4-8 m ² /g	0.4-0.8 μm

Spinel

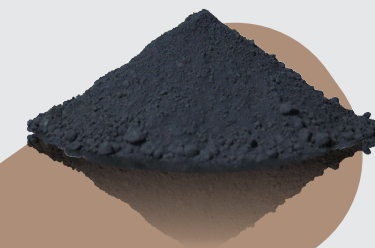
Name	Composition	SSA	PSD(d50)
MC-11-APS	$\text{Mn}_{1.5}\text{Co}_{1.5}\text{O}_4$		30-40 μm
MCF-APS	$\text{MnCo}_{1.9}\text{Fe}_{0.1}\text{O}_4$		30-40 μm
CMF	$\text{Cu}_{1.2}\text{Mn}_{1.65}\text{Fe}_{0.1}\text{O}_4$	4-8 m ² /g	0.5-0.8 μm

Compositions and specifications adjustable on demand

03 Anode Materials



04 Spinel Materials





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