

# Raw Materials of CaC Production

## 1. Physical and chemical specifications of raw materials

### 1) Lime

mm	Chemical & Physical compositions/%							
	CaO	Activity	SiO <sub>2</sub>	MgO	R <sub>2</sub> O <sub>3</sub>	P	S	Defective
	≥		≤					
30~60	96	360 ml	2	1.5	2	0.01	0.04	5

### 2) Semi-coke , coke

mm	Chemical & Physical compositions/%				
	Fixed carbon	Volatile	Ash	S	H <sub>2</sub> O
	≥		≤		
25~30	82	15	10	1	2

### 3) Auxiliary raw materials

Electrode paste:

Ash	4%
Volatile	13.5%
Fixed carbon	82.5%
Density	1400kg/m <sup>3</sup>
Soften point	75°C
	90°C
Plasticity	20~30%
	30~40%
	20~40%
Size	50~100mm;

Chemical & physical index of baked electrode paste:

Density	1600kg/m <sup>3</sup>
True density	1850kg/m <sup>3</sup>
Porosity	24%
Resistance	70μΩm
Compression strength	18N/mm <sup>2</sup>
Bending strength	3.5 N/mm <sup>2</sup>
Young's modulus	2.5 KN/mm <sup>2</sup>

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Thermal conductivity                      5W/ (K · m)  
Thermal expansion coefficient           $4 \times 10^{-6}/^{\circ}\text{C}$

## 2. Raw materials consumptions

No.	Item	Unit	Qty	Remarks
1	Lime	t	0.92	CaO: 92%
2	Semi-coke	t	0.58	Fixed carbon 84%
3	Electrode paste	t	0.02/0.025	For closed furnace
4	Smelting power	kWh	$\leq 3050$	
5	Auxiliary facility	kWh	150	
6	Primary cooling water	t	1.5	0.4Mpa
7	Comprehensive energy costs		$\leq 1.0$ T standard coal	