# NCF INDUSTRIAL – Technical Ceramic Specification

# Material: SP-30-G – Dense Cast Spinel (Al<sub>2</sub>O<sub>3</sub>–MgO)

Material Type: Dense Cast Spinel (Al<sub>2</sub>O<sub>3</sub>-MgO)

Designation: SP-30-G

Chemical Composition	
Component	Percentage
Al <sub>2</sub> O <sub>3</sub>	70%
MgO	30%

#### **Physical Properties**

Color: White

Melting Point: 2130 °C

Open Porosity: 0%

Technical Density: 3.5 g/cm<sup>3</sup>

Theoretical Density: 3.6 g/cm<sup>3</sup>

Crystal Size: Approx. 5 µm

#### **Thermal Properties**

Linear Expansion Coefficient (20–1000 °C): 7.5 ×  $10^{-6}$  /°C

Thermal Conductivity at 100 °C: 12–14 W/m·K

Max Working Temperature: 1700 °C

Thermal Shock Resistance: Good (not suitable for inductive heating)

Mechanical Properties Hardness (Mohs): 7.5

**Electrical Properties** Electrical Resistivity @ 20 °C:  $10^{14} \Omega \cdot cm$  Electrical Resistivity @ 500 °C:  $10^7 \Omega \cdot cm$ 

Electrical Resistivity @ 1000 °C:  $10^5 \Omega \cdot cm$ 

Electrical Resistivity @ 1500 °C:  $10^5 \Omega \cdot cm$ 

## **Applications**

- Furnace linings and heat shields
- Kiln furniture for high-temperature sintering
- Insulation barriers with low porosity requirements
- Structural components in chemically aggressive environments

## **Advantages**

- High thermal conductivity ensures even heat distribution
- Zero open porosity for enhanced mechanical and chemical resistance
- Suitable for continuous use up to 1700 °C
- Stable electrical insulation at high temperatures