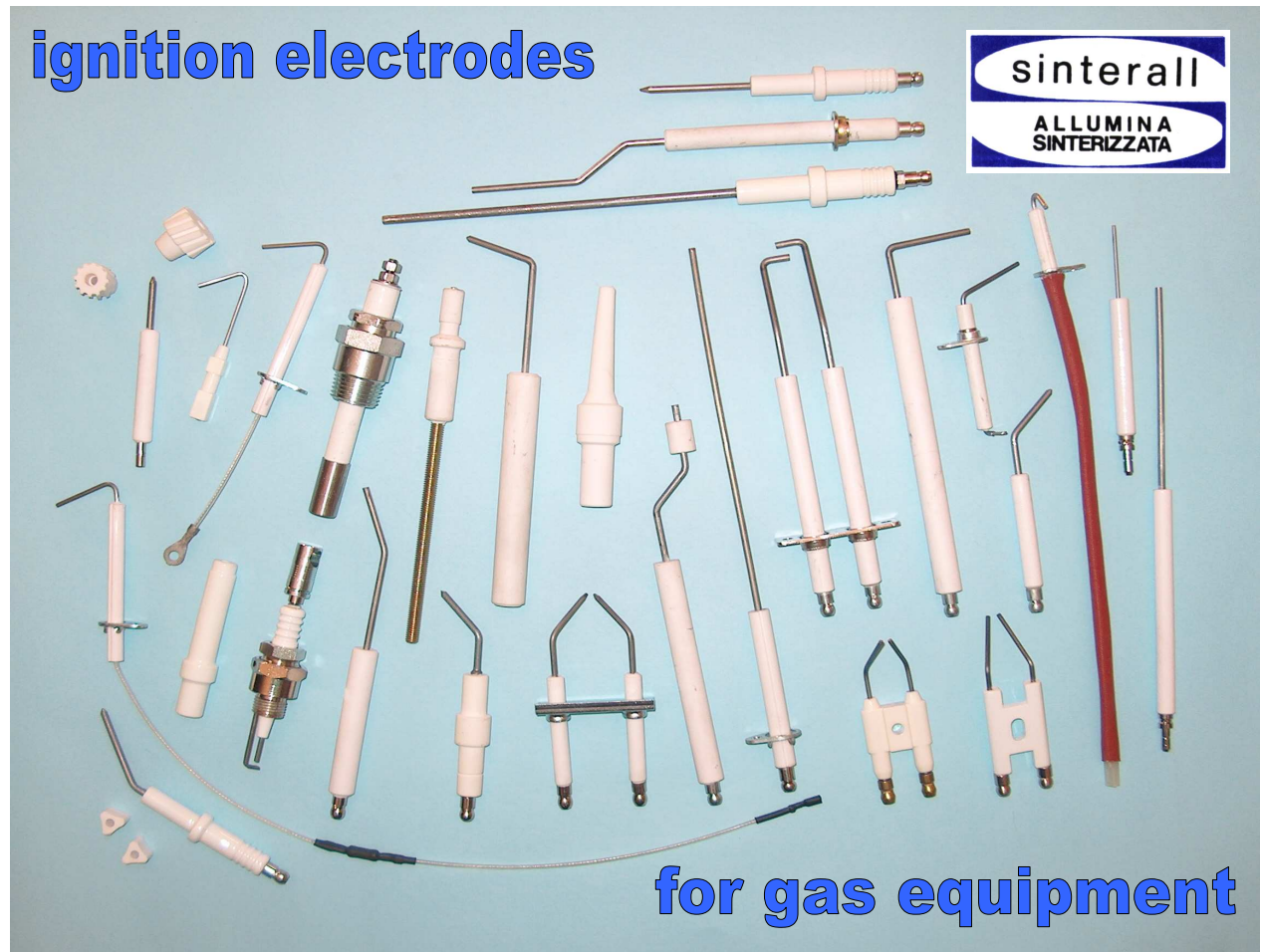


# Ignition electrodes for gas equipments



## Introduction

SINTERALL is a world leader in the technical ceramics field, manufacturing a wide range of components for several applications: techniques of liquid sealants and rotating supports, textile industry, anti-abrasive nozzles for sandblasting, atomisation and welding, supports, masks and protections for thermal and superficial treatments. Ceramic for vacuum kiln technology, nozzles for industrial burners, for high temperature chemical processes in particularly aggressive and galvanic atmosphere. The electrical and electronic engineering applications include igniters and ionization electrodes (flame sensor) for gas and liquid fuels equipment.

## Materials

The ignition electrodes are manufactured with a ceramic body in aluminium oxide, 96% minimum content, Sialox 96, assembled with a variety of electrodes, cables, and connector, according to the order, technical and quality directives of the customer.

## Applications

The considerable diffusion enjoyed by ignition electrodes is due to their high degree of reliability, whatever the application: heaters, cookers, water heaters, refrigerators, boilers, burners, ovens, grills, driers.

## Ceramic body characteristics

PROPERTIES	ceramic materials			
	unit	Sialox 96	Steatite	Porcelain
Specific weight	Kg/dm <sup>3</sup>	3,7	2,7	2,4
Water absorption	%	0.0	0.05	2.0
Modulus of elasticity	Kg/cm <sup>2</sup>	3,6x10 <sup>6</sup>	1,2x10 <sup>6</sup>	1,0x10 <sup>6</sup>
Tensile strenght	Kg/cm <sup>2</sup>	1.800-2.000	600-950	300-500
Resistance to impact	Kg/cm <sup>2</sup>	7,15-8,50	4,10-4,30	3,50-3,80
Dielectric resistance at 25°C	KV/mm	12	12	12
Thermal conductivity at 25°C	Cal/cm°Csec	4,3x10 <sup>-2</sup>	2,1x10 <sup>-2</sup>	3,6x10 <sup>-3</sup>
Coef. Thermal dilat. 25-700 °C	10 <sup>-6</sup> / °C	6,5	8,0	6,5
Max. working temperature	°C	1.500	900	700
Thermal shock resistance	---	excellent	modest	poor

Sialox96 has proved to be the ceramic product with the highest reliability among the above mentioned materials. The comparison of the technical properties and better our direct experience suggest Sialox96 as the best ceramic material for this specific appliance. Absolutely to be avoided surface coatings, the most common of them is glazing. Often requested, has to be considered functional for steatite and porcelain avoiding water absorption, or absolutely cosmetic for Sialox96. Pay attention that a promotion of surface cleanliness during assembly process or in usage, limits the dielectric properties of ceramic body to these of the coating!

## Electrode characteristics

PROPERTIES	Unit	electrode materials			
		AlSi 304	Kanthal D	Kanthal A	Kanthal A1
Composition	%	Cr 18 Ni 10 Fe balance	Cr 20-22 Al 4,5 Fe balance SiMn	Cr 23-25 Al 5,9 Fe balance	Cr 23-25 Al 5,9 Fe balance SiMn
Specific weight	Kg/dm <sup>3</sup>	7,9	7,25	7,1	7,1
Melting point	°C	1.510	1.500	1.500	1.500
Max operating temp.	°C	700	1.200	1.300	1.350
Resistivity 20/750°C	mΩcm	78/120	135/144	140/145	145/149

## Cable characteristics

PROPERTIES	unit	insulation materials					
		FEP	MFA	PFA	GVS	THT 240	THT 300
Copper Core	---	tinned	tinned	silver	bare	bare	Silver
Section	mm <sup>2</sup>	0,35	0,35	0,35	0,50	0,50	0,50
Max working temperature	°C	203	235	265	180	240	300
Dielectric resistance	KV/mm	24	24	24	12	16	18
Service voltage	KV	10 KV / 30 KV depending from insulation thickness					

SINTERALL can supply several combinations of materials to solve every kind of problems, a solution for extreme appliances in every field and environment. A consultation at the design phase, with our technical staff, results in the highest returns in terms of both costs and technical and delivery reliability. Years of experience at disposal of the customers.

**SINTERALL s.r.l. - Via Calabria, 2/4 (Zona Industriale)**  
**20090 Fizzonasco di Pieve Emanuele (MI) ITALIA**  
**Tel 0039 2 90722681 Fax 02 - 90720817** Web-site [www.sinterall.it](http://www.sinterall.it)  
 direct email [info@sinterall.it](mailto:info@sinterall.it) [sales@sinterall.it](mailto:sales@sinterall.it) [tech@sinterall.it](mailto:tech@sinterall.it)