



## FERRY CAPITAIN

BP33 F52300 JOINVILLE FRANCE

Tel. : +33 3.25.94.04.24

Mail. : [fc.aerospace@ferrycapitain.fr](mailto:fc.aerospace@ferrycapitain.fr)



# MATERIAL DATA SHEET      REFRACTORY STEEL MATERIAL FOR AEROSPACE PLATENS

## FERRYNOX 51S

### Description

The Ferrynox 51S is the result of an important internal development at **FERRY CAPITAIN**. This refractory alloy is enhanced through the use of a 15-ton capacity AOD converter, resulting in materials with low levels of residual elements and superior mechanical properties and very high creep rupture values.

### Application

This material is mainly used in the **Aerospace** field (Super Plastic Forming or Hot Forming Platens at very high temperature). In general, components subject to frequent thermal cycle shocks and high temperature fields.

### Chemical Composition

Cast Analysis			
FC Reference	%Ni	%Cr	Others elements
Ferrynox 51S	48-52	25-30	-

**Density : 8,2**

### Physical Properties

FC Reference	Temperature (°C)	Mean coefficient of thermal expansion (m/m.°C)
Ferrynox 51S	Between 20°C and 525°C	14,81. 10 <sup>-6</sup>
	Between 20°C and 725°C	15,65. 10 <sup>-6</sup>
	Between 20°C and 925°C	16,46. 10 <sup>-6</sup>
	Between 20°C and 1000°C	16,74. 10 <sup>-6</sup>
	Between 20°C and 1093°C	17,18. 10 <sup>-6</sup>



## FERRY CAPITAIN

BP33 F52300 JOINVILLE FRANCE

Tel. : +33 3.25.94.04.24

Mail. : [fc.aerospace@ferrycaptain.fr](mailto:fc.aerospace@ferrycaptain.fr)



## Mechanical properties

<b>HARDNESS</b>	200 HB
-----------------	--------

Creep Properties		
FC Reference	Temperature (°C)	Stress rupture (MPa)
		1000h
Ferrynox 51S	980°C	30

Tensile Test				
FC Reference	Temperature (°C)	Tensile Strength (Mpa)	Yield Point (Mpa)	Elongation (%)
Ferrynox 51S	20°C	420	310	3.5
	925°C	170	110	18
	980°C	145	100	21
	1032°C	112	68	31

## Weldability

Ferrynox 51S can be welded, **FERRY CAPITAIN** make available a complete welding procedure specific to this material.