

TECHNICAL DATA

# STELLITE™ 1 ALLOY

**STELLITE™ COBALT-BASED ALLOYS** consists of complex carbides in an alloy matrix. They are resistant to wear, galling, and corrosion and retain these properties at high temperatures. Their exceptional wear resistance is due mainly to the unique inherent characteristics of the hard carbide phase dispersed in a CoCr alloy matrix.

**STELLITE™ 1** is a hardfacing alloy possessing excellent abrasion and corrosion resistance for applications such as pump sleeves, rotary seal rings, wear pads, expeller screws and bearing sleeves. It retains its hardness at temperatures in excess of 760°C (1400°F).

Stellite™ 1 contains a high proportion of hard, wear resistant primary carbides. These render the alloy well suited to applications involving extreme low-angle erosion and severe abrasion, with some sacrifice in toughness. Compared with other Stellite™ alloys it is more crack-sensitive, and care should be taken to minimize the cooling stresses experienced during hardfacing processes. Due to its high hardness and wear resistance, Stellite™ 1 should only be finished by grinding. The casted equivalent of Stellite™ 1 is known under Stellite™ 3.

## CORROSION RESISTANCE

Stellite™ 1 has good general corrosion resistance. The typical electrode potential in sea water at room temperature is approx. -0.4 V (SCE). Stellite™ 1 corrodes primarily by a pitting mechanism and not by general mass loss in seawater and chloride solutions.

## NOMINAL CHEMICAL COMPOSITION (MASS%)

ALLOY	Co	Cr	W	C	Others
Stellite™ 1	Bal.	30,0	13,0	2,5	Fe, Ni, Mo, Mn, Si

## PHYSICAL PROPERTIES

ALLOY	Hardness	Density	Melting Range
Stellite™ 1	51 - 60 HRC	~ 8,7 g/cm <sup>3</sup>	~ 1190 – 1345°C

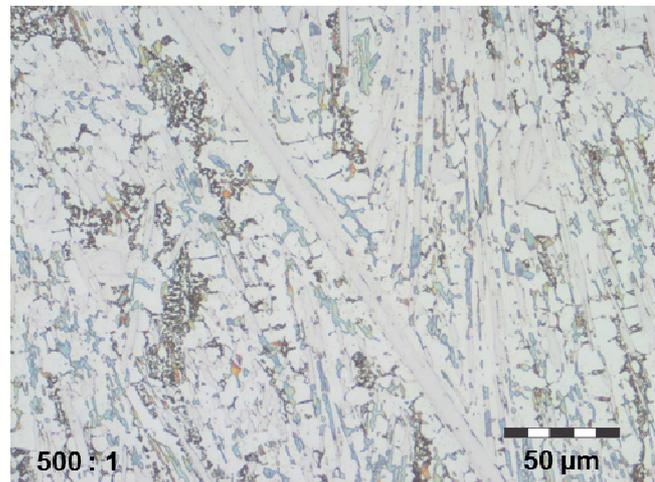
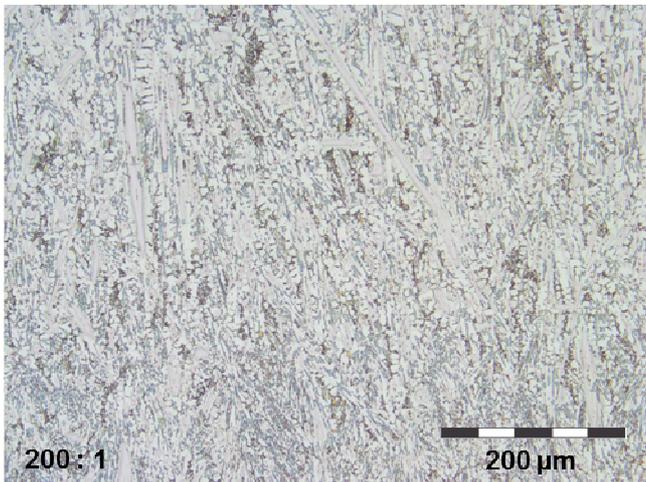
## PRODUCT FORMS

Components		
Cladded / Hardfaced	PM / HIP parts*	ALM parts*

\* On special request.

Consumables for Cladding / Hardfacing and Additive Layer Manufacturing (ALM)						
Rods	TIG-Welding			Oxy-Acetylene Welding		
Electrode	MMA Welding					
Cored Wire	MIG Welding			Submerged Arc Welding		
Powder	PTA Cladding	Laser Cladding	HVOF Spraying	Powder Welding	Spray&Fuse	ALM

## TYPICAL STRUCTURES



Welded Stellite™ 1 Alloy (Plasma Powder Cladding)

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