

1. General information on the powder : ST2724G

The powder ST2724G is a type 5 CoCr dental alloy developed for the manufacturing of fixed dental prostheses as caps, crowns and bridges and removable dental prostheses.

In order to guarantee the technical characteristics described here-after, the powder must **exclusively** be used with the manufacturing systems PM100 DENTAL, PM100T DENTAL, PXS DENTAL and PXM DENTAL.

PM100 DENTAL, PM100T DENTAL, PXS DENTAL and PXM DENTAL are rapid manufacturing systems using laser sintering of powder developed by PHENIX SYSTEMS.

The implementation conditions of the powder ST2724G are described in the user manual of the PM100 DENTAL, PM100T DENTAL, PXS DENTAL and PXM DENTAL systems.

If the use of the powder ST2724G is conform with the recommendations, the user, the prosthesis, the dentist and the patients are subjected to no danger.

2. Chemical constitution

Elements		Quantities
Cobalt	Co	Balance
Chromium	Cr	29%
Molybdenum	Mo	5,5%
	Mn, Si, Fe	< 1,00%

3. Material features

Properties	Values
Yield strength (Rp0,2)	815 MPa
Elongation (A%)	10 %
Vickers hardness	375 HV 5
Modulus of elasticity	229 GPa
Density	8,336 g.cm ⁻³
Corrosion resistance	< 4 µg/cm ²
Thermal expansion (25-500°C)	14,5 10 ⁻⁶ .K ⁻¹
Tarnish-proof	

Sint-Tech	ST2724G	TECHNICAL DATA	Index k
			Page 2 of 3
			4 th september 2012

4. Field of use

The field of use of the ST2724G powder is made of the manufacturing of caps and bridge frameworks of porcelain-fused-to-metal fixed prostheses, the manufacturing of crowns and metal bridges of non ceramized fixed prostheses and the manufacturing of removable prostheses.

The physico-chemical characteristics of the material shaped according to the recommendations are in conformity with the standards NF EN ISO 22674 and NF EN ISO 9693.

During the construction of the elements, minimal thicknesses must be respected :

- Minimal wall thickness for all types of elements: 0.3 mm
- Smallest section of connection of fixed prostheses : 3 mm x 3 mm

5. Parts treatment

Preparation of fixed prostheses

The following steps must be respected :

- Sandblasting of the armature with aluminium oxide 110 to 250 µm with a pressure of 3-4 bars
- Treatment with a VHM drill
- New sandblasting with a single use blast agent of aluminium oxide 110 to 150µm with a maximum pressure of 3-4 bars
- Steam cleaning

After this cleaning, the framework must not be touched anymore and must be held only with haemostatic forceps.

- Maximum temperature of ceramization : 980°C.

Oxide bake of porcelain-fused-to-metal fixed prostheses

A preliminary oxide bake process is not required (assembly and baking can directly be done on the framework). If however it takes place, in accordance with the indications of the ceramic manufacturer for a visual inspection of the state of the framework, it will have to be followed of a sandblasting with a single use blast agent of aluminium oxide 110 to 150µm with a maximum pressure of 3-4 bars and with a new steam cleaning.

ST2724G material can be coated with any ceramic which is suitable for the CoCr alloys and adapted to the physico-chemical characteristics of the ST2724G material, respecting the instructions of the manufacturer.

Weld / Solder of frameworks

It is prohibited to make connections by brazing for reasons of biocompatibility in accordance with the directive 93/42/CE modified by amendment 2007/47 relating to the medical devices.

For welds with dental lasers, it is advisable to use only a material of the same chemical constitution.



CE 1014



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Sint-Tech	ST2724G	TECHNICAL DATA	Index k
			Page 3 of 3
			4 th september 2012

6. Exclusion of use

The ST2724G powder is not intended for the following uses :

- Any other use than those indicated in the paragraph « Field of use ».

7. The advices concerning safety and remarks on the dangers

- Avoid breathing or swallowing the powder.
- Avoid contact with the skin and with the eyes.
- Wear suitable protections (IPE) (gloves, masks) :
 - Single use latex gloves.
 - Individual protection masks : class FFP3 according to the standard EN149.
- Please refer to the safety data sheet of the ST2724G powder.
- Respect the recommendations of implementation described in the user manual of the systems PM100 DENTAL, PM100T DENTAL, PXS DENTAL and PXM DENTAL.

8. Packaging

The powder is only marketed per units of 4 kg.

9. Instructions of storage

The powder ST2724G can be stored without particular conditions.

The packaging must be removed just before using the material in the systems PM100 DENTAL, PM100T DENTAL, PXS DENTAL and PXM DENTAL to avoid any contamination which could modify or deteriorate the properties of the product shaped.



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