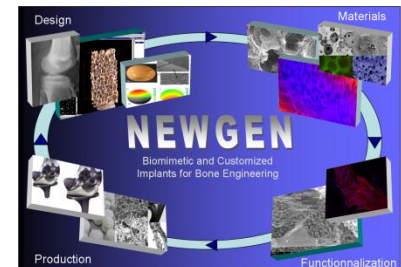




- **Complete denomination:** FLUIDINOVA S.A.
- **Location (city, country):** Moreira da Maia, Porto, Portugal
- **Director:** Mr. Hugo Ramos (hugo.ramos@fluidinova.com)
- **Contact person in NEWGEN:** Mr. Hugo Ramos / Dr. Paulo Quadros (paulo.quadros@fluidinova.com)
- **Working Group involvement:** WG1
- **Staff:** 6 people (1 PhD, 1 MBA, 4 MSc)
- **Research topics:** Industrial production of high purity nanohydroxyapatite in powder and paste forms.
- **Researchers expertises:**

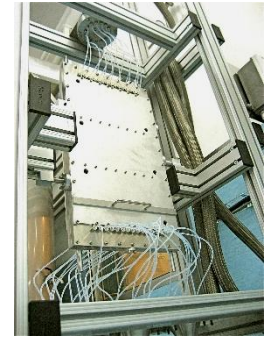
Chemical Engineers: Hydroxyapatite powders and pastes production and characterization. Product and process R&D.

Biomedical Engineers: Specialization in bio-compatible bone substitutes, testing and functionalization.




Nanohydroxyapatite synthesis

Wet chemical precipitation using its own patented technology, the NETmix[®] reactor. This technology allows semi-continuous production while maximizing the reaction selectivity, a major factor in the fine chemicals industry.



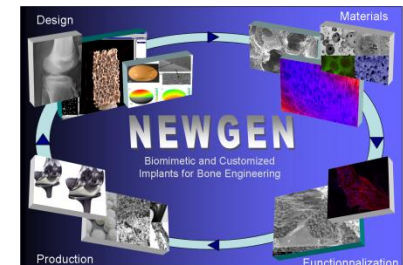
 NETmix

Products:

Nanohydroxyapatite products manufactured by FLUIDINOVA are commercialized under the brand  nanoxim

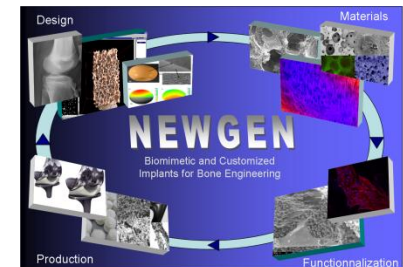
FLUIDINOVA manufactures:

- Hydroxyapatite pastes with different concentrations (5 to 30 %wt.)
- Hydroxyapatite powder with different particle sizes distributions (2.5 to 10 μm)



COST Action MP1301

- **Injectable bone substitutes**
- **Granules**
- **Scaffolds**
- **Composites: mixtures of biomaterials with polymers**
- **Biomaterials functionalization**
- **Oral care and dentistry**



nanoXIM•Medical Pastes

> nanoXIM•HAp100 series are water based nano-hydroxyapatite pastes specially recommended for medical devices manufacturing such as bone injectable substitutes for bone repair and reconstruction.



ADVANTAGES

- > Highly osteostimulative
- > Highly resorbable material replaced by new bone during the healing process
- > Optimal defect filling due to pasty consistency
- > 100% synthetic and safe material
- > High surface area

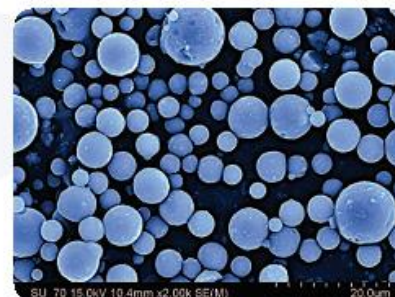
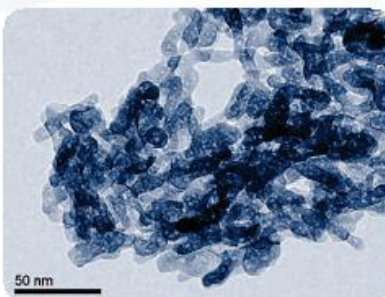
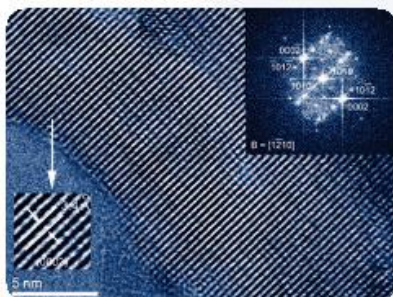
nanoXIM•Medical Powders

> nanoXIM•HAp200 series are spray-dried hydroxyapatite powders used as precursors of porous granules and blocks scaffolds for bone repair and reconstruction.



ADVANTAGES

- > 100% synthetic and safe material
- > High surface area and porosity
- > Nanostructured micron sized material
- > High biocompatibility
- > Narrow particle size distribution

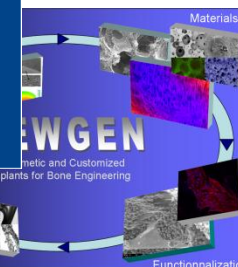


Product Reference	Description
nanoXIM•HAP102	15.0 ±1.0% wt. hydroxyapatite nanoparticles aqueous paste
nanoXIM•HAP103	30.0 ±3.0% wt. hydroxyapatite nanoparticles aqueous paste

Product Reference	Description
nanoXIM•HAP202	5.0 ± 1.0 μm d ₅₀ hydroxyapatite spray-dried powder
nanoXIM•HAP203	10.0 ± 2.0 μm d ₅₀ hydroxyapatite spray-dried powder

	nanoXIM•HAP100	nanoXIM•HAP200
Particle Size	Nanoparticles (< 50 nm)	Microparticles (nanostructured)
Specific Surface Area (m ² /g)	> 80	> 100
Physical Form	Aqueous paste	Fine powder
Density (g/cm ³)	1.1 – 1.2	0.50 – 0.65 (Bulk)
Purity	High purity*	
Structure	Nanocrystalline	
Calcium/Phosphate ratio	High precision*	

* Complies with the requirements of ISO13779 and ASTM F1185 standards concerning hydroxyapatite for medical applications.



Industrial equipments:

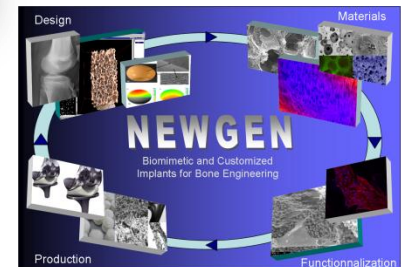
- NETmix[®] reactor
- Spray dryer unit



 **NETmix**



Spray dryer



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Laboratory equipments:

- Specific surface area BET analyzer
- Particle size distribution analyzer
- NETmix® pilot plant



BET analyzer



Particle size distribution analyzer



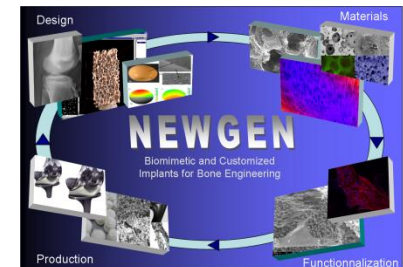
NETmix® pilot plant



Oven and Muffle



Centrifuge and Hotte



COST Action MP1301