



**speeding up  
your materials  
research**





Early 2005 Flamac was founded by three leading industrial companies with important research and development activities in Flanders together with Agoria Vlaanderen. Financial support was provided by the three companies and by the Flemish government.

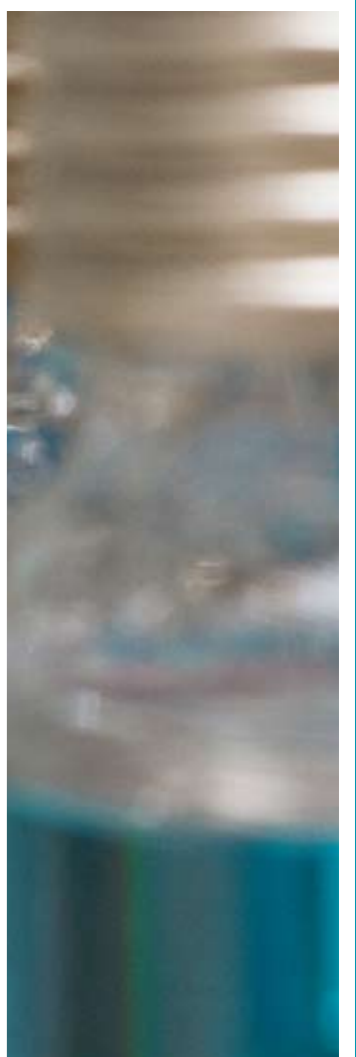


emulsions  
 modelling  
 dispersions  
 inorganic coatings  
 reliable  
 design of experiment  
 high viscous  
 polymers  
 pastes  
 uv-applications



In the meantime Flamac has become a top research centre in high-throughput methodologies. Our mission is to keep developing **top competences in HTE**, give technological **advice** and perform **collective** as well as **contract research** towards the materials and chemical industry. In this way, innovative research for new materials, their properties and applications can be accelerated and broadened for our customers.

In 2009, Flamac has been integrated in the Strategic Initiative Materials in Flanders (SIM), showing the importance of high-throughput technologies in materials research.



## Flamac a division of SIM

Development of top competences

Contract research

Collective projects

Technological advice & innovation stimulation

### HIGH-THROUGHPUT TECHNOLOGIES

>>>> High-throughput formulation and application workflows <<<<<

>>>> High-throughput screening modules <<<<<

>>>> computational materials design <<<<<

#### CONTRACT RESEARCH

Flamac is an open top competence centre in the field of high-throughput materials research. Therefore all platforms are open to external partners. A substantial number of large sized, small sized, local, Belgian and foreign companies have already successfully collaborated with Flamac.

**Different types of contract research can be conducted with Flamac:**

##### Feasibility studies:

During the last years an increasing number of companies have evaluated the use of high-throughput experimentation in their materials research. Flamac is often being consulted to well determine the exact needs and solutions suitable to the application. Typical evaluation projects consist of a set of experiments on the existing high-throughput equipment at Flamac. Small workflow adaptations can be part of these studies.

##### Short-term contract research:

Every year Flamac conducts a large number of experiments for short-term contract research projects. These projects vary from formulation to coating activities, optimization of processing parameters and the use of our different high-throughput screening platforms. Typically short-term collaborations run from one day to several months.

##### Long-term contract research:

A number of companies have decided to outsource part or even all of their high-throughput experimentation work at Flamac. Services can be provided in the field of high-throughput formulation research, coating applications as well as high-throughput screening. Typically long-term collaboration agreements run over a number of years.

#### CONSULTANCY

An increasing part of Flamac's activities lay in the field of consultancy. As an independent non-profit organisation we have a strong position in consulting our partners in evaluating the different strategies towards the use of high-throughput technologies. Our goal is to translate questions, ideas into complete and high-level roadmaps for economically sound and responsible implementations of accelerated techniques.

Flamac has developed a strong and central position as an open top competence centre in the field of high-throughput materials research. This has allowed us to build-up a unique, high quality expertise and to keep a good overview of the current state-of-the-art technologies in this fast developing domain. Our specific fields of expertise are:

- ◆ Accelerated research methodologies
- ◆ High-throughput screening (stability, mechanical properties, structure,...)
- ◆ High-throughput CVD and PVD technologies
- ◆ High-throughput formulation research
- ◆ High-throughput coatings research (organic and inorganic coatings)
- ◆ High-throughput polymer research technologies

literature studies  
**contract research**  
methodology development  
long term collaboration

**consultancy**  
process optimization  
feasibility studies



**High-throughput formulation workflow**

- ◆ Up to 100 formulations per 8 hours
- ◆ Liquid dosing (low- and high viscous solutions, pastes, dispersions)
- ◆ Powder dosing
- ◆ Capping & decapping
- ◆ Magnetic stirring
- ◆ Overhead stirring

**High-throughput application workflow**

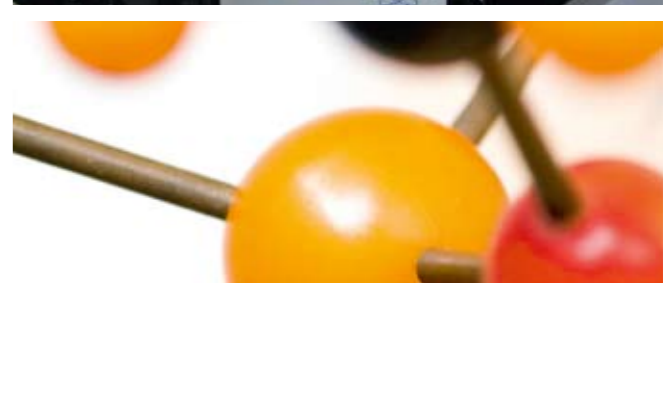
- ◆ Automated application up to 400 coatings a day
- ◆ UV- curing modules
- ◆ IR- modules
- ◆ Perfect simulation of industrial process conditions
- ◆ Possible substrates: metal, PET, wood, glass, textile, PVC,...

**High-throughput screening**

- ◆ X-ray diffraction & reflectometry
- ◆ Nano-indentation
- ◆ Ellipsometry
- ◆ Surface energy
- ◆ Rheology
- ◆ Particle size
- ◆ Many more ...

**Unique platform for computational materials research**

- ◆ Analyzing large data-sets
- ◆ Predictive modeling at large and very small scales
- ◆ Ab initio modeling for industrial relevant problems





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