



## I. Publishable Executive Summary

Polysaccharides represent by far the largest group of polymers produced in the world. Fully biodegradable, they are made by Nature. For many reasons, including the fact that their structure is variable (depending on genetics, climate, location on Earth, soil, etc.), their use in highly engineered, functional materials is in its infancy. Nevertheless, and withstanding all difficulties, polysaccharides are the sustainable source of polymeric materials for tomorrow. They offer numerous product development opportunities that are increasingly attractive in light of tightening oil supplies and rising concerns over environmental and biodegradability issues. The use of renewable raw materials (RRM) such as polysaccharides is one of the targets of the European Union policies with objectives to increase the share of renewable energy and to promote biodegradation. These are the main reasons why the **European Commission** chose to select the topic **polysaccharides** for forming a new **Network of Excellence**.

The **European Polysaccharide Network of Excellence (EPNOE)** is composed of 16 research groups from nine countries, covering the entire range of expertise: all the major polysaccharides (starch, cellulose, hemicelluloses, alginates, chitin) and all necessary disciplines (including chemistry, biology, enzymology, modelling, physics, processing, materials science, simulation, life cycle analysis and economics) are involved. One partner left at the end of the first year.

The network was financed by the European Commission for four years and a half, starting in May 2005.

### All the initial objectives have been reached

Objective 1: EPNOE is recognised as a real entity, being the leader in polysaccharide research in the World, performing the best research.

Objective 2: EPNOE and EPNOE partners are the preferred research organisation to interact with for the EU industry. The area of polysaccharides sees a boost in innovation due to the EPNOE, leading to the creation of new industrial activities.

Objective 3: The general polysaccharide research in Europe is better organised due to the EPNOE focal point. Polysaccharides is recognised as a major research topic in Europe.

Objective 4: EPNOE is a key partner in the definition of the EU policy in the area of materials coming from renewable resources.

Objective 5: EPNOE is an important source of knowledge with courses, e-learning modules and interaction with the general public on societal issues.

Objective 6: The 17 research laboratories have found a way to bring into a suitable organisation the necessary resources to reach the objectives given above.

Objective 7: EPNOE has a lasting character.

### The main achievements of the project are

- Establishment of the legal instrument "EPNOE Association" and a structure able to ensure a durable networking over the next 5-10 years.
- Creation of an active network involving 16 institutions, more than 20 companies, 100 scientists, more than 70 PhD students.



- Building of a Research and Education Road Map 2010-2020.
- Top-level scientific research (more than 40 on-going common research projects, about 20 PhD shared by two partners, round-robin testing, tool box with a set of 200 instruments available within the network).
- Education, with more than 50 exchanges of students, and creation of one EC-Intensive on “Sustainable Utilization of Renewable Resources » (2009-2011).
- Active Business and Industry Club with more than 20 members
- Every year, more than 270 research projects are starting between EPNOE members and companies.
- High level participants in many important stakeholder’ organisations (like organisation of meetings with scientific societies)

***EPNOE is a new, durable structure for organising Research and Education on polysaccharides at the European level, a complete, efficient and innovative research network on polysaccharide worldwide and a platform for bringing together companies and research centres.***