

# Table of Content

Editorial

## 1. Presentation of Certech Activities

Environment

Chemistry and Industrial Processes

Polymer Materials Technology

Analytical & Technological Services

COVID-19 Pandemic

## 2. R&D Collaborative Projects

## 3. Industrial Projects & Services

Contracts R&D and services

Financial support to industry

Success stories

Participation in technical standardisation committees

Quality

Events

Certech industrial turnover breakdown into segments

## 4. Participations and Collaborations

## 5. Publications, Lectures & Attendance at Conferences and Trade Shows

## 6. Key Figures

## 7. Certech Management

Everything starts with **chemistry**  
We make it more **innovative**



Annual Report **2021**



[www.certech.be](http://www.certech.be)

## Editorial

Despite the COVID-19 pandemic, Certech has been able to continue to operate and to fulfill its mission of R&D partner in chemistry supporting the innovation process in the industry thanks to an adapted organization combining teleworking, remote communication tools, regular information of the personnel and implementation of safety measures and adapted working conditions.

Certech has been involved, either as a coordinator or as a partner, in 11 collaborative projects. The funding sources were the European Commission (Horizon 2020 framework program), the European Regional Development Fund (“Transition” and “Interreg V”), and the Walloon Region (Marshall Plan). Those projects cover the different strategic axes of Certech’s development: process intensification, plastic recycling, biobased polymers and composites, odours and emissions, volatile organic compounds and sensorial properties of materials. These represent opportunities to strengthen and develop our expertise in order to execute our mission of supporting the economic development of the industries, especially the small and medium enterprises, from the Region.

In 2021, 280 companies received support in their innovation process, 78 (28%) of which were new prospects. A total of 581 contracts were handled.

I would like to thank all the coworkers for this great achievement, for the support, their commitment and their resilience throughout this special year.

Thierry Randoux  
General Manager

## 1. PRESENTATION of Certech ACTIVITIES

Certech is a research and development partner and supplier of analytical and technological services for companies involved with activities related to chemistry: polymers; pharmaceutical, medical and health care; environment and energy; automobile and transport; packaging; construction.

Certech’s mission is to provide sustainable innovative solutions to improve or develop products and processes to meet industrial and societal needs.

The research & development strategy is based on the synergies of three main themes, namely: polymer materials technology, chemistry & industrial processes, environment supported by an analytical & technological services platform.



## ENVIRONMENT

Certech provides its industry partners with more than 40 years' experience, in the field of gas emission, process optimization and improved materials with reduced environmental impact. Research and Development activities include air quality, health and safety, energy and circular economy.

Certech is approved for the atmospheric pollution control (odour, volatile organic compounds) by Regional authorities and is an active member of 11 standardisation committees (AFNOR, EN or ISO).



### **Air Quality, Health & Safety**

#### Atmospheric pollution and ambient air

In the field of outdoor environment, Certech offers sampling, on-line measurements and analysis (odour and gaseous effluents). Environmental impact is evaluated via simulations of atmospheric dispersion and neighbourhood direct assessment. Remediation pilot equipment based on catalysis or scrubbing are also available. A mobile laboratory is dedicated to carry out environmental diagnostics. It is equipped with several sampling equipment and measuring devices for the analysis of atmospheric emissions and ambient air.

#### Occupational hygiene

Key expertise in workplace air assessment include sampling and analysis of dusts, aerosols, microbiological and chemical components, noise, measurement of nanoparticles and biological agents, determination of organic vapours, evaluation of personal protective equipment (PPE), probability assessment of workstation exposure and characterization of ATEX (ATmosphere EXplosive) atmosphere.

### **Energy and circular economy**

The European Green Deal and the accelerating use of renewable energy sources driven by the need to mitigate the effects of climate change has significantly increased market need in the field of energy saving, renewable energy production, storage, distribution, and end-use.

Driven by the concepts of sustainability, Certech has developed expertise in chemistry for renewable energy applications by working on efficient and green materials, energy production and storage, chemical storage, sustainable and innovative process.

## CHEMISTRY AND INDUSTRIAL PROCESSES

In the current era of globalization and capital mobility, European chemical industry has to accelerate its pace of innovation to remain in a leading position. Capitalizing on its core expertise in chemistry, process intensification and continuous flow chemistry, Certech aims to develop factory of the future and smart chemistry platforms adapted to the main industrial chemical sectors: Specialty Chemicals and Life Sciences



### **Factory of the Future - Intensified/continuous processes**

Process Intensification is based on the use of small volume reactors, continuous processes, high temperatures and pressures, better heat and mass transfer. It leads to improved quality products, increasing yields, reduction of investment costs, lower energy consumption and reduced environmental and safety risks. It is a multidisciplinary approach to improve process technology and the underlying chemistry at the same time.

### **Micro/Mesofluidic reactors**

Certech is equipped with multipurpose flow reactors enabling continuous chemical processes. Main features of these equipment's are the outstanding mixing and heat exchange, low internal volume with high residence time allowing the use of low quantities of reactants with an output of 5 kg a day.

Pilot reactors are also available to perform synthesis under strictly controlled experimental conditions in gas, liquid phase but also handling slurries. Different applications are covered including fine chemicals, green chemistry, polymer chemistry and medicinal chemistry.

### **Chemical recycling (Plastic to Liquid, Plastic-to-Gas)**

Chemical recycling is a process which either breaks down or selectively dissolve plastic waste into their chemical constituents and converts them into useful products like basic chemicals, new polymers/oligomers or fuel. Certech has specific skills and equipment able to reach high pressures and temperatures that are used in the field of recycling and valorisation of plastic waste materials in a continuous way.

Certech also has a strong expertise in the field of catalytic pyrolysis for waste to fuel transformation and energy valorisation.

## POLYMER MATERIALS TECHNOLOGY

Certech expertise in polymer and composite materials ranges from analysis and development (formulation, blending...) to transformation and processing, thereby offering a broad and diversified technical and scientific support to partners and customers looking for a global expertise in the field of material science. To address environmental concerns which have become a major topic for industry these last years, Certech has developed a strong expertise in materials and processes with reduced environmental impact, ranging from biobased materials to the mechanical and chemical recycling processes for plastics and composites. This expertise also includes the development of lightweight materials as well as odour and emissions from materials



### Odours and emissions from materials and indoor air quality

Certech conducts R&D projects, testing and consulting in the field of materials interaction with the environment. New requirements from end-users (low odour and emission products, NIAS), new directives and regulations (for example new OEM standards or construction products directive and requirements, health and environmental regulations) have a clear influence on product market acceptance and have generated a need for reliable laboratory testing conditions. By combining skills in sampling and analysis of air with expertise in materials technology, Certech has developed leading edge know-how in assessing and managing gaseous emissions produced by materials. It includes indoor air quality (IAQ), emissions from transportation or building materials, migration phenomena and organoleptic contamination of packaging materials. Certech works in partnership with suppliers, manufacturers and end-users in order to achieve materials emission levels that are complying with the market needs. Certech has been selected as the Belgian expert for the drafting of the European Standard EN13725 "Air quality – Determination of odour concentration by dynamic olfactometry" EN16846-1 "Photocatalysis", ISO 16000 standards "Indoor air" and ISO 12219 "Interior air of road vehicles". Performance evaluations of air purification units are also offered.

## (Bio-based) Polymers and composites

Certech is developing materials and their processing conditions to respond to the most stringent market needs. The intrinsic properties, the cost of raw materials and additives, the origin, processing and manufacturing conditions, health and environmental impact, recyclability are key parameters that are being considered for the development of new materials. Certech has acquired know-how in the synthesis, modification and formulation of petro-sourced and biobased thermosets, thermoplastic materials like wood plastic composites, biobased composites, barrier additives for packaging and storage tank, functional additives, and biopolymer formulations. Preparation of hybrid materials (sol gel, specialty and multifunctional coatings, zeolites chemistry, lightweight materials, cellular materials) is also one of the key competences. Certech has also developed an expertise in the field of material substitution for the plastics and composites sectors aiming at replacing raw materials which are raising potential health or sustainability issues.

### Mechanical recycling (Plastic-to-Plastic)

Recycling of materials is one of the most challenging issues from a sustainability point of view. Certech is involved in sorting and separation processes as well as in the conversion of solid wastes into new materials. It provides assistance in material identification, processing, formulation and evaluation of recycled materials performance.

### Lightweight materials: development of polymer foams

Today, environmental concerns play an increasingly central part in all the sectors of activity (building, transport, energy, ...). In that respect there is an increasing need for more performant and lighter materials. For that purpose, foamed polymers are very interesting materials thanks to their thermal insulation property, lower density, mechanical properties and competitive price. Foamed polymers are found virtually everywhere and are used in a wide variety of applications such as packaging, cushioning of furniture, insulation, structural parts in automotive ... In order to deliver R&D support to partners, Certech has developed several activities linked to foaming: physical and chemical foaming, development and optimization of formulations, development and optimization of processes.



## ANALYTICAL & TECHNOLOGICAL SERVICES

Certech's industrial partners benefit from the support of a wide range of advanced characterization tools. The analytical equipment covers the physical, chemical but also sensorial properties determination:

- Physical analysis: mechanical, rheological, thermal, dynamic mechanical, morphological, barrier properties, molecular weight distribution, polymer degree of branching;
- Chemical analysis: chemical composition determination of resins and polymers, additives, fillers, qualitative and quantitative determination of complex mixtures, traces analysis, non-intentionally added substances (NIAS), reverse engineering ;
- Sensorial analysis: odour and organoleptic properties.



Certech has a 1000 m<sup>2</sup> application hall with highly flexible equipment designed for the simulation of industrial processes:

- Polymer Materials: drying, mixing, pelletizing, extrusion, foaming, injection moulding, resin transfer moulding (RTM), compounding. The available output ranges from 5g to a few hundred kg of processed materials.
- Process Intensification: versatile continuous reactors adaptable to project needs, 20 liters continuous reactor for catalytic pyrolysis, autoclaves from 75 to 1000 ml for high temperature and high pressure chemical treatment, spray-drying.

## COVID-19 PANDEMIC

For the second year in a row Certech has been able to continue to fulfill its mission and serve its customers thanks to an adapted organization using teleworking, implementation of remote communication tools, regular information of the personnel on the evolution and implementation of the safety measures and working conditions to comply with the requirements dictated by the authorities.

Work methods have also been adapted to guarantee the safety of our co-workers. As an example, the sensory lab team was very creative in modifying the olfactometer to comply both with the stringent COVID-19 safety rules and the sensory test conditions.



## 2. R&D COLLABORATIVE PROJECTS



In 2021, Certech was involved, either as coordinator or as a partner, in 11 collaborative projects. The funding sources were: the European Regional Development Fund (ERDF, “Transition” and “Interreg V”), Walloon Region (Marshall Plan) and the European Commission Horizon 2020 framework program.

### ONGOING PROJECTS

Project	Description	Partnership	Funding
ECOLISER	Eco-binders for soil treatment, waterproofing and roads	CTP, INISMa, ULiège, ULB, CRR, Certech, Materia Nova	ERDF Transition

Project	Description	Partnership	Funding
Flow4Syn	Flow chemistry process to convert biobased feedstocks	Certech, UCLouvain, ULiège	ERDF Transition
Flow4Reactors	Microstructured and catalytic intensified reactors	Certech, CRIBC, UCLouvain, ULiège	ERDF Transition
Flow4Solids	Continuous process for the synthesis, drying and final shaping of solids	Certech, UCLouvain, ULiège	ERDF Transition
IntiCosm	New biobased compounds for cosmetic formulations	URCA, Université Lille, ULiège, UGent, Certech, Vito	Interreg V FWVI supported by the ERDF

Project	Description	Partnership	Funding
MACOBIO	Biobased materials and composites	UMons, SIRRIS, Cen aero, Centexbel, Celabor, Materia Nova, Certech	ERDF Transition
BIOMAT	From biomass to biobased materials	UMons, ULB, ULiège, Materia Nova, Celabor, Certech	ERDF Transition
EMRA DEMO2FACTORY	Demonstration platform for SMEs in the field of materials technology characterization	Materia Nova, CRIBC, CTP, Certech	ERDF Transition
HipperPACK	Development of bio-based new packaging (tray, lid and stopper) resistant to high hydrostatic pressure.	Industrial Partnership, Certech, Celabor, Materia Nova	Marshall Plan Wagralim
PUR4UP	Design of new finished products incorporating high quality recycled plastics from end-of-life vehicles (ELVs) and waste of electrical and electronic equipment (D3E)	Industrial Partnership, Certech, ULiège	Marshall Plan Mécatech
MMAtwo	New innovative process for recycling end-of-life PMMA waste	12 EU partners, Certech	EU Horizon 2020

### 3. INDUSTRIAL PROJECTS & SERVICES

#### CONTRACTS R&D and SERVICES

Certech collaborates with industrial companies in their development projects and fosters technological innovation. Concrete solutions, in-depth assistance and technical advice are provided by teams with recognised skills and knowledge. Semi-industrial and pilot equipment are also made available to industrial partners.

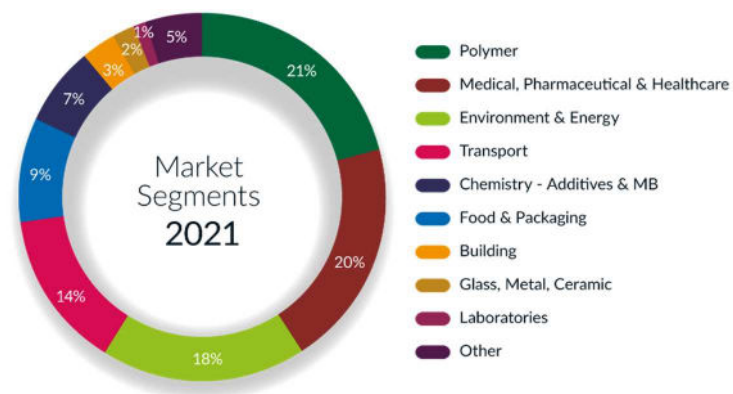
The Certech experts are available for industries looking to improve their products/processes or looking to develop new products/processes. Support projects include feasibility studies, assistance or collaboration on R&D projects, technological transfer or the introduction of new products and processes, help with drafting new specifications, etc. This guidance is supported by literature survey, which enables experts to stay permanently up to date on the scientific and technical progress made within their field of activity which presents a high potential for industrial innovation.

Services activities include analytical support using a wide range of advanced equipment, problem solving, quality control and regulatory assessment.

In 2021, 280 companies received support in their innovation process, 78 (28%) of which were new prospects. A total of 581 contracts were handled.

#### Certech INDUSTRIAL TURNOVER BREAKDOWN INTO SEGMENTS

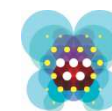
Major market segments for 2021 include plastic industry (polymer producers and end-users 21%), medical, pharmaceutical and healthcare (20%), environment and energy (18%), transportation (14%), chemicals (9%) and food and packaging (7%).



#### FINANCIAL SUPPORT to INDUSTRY

##### Technology vouchers/Technical feasibility studies (Wallonia)

The “Chèques Technologiques” program is a financial support tool for SMEs developing a new product, process or service that requires scientific validation. In an exploratory phase, Certech carries out tests, calculations and initial analyses.



Chèques-entreprises

This initial exploration can be followed by *technical feasibility studies*: carrying out tests, energy balances, development of control methods, optimization of test protocols, laboratory tests, life cycle assessment, etc.

In 2021, Certech provided support to 9 companies using the so-called “Chèques Technologiques” mechanism.

##### KMO Portefeuille (Flanders)

Certech is eligible for technological consulting and contracting supported by Flanders via the KMO-Portefeuille. KMO-Portefeuille is a subsidy measure for Flemish SMEs who may receive subsidies up to 4000 euros per calendar year.



##### Research tax credit (France)

The accreditation by the French authorities to the Research Tax Credit (CIR) was renewed for the period 2020-2024. This mechanism provides a tax advantage to companies subject to income tax. CIR finances all R&D activities: basic research, applied research and experimental development.



## SUCCESS STORIES

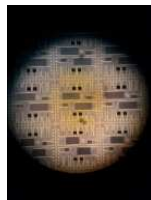
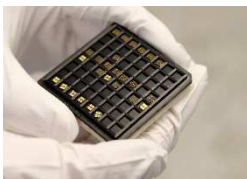
### Launching of Mesoporosil<sup>®</sup>, silicon-based products

Certech partnered with Sil'Innov, a R&D company specialised in silica-based products, on the development of a patented process for the production of mesoporous silica using spray drying and a natural surfactant. An industrial process has been established and validated based on these pilot results. Mesoporosil<sup>®</sup> (trademark from Eytelia) is now available and relies on this ingredient, while various formulations enable an increase in the amount of the bioavailable silicium, in the form of orthosilicic acid, after ingestion (<https://www.eytelia.eu/mesoporosil>). Since the 70s, it has been proven that a lack of silicium leads to an abnormal formation of the bones as well as of the cartilaginous tissues. These issues can be solved by using soluble silica as a dietary supplement. From now on, with the development of Mesoporosil<sup>®</sup>, a new soluble, absorbable and bioavailable source of silicium – and for the first time in the solid state – is available on the market. These new ingredients are formulated into oral dosage forms (tablets, sachets, capsules) being commercialised in the new product lines INNOVASIL<sup>®</sup> and SILXPERT<sup>®</sup>, commercialised by Eytelia.



### Sensors for the on-line measurement of indoor pollutants

Certech is collaborating with the company VOCsSens in the framework of the future market launch of CMOSEnvi<sup>™</sup> gas sensors, dedicated to environmental monitoring and health & safety industrial applications (monitoring of Volatile Organic Compounds emissions). VOCsSens has developed and patented a new concept of miniaturized environmental camera fully compatible with the CMOS technology, cost competitive and autonomous.



## PARTICIPATION in TECHNICAL STANDARDISATION COMMITTEES



Thanks to its expertise based on R&D activities, Certech is an active member of several technical standardisation committees dealing with air quality, odours, volatile organic compounds (VOC) and photocatalysis.

Certech is helping industry professionals to:

- understand the aspects related to technical and scientific standardisation and regulations;
- stay up to date with methods and trends in standardisation and regulations in their specific sector;
- Implement the standards in their daily activity.

ISO/TC 146	Air quality
CEN/TC 264	Air quality
CEN/TC 386	Photocatalysis
AFNOR B44/A	VOC and odours, photocatalytic materials, chamber recycling test



## QUALITY

Certech operates under the ISO 9001:2015 quality management system. The certification was confirmed for the period 2021-2022.



Certech is approved by the Walloon Region for the sampling, analysis and research in the field of air quality (including odours), as well as for measurements by dynamic olfactometry and odour detection threshold with human assessors. for the period 2019-2023.



Car Manufacturers accreditation according to the technical requirements of ISO 17025 to measure odours and VOCs on materials and parts.

Certech is accredited by PSA/Stellantis for the following tests:

- VOC analyses according to D10 5495-E
- Aldehydes and Ketones analyses according to D40 5535-E
- Odour according to D10 5517-G



The Renault Nissan accreditation was renewed for the period 2021-2024 for the following tests:

- VOC and aldehydes & ketones analyses from materials after conditioning in micro-scale chamber according to RNES-B-20116 v1.1
- VOC, aldehydes & ketones, odour analyses from entire parts after conditioning in 1 m3 chamber test according to RNES-B-00114 v1.1 (formerly D49 3027-C and D49 3085-B) and RNES-B-00096 v1.1 (formerly D49 3046-C)
- Odour from materials according to RNES-B-00096 v1.1 (formerly D49 3001-E)
- VOC analyses according to D42 3109-C and D413144-A
- Aldehydes and Ketones analyses according to D40 3004-A



## EVENTS: Emissions & Odours from materials: Webinar Conference, October 7.

The 15th edition of the “Emissions and odours from materials” took place on October 7 as a webinar conference. About 100 participants from all-over the world attended the one-day webinar confirming the interest of the industry for this topic.

During the last two decades, there has been increasing concern within the scientific community over the effects of VOC exposure on health. Public awareness of environmental, health and safety issues related to air quality has grown significantly. Regulations and labelling of products have been promoted by the governments, resulting in ever more stringent specifications for the industry regarding the emission of volatile compounds from materials.

Plastic materials, coatings and inks, adhesives, flooring materials, furniture, textiles, insulating materials emit volatile organic compounds (VOC) that contribute to the indoor air quality in terms of odours and pollutants. In food, pharmaceutical and cosmetic industries, volatiles released by the packaging can have an impact on the organoleptic perception of the products and even on their quality. Non-intentionally added substances (NIAS) present in a food contact material/article are chemical products that can migrate from the material into food and requires often high sensitive analysis.

New consumer products and new biobased/recycled materials coming today on the marketplace have to be evaluated for their VOC release, including their contribution to the odour perception of the products.

The need for communication between professionals working on this subject is obvious, particularly with respect to discussing research results, disseminating information, promoting activities ...

With the participation of leading industry professionals, standards & regulatory experts, R&D scientists, material specialists, industry analysts and market players, the conference offers an ideal platform for best practice sharing and acquiring new knowledge from participants and speakers

#### 4. PARTICIPATIONS and COLLABORATIONS

##### PROFESSIONAL BODIES



[www.essencia.be](http://www.essencia.be)



[www.idea.be](http://www.idea.be)



[www.wal-tech.be](http://www.wal-tech.be)



[www.src.be](http://www.src.be)



[www.valbiom.be](http://www.valbiom.be)



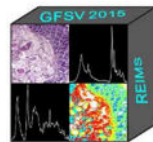
[www.ccih.be](http://www.ccih.be)



[www.4spe.org](http://www.4spe.org)



[www.gn-meba.org](http://www.gn-meba.org)



[www.gfsv.net](http://www.gfsv.net)

##### CLUSTERS



[www.greenwin.be](http://www.greenwin.be)



[www.polemecatech.be](http://www.polemecatech.be)



[www.wagralim.be](http://www.wagralim.be)



[www.polymeris.fr](http://www.polymeris.fr)



[www.clusters.wallonie.be](http://www.clusters.wallonie.be)



[www.clusters.wallonie.be](http://www.clusters.wallonie.be)



[www.iar-pole.com](http://www.iar-pole.com)



[www.bbi-europe.be](http://www.bbi-europe.be)

## COLLABORATIONS



Certech is an Authorised Partner Laboratory from Agilent Technologies. The collaboration covers all aspects of molecular weight and chemical composition distribution by gel permeation chromatography (GPC), temperature rising elution fractionation (TREF) and odours and emissions from materials using thermal desorption gas chromatography mass spectrometry (TDS-GC-MS).



Certech is member of the Editorial Board of the International Journal of Polymer Analysis and Characterization (IJPAC) and referee for the following journals: ACS Catalysis ; Catalysis Communications ; Catalysts ; ChemCatChem ; Chemistry - A European Journal ; Molecules ; Nanomaterials ; Organic Letters ; Polymer Chemistry ; RSC Advances; Synthesis

## 5. PUBLICATIONS, LECTURES & ATTENDANCE at CONFERENCES & TRADE SHOWS

### Patent:

- Silica with ultra-fast properties: PCT Int. Appl., 2021, WO 2021069074 A1; N. Mannu, Q. Chevrot, K. Croizet-Berger, N. Rabasso, I. Coste-Manière, J. Estager, B. Kartheuser.

### Scientific Papers:

- A new GPC/TREF/LinELSD instrument to determine the molecular weight distribution and chemical composition: application to recycled polymers, A. Boborodea, S. O'Donohue, A. Brookes, *International Journal of Polymer Analysis and Characterization*, **2021**, 26, 721-734.  
<https://doi.org/10.1080/1023666X.2021.1971836>

### Books:

- Starch in the Bioeconomy, J.L Wertz, B. Goffin, CRC Press 2021.

### Lectures:

- Odeur et émissions des matières plastiques : les mesurer et les réduire. C. Henneuse, Journée émergence de projets Polymeris, Bordeaux (F), November 24, 2021.
- State-of-the-art analytical tools for VOC/odour/migration characterization. C. Brasseur, 15<sup>th</sup> Emissions and odours from materials conference webinar, Seneffe (B), October 07, 2021.
- Hydrogen Production & Storage under favorable atmospheric conditions for Small and Smart Production of Renewable Energy. F. Collignon Clean Hydrogen webinar: R&I collaboration opportunities between Canada, Switzerland & Wallonia, September 29, 2021.
- Recyclage chimique des polymères & intensifications de procédés, F. Collignon, Plastiwin webinar, June 01, 2021.
- Les matériaux isolants en MEB, Approfondissement en imagerie au microscope électronique à balayage et en microanalyse X, A. Jadin, Le Cnam Entreprises stage EA02, Paris (F), March 24, 2021 (Visio).
- Continuous chemistry: technological innovation for the cosmetic industry. J. Estager, Biobased materials and their use in the field of cosmetic formulation webinar, January 18, 2021.

## They talk about us:

- February 11, 2021 : Pur4UP, le projet wallon qui utilisera du plastique recyclé pour créer des stations d'épuration, La Libre Eco.
- February 11, 2021: Du plastique recyclé pour produire des stations d'épuration wallonnes, Trends Tendence.
- February 11, 2021 : Alliance wallonne pour la création d'une nouvelle génération de stations d'épuration en plastique recyclé, CCI mag.
- Septembre 29, 2021 : [Franche réussite pour l'événement de maillage sur l'hydrogène propre, www.wbi.be.](http://www.wbi.be)

## Conference and Trade show Attendance

Event	Date	Location
Les solutions Agilent pour l'analyse de micro-plastiques	14-01-2021	Webinar
Biobased materials and their use in the field of cosmetic formulation	18-01-2021	Webinar
Journée technique fin de vie des matériaux biosourcés	19-01-2021	Webinar
AMI Polymer Foam conference	19,26-01 & 02-02-2021	Webinar
Tech'Day "Fibres naturelles pour les matériaux performants"	28-01-2021	Webinar
Webinaire Tweed stockage d'énergie : wrap-up du 09/12/20	28-01-2021	Webinar
Virtual 12 <sup>th</sup> Multidimensional Chromatography Workshop (12 <sup>th</sup> MDCW)	1 to 3-02-2021	Webinar
Webinaire Tweed CCU & les nouvelles molécules de la transition énergétique	02-02-21	Webinar
Webinaire Desotec & Lybover: Réduction des émissions de poussières et COV dans l'industrie du broyage	02-02-21	Webinar
Webinaire intelligence artificielle, énergie et construction	04-02-21	Webinar

Event	Date	Location
AFNOR réunion de travail B44, enceinte de grand volume	16-02-2021	Webinar
Mecanochemistry meets industry	17&18-02-2021	Webinar
Webinaire AFHYPAC : hydrogène les technologies clés	24-02-2021	Webinar
Webinaire Stratégie de l'innovation et numérique : focus sur l'IA et l'IoT	26-02-2021	Webinar
Session générale d'information par le NCP dans le cadre du lancement Horizon EU	2-03-2021	Webinar
Plastiwin/Webinar « Le recyclage de produits plastiques complexes » par Centexbel	2-03-2021	Webinar
Midi de la Biomasse : Sous-produits & End-of-Waste	2-03-2021	Webinar
Atelier virtuel NCP "Industrie 4.0" dans le cadre du lancement Horizon EU	3-03-2021	Webinar
Atelier virtuel NCP "Energie et efficacité énergétique" dans le cadre du lancement Horizon EU	3-03-2021	Webinar
Atelier virtuel NCP "ICT : AI, blockchain, clouds, big data, eG et robotique" dans le cadre du lancement Horizon EU	5-03-2021	Webinar
Atelier virtuel NCP "Matériaux avancés, industrie du process" dans le cadre du lancement Horizon EU	4-03-2021	Webinar
Atelier virtuel NCP : « Economie circulaire (technologies), recyclage » dans le cadre du lancement Horizon EU	4-03-2021	Webinar
Webinaire Energyville gaz	4-03-2021	Webinar
SPE Additives & Colors Academy: Trends & training	11-03-2021	Webinar

Event	Date	Location
Webinaire L'Intelligence Artificielle: outil incontournable de l'industrie de procédés	12-03-2021	Webinar
Webinar - the aera of digital in biomanufacturing	3-03-2021	Webinar
SPE Additives & Colors Academy: Trends & training	11-03-2021	Webinar
Webinaire AFHYPAC : hydrogène en mobilité	15-03-2021	Webinar
Elasto-Plast Slotevent	16-03-2021	Webinar
AFNOR réunion de travail B44, enceinte de grand volume	22-03-2021	Webinar
Les matériaux isolants en MEB (dans stage EA02 au CNAM)	24-03-2021	Webinar
Workshop: Accélérer l'adoption des plastiques à usage uniques recyclés	7-04-2021	Webinar
Webinar Fibres naturelles & Plasturgie	8-04-2021	Webinar
Webinar : Natural colorants for bioplastics (Interreg Nortwest Europe project CurCol)	20-04-2021	Webinar
Strategic Research Needs for the European Plastics and Composites Industry 2021 (annual conference ECP4)	21-04-2021	Webinar
Webinaire Plastiwin "Nouveaux polymères pour le domaine de la santé" (ULg)	27-04-2021	Webinar
AG et conférence plénière Plastiwin 2021	18-05-2021	Webinar
Renewable Materials Conference 2021	18 to 20-05-2021	Webinar
L'extrusion réactive : un procédé complémentaire au recyclage mécanique des plastiques	20-05-2021	Webinar
Conférence fibres végétales ValBiom	20-05-2021	Webinar

Event	Date	Location
PSYCHE Workshop on purification of Syngas	10-05-2021	Webinar
PSYCHE Guest Lecture on Fischer-Tropsch synthesis & Gasification	27-05-2021	Webinar
Webinaire PURESmart (recyclage PC et PU)	31-05-2021	Webinar
webinaire Plastiwin: Recyclage chimique des Polymères	1-06-2021	Webinar
GNMEBA - Réunion Thématique de Printemps	3-06-2021	Webinar
SpecialChem webinar : Reimagine the EV battery with Advanced Thermoplastics (Sabic)	9-06-2021	Webinar
Webinar Plastiwin/Sirris : La transformation digitale appliquée à l'injection plastique	10-06-2021	Webinar
SFIP - PLASTURGIE 2020 : INNOVATION ET INDUSTRIE 4.0	16&17-06-2021	Webinar
MedPharmPlast Europe Summer Conference 2021	16&17-06-2021	Webinar
Réunion AFNOR B44a photocatalyse	17-06-2021	Webinar
Plastiwin/Anser: Webinaire "Analyse et diminution de l'impact des impuretés dans mes procédés via leur identification"	17-06-2021	Webinar
SusChem Brokerage Event Plenary	21-06-2021	Webinar
AG et B2B pôle Polymeris (FR)	23-06-2021	Webinar
Réunion CEN TC 386 photocatalyse	24&25-6-2021	Webinar
Rendez vous chimie verte et éco-innovation	29-06-2021	Webinar
Formation 4.0 technofutur	29&30-6-2021	Webinar
Recycling of plastics. Towards a more sustainable plastic treatment in 2030	1-07-2021	Webinar



<b>Event</b>	<b>Date</b>	<b>Location</b>
Webinaire Plastiwin/Sirris: Aperçu sur les composites et structures hybrides à base thermoplastique	7-09-2021	Webinar
2nd Annual Innovative Plastics Processing and Recycling Online Conference	16&17-09-2021	Webinar
Webinar & Virtual Tour Sirris - How can you speed up your Medtech project?	23-09-21	Webinar
AFNOR/B44A: présentation du CEN/TC386 WG8 "Microbiological effects"	04-10-21	Webinar
The Plastics Paradox - The Truth about Plastics & the Environment	7-10-2021	Webinar
Plastic Recycling Show	4&5-11-2021	Amsterdam (NL)
Journée émergence de projets Polymeris	24-11-2021	Bordeaux (F)
Plastiwin - PLENIERE 2021	25-11-2021	Gembloux (B)
Webinaire de Veille technologique: "les bio-polymères" organisé par Plastiwin et Centexbel	7-12-2021	Webinar
Circularity & Sustainability in Plastic Medical Devices and Pharmaceutical Packaging: Industry Perspective	08-12-2021	Webinar
Webinaire Polymeris/Polyvia : Tour d'horizon des innovations en fabrication additive après Formnext 2021	13-12-2021	Webinar
GFSV	24&25-11-2021	Webinar

## 6. KEY FIGURES

### Balance sheet

<b>Assets</b>	<b>2021</b>	<b>2020</b>	<b>Liabilities</b>	<b>2021</b>	<b>2020</b>
<b>Fixed assets</b>	<b>1.077.185</b>	<b>1.687.724</b>	<b>Reserves</b>	<b>5.650.082</b>	<b>5.968.531</b>
Scientific equipment and installations	1.077.185	1.687.724	Social reserves	2.228.173	2.228.173
			Accumulated reserves	2.996.915	2.936.761
			Investment subsidies	424.995	803.597
<b>Current assets</b>	<b>8.564.839</b>	<b>8.760.484</b>	<b>Provisions for contingencies and losses</b>	<b>241.695</b>	<b>243.286</b>
Accounts due within one year	2.331.559	2.331.421			
Cash investments	3.179.990	2.247.276	<b>Debt</b>	<b>3.750.247</b>	<b>4.236.392</b>
Cash	2.791.777	3.860.495	Accounts payable after one year	1.466.935	1.505.506
Adjustments (accrued income)	261.513	321.294	Accounts payable within one year	2.193.227	2.639.185
			Adjustment accounts	90.085	91.703
<b>Total assets</b>	<b>9.642.024</b>	<b>10.448.210</b>	<b>Total liabilities</b>	<b>9.642.024</b>	<b>10.448.210</b>

**Income statement**

<b>Income statement</b>	<b>2021</b>	<b>2020</b>	<b>Workforce</b>	<b>2021</b>	<b>2020</b>
<b>Turnover</b>	<b>4.264.821</b>	<b>4.715.236</b>	<b>Total Headcount</b>	<b>35</b>	<b>36</b>
Contract operations	2.385.468	2.357.263	Total FTE	32,7	33,7
Public research subsidies	1.109.650	1.474.125	FTE Scientists	29,3	30,3
Depreciation subsidy allowances	406.353	422.068	FTE Technicians	1	1
Other revenues	363.351	461.780	FTE administrative staff	2,4	2,4
<b>Expenses</b>	<b>3.436.996</b>	<b>3.753.696</b>			
Supplies and services	801.826	903.523			
Salaries	2.635.170	2.850.174			
<b>Depreciation, provisions and loss of value</b>	<b>731.800</b>	<b>737.772</b>			
<b>Financial revenues</b>	<b>950</b>	<b>837</b>			
<b>Financial expenses</b>	<b>19.352</b>	<b>5.559</b>			
<b>Other expenses and Taxes</b>	<b>17.469</b>	<b>14.396</b>			
<b>Net Result</b>	<b>60.153</b>	<b>204.650</b>			

## 7. Certech Management

### General Assembly - Board of Directors

				Industry	
General Assembly	UCLouvain	Eric Gaigneaux			Board of Directors
		Nathalie Burteau			
	TotalEnergies	Jean-Pierre Dath	Chairman	√	
	Umicore	Jean Scoyer		√	
	Dow Silicones	Serge Creutz		√	
	Cargill	Stéphane Biltresse		√	
	Veolia	David Benanou		√	
	GMA Consult	Gisèle Maréchal		√	
	it4ip	Yves-Jacques Schneider		√	
	Grando	Yves Charlier		√	
	IDEA	Maité Dufrasne		√	
		Philippe Busquin			
	Guest	Thierry Randoux	General Manager		
	SPW-EER	Emmanuel Delhayé	Observer		
UCLouvain	Thomas Pardoën				

### General Management

General Manager	Thierry Randoux
Business Manager-Deputy General Manager	Catherine Henneuse

### Auditor

Avisor scrl	Dorothee Hurteux
-------------	------------------

Certech (CEntre de Ressources TEchnologiques en CHimie) asbl  
Rue Jules Bordet, 45 - Zone Industrielle C - B 7180 SENEFFE - BELGIUM  
TVA BE 0470.677.454 ING 370-1128214-94  
Tél. +32 64 520 211- - e-mail : [info@certech.be](mailto:info@certech.be)  
[www.certech.be](http://www.certech.be)

