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Editorial

2020 was an unprecedented year because of 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 using teleworking, remote communication tools, regular information of the personnel on the evolution of the situation and implementation of safety measures and working conditions to comply with the requirements dictated by the authorities.

Certech has been involved, either as a coordinator or as a partner, in 17 collaborative projects, 3 of which were launched in 2020. The funding sources were the European Commission (Horizon 2020 framework program), the European Regional Development Fund ("Transition" and "Interreg V"), and the Walloon Region (Cornet, Marshall Plan, DGO4 general interest industrial research program). Those projects cover the different strategic axes of Certech's development: process intensification, plastic recycling, biobased polymers and composites, energy storage, 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 2020, 224 companies received support in their innovation process, 44 (20%) of which were new prospects. A total of 620 contracts were handled. The income from industrial contracts reached the 2,4 Mio €.
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 innovative solutions to improve or develop products and processes, in accordance with the principles of sustainable chemistry and circular economy 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 ISO 17025 accredited for the sampling and measurement of odours and is approved for the atmospheric pollution control (odour, volatile organic compounds, noise) by Regional authorities. Certech 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

Energy is clearly one of the main issues of the 21st century. 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.

POLYMER MATERIALS TECHNOLOGY

(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.

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 "Photocataysis", ISO 16000 standards "Indoor air" and ISO 12219 "Interior air of road vehicles". Performance evaluations of air purification units are also offered.

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.

CHEMISTRY AND INDUSTRIAL PROCESSES

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 this equipment 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.

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^2 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

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 olfactomer to comply both with the stringent COVID-19 safety rules and the sensory test conditions.

2. R&D COLLABORATIVE PROJECTS

In 2020, Certech was involved, either as coordinator or as a partner, in 17 collaborative projects. The funding sources were: the European Regional Development Fund (ERDF, "Transition" and "Interreg V"), Walloon Region (Cornet, Marshall Plan, DGO4 general interest industrial research program) and the European Commission Horizon 2020 framework program.
3 new projects were launched in 2020: IntiCosm, PUR4UP and HipperPACK.

ONGOING PROJECTS

Project	Description	Partnership	Funding
Recy-Composite	Recycling of composite materials	Certech, CTP, Centexbel, Ecole Mines Douai, Armines, Crepim	Interreg V FWVl supported by the ERDF
INTERESTS	Project in the field of energy – hydrogen storage	Certech, UCLouvain, TWEED, ATM-Pro, N-Side	DGO4
STOCC	Development of materials for energy storage	UCLouvain, Certech, CSTC, CRIC	ERDF Transition
ECOLISER	Eco-binders for soil treatment, waterproofing and roads	CTP, INISMa, ULiège, ULB, CRR, Certech, Materianova	ERDF Transition
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
COMPOSENS	Cross-border development of composite materials (polymer-natural fibres)	Certech, Valbiom, ULiège, Ecole Mines Douai, Armines, INRA, CRITT	Interreg V FWVl supported by the ERDF
DURATEX	Development of anti-fouling and anti-microbial hydro-oleo-repellent textiles for sustainable applications in the fields of construction and architecture	Centexbel, UCLouvain, Certech, Ensait, Ceti	Interreg V FWVl supported by the ERDF
HUMIDWRAP	Humidity and Water Regulating Active Packaging	Certech, Celabor, PTS, IVV, LBF, ZUT, COBRO	Cornet
MMAtwo	New innovative process for recycling end-of-life PMMA waste	12 EU partners, Certech	EU Horizon 2020

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

NEW PROJECTS

Project	Description	Partnership	Funding
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
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
IntiCosm	New biobased compounds for cosmetic formulations	URCA, Université Lille, ULiège, UGent, Certech, Vito	Interreg V FWVl supported by the ERDF

PUR4UP

European demand for vehicles and electrical and electronic equipment is growing and the proportions of plastics used in these goods are also increasing. However, the waste generated by these sectors is currently insufficiently recycled. In Europe, only 31% of the total amount of waste generated is recycled, generating a significant waste of resources. In this context, **Certech** is participating in the design of new end-products incorporating high-quality recycled plastics from end-of-life vehicles (ELVs) and waste electrical and electronic equipment (D3E).

As part of this research, Certech relies on its expertise in the field of plastic recycling to fulfill the following roles:

- Homogenize each recycled polymer stream by extrusion and filtration in the melt,
- Optimize each material by formulation (compounding), in order to reach the specifications for the final application,
- Characterize the materials in order to deliver technical datasheets.

HipperPACK

High Pressure Processing (HPP) for food applications is a growing additive-free technology with various advantages: increase of the storage life, improved taste and nutritional qualities. There is still a potential for further growth for agri-foodstuff applications but in order to do so, suitable packaging's need to be further developed, especially taking into account the HPP process specifications, consumers expectations as well as regulatory and environmental constraints. The project aims to answer these challenges by investigating two routes:

- developing a (bio)polymer-based flexible membrane for glass bottles lids
- developing a biobased polymer tray, with options for recycling and/or compostability.

IntiCosm

Europe is the world leader in the cosmetic industry with a turnover of 77 billion euros, including more than 2 billion euros for Belgium. Certech is presently developing new solutions for cosmetic applications notably in the field of encapsulation through the design of biobased carriers.
Our research projects include the following topics:

- Synthesis of biobased dendrimers to be incorporated in cosmetic formulations as carriers.
- Characterisation of cosmetic formulations (size of micelles, stability,…).
- Process intensification via meso/microfluic flow reactors.

TECHNOLOGICAL GUIDANCE AND VALORISATION PROJECTS

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 2020, 224 companies received support in their innovation process, 44 (20%) of which were new prospects. A total of 620 contracts were handled.

FINANCIAL SUPPORT to INDUSTRY

Technology cheques

Available since January 1st 2009, the "Chèques Technologique" program is a financial support tool for SMEs needing technological expertise on a specific topic. This support may take the form of preliminary testing, calculations and analysis, carrying out all or part of the design and/or adaptation of products, processes or services, or the resolution of technical problems related to the quality and compliance of newly-developed products, processes and services.
In 2020, Certech provided support to 8 companies using this funding mechanism.

Technical Feasibility
The Technical Feasibility projects supported by the Walloon Region are a financial aid mechanism to help SMEs in their innovation process, designed to develop their ideas prior to the development of a product or service.
It allows companies to use external research organisations to carry out technical services. Certech provides support to SMEs in project filing. The notification of the Walloon authorities is given within the 3 months following the submission of the application.

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.

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 2020-2021.

The BELAC accreditation certificate nr 400-TEST was confirmed for the sampling and analysis of odours by dynamic olfactometry following the ISO 17025 technical requirements.

N° 400-TEST

Certech has been granted a Renault Nissan accreditation for the new method RNES-B-20116 v1.0: "VOC and aldehydes & ketones screening by micro-scale chamber test".
Certech already operates under the accreditation from Renault, Nissan and PSA according to the technical requirements of ISO 17025 to measure odours and VOCs on materials and parts.

- VOC, aldehydes & ketones, odour analyses from entire parts after conditioning in 1 m³ chamber: D49 3027-C / RNES-B-00114 v1.0, D49 3085-B / RNES-B-00114 v1.0 and D49 3046-C / RNES-B-00096 v1.0
- VOC analyses on materials: D42 3109-C / D10 5495-E
- Aldehydes and Ketones analyses on materials: D40 3004-A / D40 5535-E
- Odour from materials: D49 3001-E / RNES-B-00096 v1.0 / D105517-G
- VOC analyses on adhesives and sealants: D41 3144-A

Certech is approved by the Walloon Region for the sampling and analysis in the field of air pollution for the period 2019-2023.

Wallonie

EVENTS: **Closing Event of the Cross-Border Projects in the Field of performance and recycling of (Bio) composite materials on September 17, 2020**

A virtual closing event of the cross-border projects dedicated to the performance and recycling of (Bio) composite materials *RECY-COMPOSITE* and *COMPOSENS* took place on September 17, 2020 and gathered about 100 delegates from industry and R&D organisations.

The following topics were covered:

- Trends and opportunities to improve the life cycle performance of composite materials
- The impact of the extrusion process of polymer-natural fibres composites on the fibres length and sensorial properties
- The mechanical and chemical recycling of composite materials
- The development of intumescent systems

Interreg France-Wallonie-Vlaanderen UNION EUROPÉENNE EUROPESE UNIE

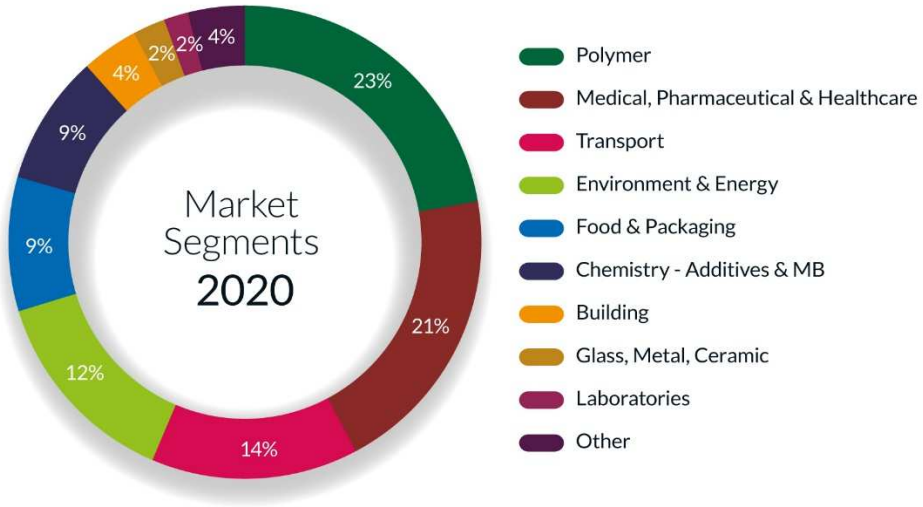
RECY-COMPOSITE

Interreg France-Wallonie-Vlaanderen UNION EUROPÉENNE EUROPESE UNIE

COMPOSENS

Certech INDUSTRIAL TURNOVER BREAKDOWN INTO SEGMENTS

Major market segments for 2020 include plastic industry (polymer producers and end-users 23%), medical, pharmaceutical and healthcare (21%), transportation (14%), environment and energy (12%), food and packaging (9%) and chemicals (10%).



4. PARTICIPATIONS and COLLABORATIONS

PROFESSIONAL BODIES

www.essenscia.be

www.uwe.be

www.wal-tech.be

www.src.be

www.valbiom.be

www.suschem.org

www.gn-meba.org

www.gfsv.net

www.4spe.org

CLUSTERS

www.greenwin.be

www.polemecatech.be

www.wagralim.be

www.clusters.wallonie.be

www.clusters.wallonie.be

www.iar-pole.com

www.bbi-europe.be

COLLABORATION

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

Scientific Papers:

- Influence of Site Pairing in Hydrophobic Silica-Supported Sulfonic Acid Bifunctional Catalysts, P. Kasinathan, C. Lang, E. M. Gaigneaux, A. M. Jonas, and A. E. Fernandes, *Langmuir* **2020**, *36*, 13743-13751.
- Discrete multifunctional sequence-defined oligomers with controlled chirality, Jie Li, M. Leclercq, M. Fossepré, M. Surin, K. Glinel, A. M. Jonas, and A. E. Fernandes, *Polym. Chem.* **2020**, *11*, 4040-4046.
- Universal calibration of gel permeation chromatography using evaporative light scattering detector coupled with viscometer, A. Boborodea, S. O'Donohue, *International Journal of Polymer Analysis and Characterization*, **2020**, *25*, 167–175
- Importance des interactions fibre/matrice dans le comportement rhéologique des composites renforcés de fibres lignocellulosiques, L. Lemkhanter, P. Lemaitre, B. Goffin, R. Castellani, B. Vergnes et F. Berzin, *Rhéologie*, **2020**, *37*, 10-15
- Continuous flow upgrading of selected C2-C6 platform chemical derived from biomass, R. Gérardy, D. Debecker, J. Estager, P. Luis, J.C. Monbaliu, *Chem. Rev.*¸ **2020**, *120*(15), 7219-7347
- Separation of bio-based chemicals using pervaporation, W. Li, J. Estager, J.C. Monbaliu, D. Debecker, P. Luis, *Journal of Chemical Technology and Biotechnology*, **2020**, *95*(9), 2311
- Supported ionic liquid membranes for the separation of methanol/dimethyl carbonate mixtures by pervaporation, W. Li, C. Molina-Fernandez, J. Estager, J.C. Monbaliu, D. Debecker, P. Luis, *Journal of Membrane Science* **2020**, *598*, 117790

Lectures:

- Suitable advanced methodology for the odour / VOC analyses from plastics and bio-composites materials. M. Demeyer, 22th Workshop: Odour and Emissions of Plastic Materials, Kassel (D), march 3-4, 2020.
- Syngas purification to reach Fischer-Tropsch quality gases, L. Ben Mustapha, PSYCHE Interreg V Project Event Guest Lecture, webinar, May 28, 2020
- Process Intensification and Chemical Recycling, F. Collignon, C. Dubois, EUROPIC Advanced Workshop, Guest Lecture, webinar October 14-15, 2020
- Development of a hydrophobic formulation, B. Kartheuser, Duratex Interreg V Project Event: Ecological Repellency, webinar, October 28,
- Plastiwin webinar: L'Odeur des Matières Plastiques : les Mesurer et les Réduire, T. Pacary, November 17, 2020.

Conference and Trade show Attendance

Event	Date	Location
Working group CEN/TC264 - meeting finalisation standard EN13725	21 & 22-01-20	Delft (NL)
Digital Factory : Les réponses de l'usine numérique aux défis de l'industrie	13-02-20	Gosselies (B)
22st Conference Odour and Emissions of Plastic Materials	3 & 4-03-20	Kassel (D)
Flow Chemistry Europe 2020	3 & 4-03-20	Cambridge (UK)
Working group CEN/TC264 - meeting finalisation standard EN13725	6 & 7-04-20	Webinar
Du PLM à l'usine connectée: la continuité numérique au service de l'industrie	14-04-20	Webinar
Introduction à l'intelligence artificielle	16-04-20	Webinar
Innovation in Environment & Energy & Circular Economy	4 & 5-05-20	Webinar
Biocatalyse : un outil performant et compétitif pour transformer et fonctionnaliser la matière	06-05-20	Webinar
Nano in Business : scale up of nanomaterials manufacture	20-05-20	Webinar
H2 & Emerging Technologies for sustainable energy (ClusterTweed)	20-05-20	Webinar
Stratégie de prélèvement de polluants dans l'air des locaux de travail - INRS	02-06-20	Webinar
Data science au service de l'excellence opérationnelle	02-06-20	Webinar
Financement de la transition énergétique en Wallonie - (ClusterTweed)	02-06-20	Webinar
Pourquoi évoluer vers le 4.0 : la rentabilité des investissements 4.0	03-06-20	Webinar
INRS évaluation des expositions à des agents chimiques	15-06-20	Webinar
Exploitation des datas – Cas pratique Maintenance 4.0, Technocampus	10-06-20	Webinar
Exploitation des datas & optimisation de performance	22-06-20	Webinar
EU Sustainable Energy Week	23 to 26-06-20	Webinar
Atelier d'innovation concernant renouvellement de la Stratégie de spécialisation intelligente de la Région Wallonne (S3). session : Transition énergétique	09-07-20	Webinar
Webinar Ecotech - Quels outils pour mieux appréhender les expositions aux polluants environnementaux	14-09-20	Webinar
AMI Wood-Plastic Composites Virtual Summit	15 & 16-09-20	Webinar
Virtual Workshop on Polymer Recycling (MMATwo)	15-09-20	Webinar
Transition énergétique & environnementale dans le secteur de l'eau - Stratégie de la SWDE	15-09-20	Webinar

Event	Date	Location
Evénement de clôture des projets Interreg V: Composens et Recy-Composite	17-09-20	Webinar
Annual event bio.be/essenscia - "Agility, Belgian biotech's booster"	21-09-20	Webinar
Ecological water repellency	28-09-20	Webinar
S3 - 3rd Congress 2020, avec en parallèle des sessions B2B, Plastipolis	08-10-20	Webinar
Worksafe 2020: trade show for health & safety at work	08-10-20	Namur (B)
Journée technique : Biocatalyse et Catalyse: quelles synergies pour la synthèse chimique?	13-10-20	Webinar
Europic Advanced Workshop on Plastics Recycling.	14 & 15-10-20	Webinar
Plastics Circularity Multiplier Conference	14 to 16-10-20	Webinar
Certification and Standardization for Circularity of Plastics Converters	20-10-20	Webinar
Plastiwin/essenscia - Réglementation de l'industrie des plastiques	26-10-20	Webinar
Tweed : EnergyVille focus storage	27-10-20	Webinar
Storage in our neighbouring regions (Tweed, Flux 50, Smile)	10-11-20	Webinar
Horizon Europe Belgian launch event	12-11-20	Webinar

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Data science au service de l'excellence opérationnelle	02-06-20	Webinar
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Event	Date	Location
Webinaire : "Additive Manufacturing: quels usages concrets pour mon entreprise ?	17-11-20	Webinar
WAGRALIM « Emballage et économie Circulaire »	19-11-20	Webinar
Semaine Européenne de l'hydrogène	23 to 27-11-20	Webinar
Scale4Mat online workshop	24 & 25-11-20	Webinar
Journées thématiques GFSV	25 & 26-11-20	Webinar
Virtual Italian Flow Chemistry Symposium	26-11-20	Webinar
L'emballage de demain	30-11-20	Webinar
Evénement annuel Interreg 2020	01-12-20	Webinar
Greendays 2020 (Foire Pollutec en ligne)	1 to 3-12-20	Webinar
Journées thématiques GN-MEBA	3 & 4/12/20	Webinar
MedPharmPlast Europe Conference 2020	07-12-20	Webinar
Conférences et tables rondes 3DP Elastoplast	08-12-20	Webinar
Groupe de travail Tweed sur le stockage d'énergie en Wallonie	09-12-20	Webinar
Plastics Recycling Show	9 to 11-12-20	Webinar
2nd International Conference on a circular economy for plastics and textiles	15 & 16-12-20	Webinar
Réaction au feu et impression 3D : 45 minutes pour comprendre	15-12-2020	Webinar

6. Key Figures

Balance sheet

Assets	2020	2019
Fixed assets	**2.361.605**	**2.361.605**
Scientific equipment and installations	1.687.724	2.357.767
Financial immobilisation	0	3838
Current assets	**8.760.484**	**8.499.668**
Accounts due within one year	2.331.421	2.465.268
Cash investments	2.247.276	2.247.276
Cash	3.860.495	3.389.801
Adjustments (accrued income)	321.294	397.322
Total assets	**10.448.210**	**10.861.273**

Liabilities	2020	2019
Reserves	**6.172.282**	**6.172.282**
Social reserves	2.228.173	2.128.173
Accumulated reserves	2.936.761	2.832.111
Investment subsidies	803.597	1.211.998
Provisions for contingencies and losses	**243.286**	**241.579**
Debt	**4.236.392**	**4.447.412**
Accounts payable after one year	1.505.506	1.550.418
Accounts payable within one year	2.639.185	2.891.368
Adjustment accounts	91.703	5.627
Total liabilities	**10.448.210**	**10.861.273**

Income statement

Income statement	2020	2019
Turnover	**4.715.236**	**5.149.056**
Contract operations	2.357.263	2.726.141
Public research subsidies	1.474.125	1.569.339
Depreciation subsidy allowances	422.068	431.458
Other revenues	461.780	429.143
Expenses	**3.753.696**	**3.840.856**
Supplies and services	780.245	830.714
Subcontracting	123.278	111.316
Salaries	2.850.174	2.898.826
Depreciation, provisions and loss of value	**737.772**	**788.673**
Financial revenues	**837**	**733**
Financial expenses	**5.559**	**7.899**
Exceptional expenses and Taxes	**14.396**	**16.291**
Net Result	**204.650**	**503.094**

Workforce	2020	2019
Total Headcount	**36**	**40**
Total FTE	33,7	37,2
FTE Scientists	30,3	33,8
FTE Technicians	1	1
FTE administrative staff	2,4	2,4

7. Certech Management

General Assembly - Board of Directors

				Industry	
General Assembly	UCLouvain	Alain Jonas			Board of Directors
		Eric Gaigneaux			
		Nathalie Burteau			
	Total	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	Maïté Dufrasne		√	
		Philippe Busquin			
	Guest	Thierry Randoux	General Manager		
	SPW-EER	Emmanuel Delhaye	Observer		
	UCLouvain	Thomas Pardoen			

General Management

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

Auditor

Avisor scrl	Dorothée Hurteux

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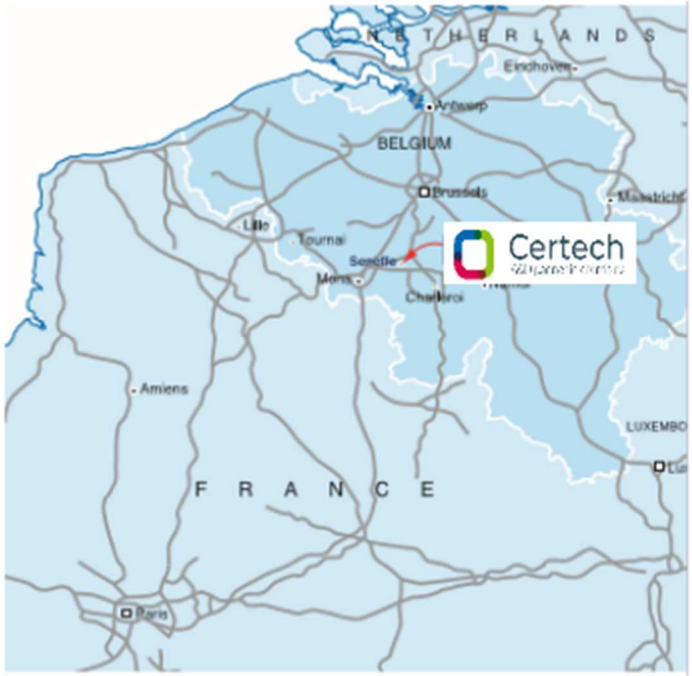

Wallonie