

Cetim on Paris Air Show Le Bourget 2011

Hall 4 E78 (Espace régional Pays de Loire) - E94 - G124

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About Cetim

Where research meets industry, the Cetim (Technical Centre for the Mechanical Industry) is the centre of French mechanical expertise. As an R&D tool for over 7000 mechanical businesses, it has 700 staff, over half of which are engineers and technicians, with a turnover of €100 million Euros. It also extends its activities through a network of scientific and technical partners. The Cetim has a strong national presence, working closely with its customers in France. Its industrial intervention capacities also extend abroad, in particular in the French-speaking world. Its steering work on a number of innovative projects makes it a natural unifying force for large, multi-partner industrial and R&D projects, in five main areas: design, simulation, testing; manufacturing and materials procedures; mechatronics, controls and measurement; and sustainable development, management and support for SME's. Working alongside these major specialist players, the Cetim offers a global, multi-disciplinary solution to implement scientific knowledge by transforming it into applications for industry.

www.cetim.fr



Cetim offices, Senlis, France

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Press release

E-tim

the joint subsidiary of Cetim and Europe Technologies
The expert in testing for composite materials

Nantes, 21 June 2011 – The Cetim, Technical Centre for the Mechanical Industry, and Europe Technologies, a company with materials engineering expertise, are pleased to announce the creation of their joint subsidiary: E-tim.

E-tim SAS is above all a team of recognised experts dedicated to development and production testing for composite materials, recognised by the leading order placers and benefitting from all the authorisations and certifications required by the market.

E-tim combines the responsibility and flexibility of an SME that develops and industrialises innovative technologies, the basis of its international expansion (subsidiary in Canada and the USA and partnership in Japan), with the expertise and engineering skills of a technological institute that supports our country's entire mechanical industry. The business benefits from the experience, authorisations and certifications of the two players (Nadcap accreditations for composite material testing and Cofrac testing programme 93), as well as their resources, and in particular the dedicated infrastructures of the Technocampus EMC2, Carquefou and Casablanca (Morocco) sites, with over 5 million Euros' worth of hi-tech equipment: presses, testing machines, spectrometers and more.

Led by Chairman Patrick Cheppe, E-tim targets the aeronautical market first and foremost, in particular structural parts manufacturers and engine manufacturers, major order placers and sub-contractors. It assists its customers in the national and international arenas.

The company specialises in manufacturing and production characterisation testing, from basic parts to composites (mechanical and physic-chemical characteristics, micrographic analyses etc.). It meets a growing demand for composite material production testing involving large-scale, flexible resources and cutting-edge technologies: specific machining and die trimming or preparation resources, contactless measurement (video-extensometry etc.), compression and rupture testing, and ageing monitoring.

Etim stands out from the crowd by providing a complete service with dedicated resources, from preparation (preparation, polymerisation, cutting, machining, non-destructive testing and other tests) to producing test reports, thus sparing its customers the burden of logistical management and offering them the guarantee of a single point of contact with an international reputation.

Its aim is perfect control of costs, quality and delivery times, with a customer commitment to test cycles in an integrated lean production programme. This integration of short-term demands and competitive rates completes the Cetim solution in the area of upstream test development and finalisation in connection with research projects that create new characterisation issues.

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The new entity is positioned as the go-to contact for major players in aeronautical construction, with previous customers including AIRBUS, SAFRAN, DUQUEINE and DAHER. It strengthens the presence of the two partners on the aeronautical market.

We are pleased to announce the deployment of a real organisational and collaborative innovation with this association between a SME and an industrial technical centre.

About the Europe Technologies group

Europe Technologies is formed of three departments - Composites, Mechanics and Technology – including five SME's: AIC composites, MPS, Oratech Innovation, Sonats and Sonimat Ultrasons. The group's synergies enable it to provide a global range of services, from development to on-site commissioning, through industrial validation of technologies, machine manufacturing and special tools. Growth is based on both technological innovation for the benefit of the industry, and an expansion of its international presence to be closer to customers. Today it has a consolidated staff of 210 people. Turnover is over €23 million, divided evenly between the aeronautical, energy, defence, cosmetics and upmarket automobile sectors, and recently the medical sector and various industrial applications. Its organisation into several SME's allows it to maintain the responsive, competitive and structuring approach required for a global and coherent strategy www.groupe-et.com.



Testing for Composites: A joint solution from Cetim and Europe Technologies

Senlis, 28 March 2011 – The Cetim (Technical Centre for the Mechanical Industry) and Europe Technologies, a company with materials engineering expertise, are joining forces to offer a shared solution for testing for composite materials. This is aimed in particular at the aeronautical sector.

This joint solution concerns production and manufacturing testing of composites basic parts (mechanical and physico-chemical characteristics, micrographic analyses etc.).

The services delivered combine the responsiveness and flexibility of an SME with the expertise and engineering skill of a world-renowned technological institute. They benefit from the authorisations and certifications of the two players involved (Nadcap accreditations for composite material testing and COFRAC testing programme 93) and, in terms of resources, from the dedicated infrastructures of the Technocampus EMC2, Carquefou and Casablanca (Morocco) sites. They have a total of over 2 million Euros' worth of hi-tech equipment: presses, testing machines, spectrometers and more.

This offer meets a growing demand for composite testing involving large-scale, flexible resources and cutting-edge technologies: contactless measurement (video-extensometry etc.), compression and rupture testing, and ageing follow-up.

The partnership between Cetim and Europe Technologies is positioned as the go-to contact for major players in aeronautical construction, on a local and international level. Previous customers include AIRBUS, SAFRAN, DUQUEINE and DAHER.



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Testimony

DAHER-SOCATA Trust in Innovation

DAHER-SOCATA, an aeronautical cluster of the DAHER group, was one of the first customers to place their trust in the alliance between Europe Technologies and the Cetim. Since 2008, this innovative cooperation has enabled it to achieve the highest levels of responsiveness and expertise for the benefit of manufacturing testing for its aeronautical composite parts. *"Our aim is to improve our competitiveness in terms of supply chain cycles, meeting delivery deadlines, quality and price,"* summarises Stanislas Frein, Purchasing Manager at the DAHER-SOCATA cluster.



The cooperation between the two partners means they can provide the full service, from rough-shaping parts to the production of the test report by a Cofrac and Nadcap-certified body, in accordance with the demands of the aeronautical industry. The service consists of machining the test tubes with associated non-destructive and dimensional tests, equipping them (glass slabs, extensometer gauges and fastenings if applicable) and carrying out tests according to the established standards. *"We even go so far as to ask for*

monitoring to be carried out and for reports to be filed," admits Gilles Guillon, Industrial Manager of the DAHER-SOCATA cluster. This way, cycles have been shortened from 20 days before this alliance to under 10 days today, and 5 or even 3 days tomorrow!

In addition, DAHER-SOCATA can benefit from the competences of the Europe Technologies - Cetim alliance in terms of processes, news technologies and value analysis, in order to develop products faster, at a lower cost and to a higher standard of quality.



Cetim receives Nadcap accreditation for non-metallic materials (composites) testing



Senlis, France. 24th February. Cetim (French Technical Centre for Mechanical Industry), has just received Nadcap (National Aerospace and Defence Contractors Accreditation Program) accreditation for its testing laboratories in Nantes, France – an important milestone in the aeronautical sector – recognising the Centre as a mechanical and physico-chemical testing laboratory for composite materials. There is growing demand for testing: composite materials are becoming increasingly important in aeronautical construction, they help to reduce the weight of structures and allow for greater energy efficiency and reduced polluting emissions.

This new accreditation complements one previously obtained by the centre for metallic materials: Cetim now has completely certified Nadcap accreditation for testing in the aeronautical sector. The accreditation strengthens Cetim's position, as the centre pursues high levels of growth with its partners on behalf of companies from the groups EAD and SAFRAN.

The Nadcap accreditation is official recognition of Cetim's technical knowledge and reliability for the supply of products and services in the aeronautical sector. Accreditation is awarded by the Performance Review Institute (PRI) which brings together the biggest stakeholders in the aeronautical sector and whose objective is to develop programmes and services aimed at improving manufacturing and the quality of processes in the industry.

Contractors, equipment manufacturers and sub-contractors are all committed to true technological advances using new materials. Whether you are looking for innovation, design, testing, production follow-up or breakdown analysis you will find that Cetim offers an unparalleled combination of skills and know-how. As a bridge between academic research and manufacturing, Cetim helps many companies with innovation and recycling, but also with the design and industrialisation of their products.

Cetim laboratories also help with the characterisation and behavioural analysis of composites, plastics and elastomers. The Centre offers manufacturers:

- Tailored advice on protocol testing according to the materials used and the results expected
- Excellent characterisation of materials; determining behaviour law using innovative resources (video extensometers, instrumented tests), bespoke tests (such as compression and shearing), impact assessments
- Standard testing under COFRAC accredited programme 93 testing (ISO 17025)
- Mechanical and physico-chemical testing on test parts and structures
- Long term behaviour and durability through ageing tests (climatic weathering, creep, fatigue...)
- Using advanced simulation resources to establish calculations/testing correlations
- 'Material soundness' testing

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This is in addition to Cetim's expertise in metallic materials testing and analysis. Cetim carries out mechanical and metallographic testing as well as standard or specific chemical analyses, at its three laboratories - all located in close proximity to one another: Senlis, St Etienne, and Nantes. Manufacturers can also count on a highly certified service (ISO 9001, COFRAC, NADCAP) that benefits from more than 35 years of experience and carries out 2000 metallurgic tests a year, for high-profile clients such as Safran and Airbus...

Composites Solutions Pack: The Cetim launches a technico-economic impact study solution for a composite strategy

The composite option: an ambitious yet accessible technological breakthrough

Senlis, 31 March 2011 – The Cetim (Technical Centre for the Mechanical Industry) presents its Composite Solutions Pack at JEC 2011. To deal with the low cost invasion, adopting a strategy for composite materials opens up a path of innovation and growth.

The composite option: an ambitious yet accessible technological breakthrough

Composite materials have many qualities and are increasingly in demand. In current industrial applications, composite parts and units make structures 25 to 60% lighter. To innovate and reduce costs, the manufacturing procedures must be redesigned. At Technocampus EMC2, the Cetim has assembled the resources needed for feasibility studies, in particular for:

- sheet metal forming by thermo-compression,
- manufacturing revolving parts for filament winding,
- manufacturing profiles by pultrusion...

Technico-economic impact study for a composite strategy: a 3-step approach

As part of its Composite Solutions Pack, the Cetim also offers a technico-economic impact study for a composite strategy, and provides businesses with technical and methodological expertise (functional list of specifications), including manufacturing cost analysis, composite culture support, and assistance with securing funding.

This study is aimed at businesses that wish to be involved in breakthrough innovations that lighten and reduce the cost of a product. It enables them to assess the advantages and risks. It involves devising new technical solutions, combining them with relevant technologies and procedures to reduce current costs and manufacturing cycles, and putting together a dossier providing evidence of the solutions' technical, economic and cycle-shortening potential before deciding whether or not to produce prototypes and/or demonstrators. The company can therefore anticipate the needs of the market and sell an innovative product, thus making its business more dynamic with an ambitious yet accessible technological breakthrough.

An initial stage or "technical pre-study" concerning feasibility and design includes an assessment of the situation, a functional analysis, and a creativity group involving multidisciplinary experts.

Several options are then studied according to the functional constraints of the part in its environment, then from a design angle with manufacturing and analytical calculations. At the end of this stage, the business has a summary of the solutions and their performance potential at the concept stage. It can choose which solution or solutions to develop.



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The second stage or “industrial scenario” is aimed at validating the industrialisation capacity of the chosen solution, by developing the manufacturing range on a macroscopic level: sub-unit work stations, assembly, and estimated cycle times. A summary of the performance of the chosen solution is then produced including the pre-sizing data, mass balance, level of industrialisation required, and finally an assessment of the manufacturing cycle.

The aim of the “economic summary” stage is to estimate the cost balance sheet, including production and industrialisation costs for the chosen solution or solutions.

The Composite Solutions Pack: from requirement specification to production testing and recycling – composite culture support from beginning to end

Industrial companies can benefit from special offers:

- **Innovation:** Assistance with innovation and redesign management
- **Help with design:** Assistance with digital simulation and sizing from the engineering and design department
- **Industrialisation:** Assistance with developing structural parts. The Cetim supports the business during the industrialisation phase, in particular by designing tools and manufacturing demonstrators, prototypes and pre-series.
- **Validation and tests:** Assistance with material characterisation and validating technological solutions with test tube trials and structural parts. The Cetim is involved in material/structure qualification and static, dynamic and climatic tests, and helps industrial companies develop their first parts. They also benefit from the testing competences of the Centre and Europe Technologies in the field of non-destructive and dimensional tests. (See the following press release.)
- **Production support:** Support in developing and carrying out composite quality controls. The Cetim also provides expertise, failure analysis, and maintenance planning. It is also involved in dismantling and recycling.
- **Training**

Help with securing funding

Industrial companies can benefit from help compiling their funding applications (Oseo, European, national, regional etc.) and a double Research Tax Credit or CIR top-up. 60% to 100% of the cost of the service provided by the Cetim is eligible for businesses that have not opted for the CIR during the last 5 years, i.e. 80% (subsidy) of their expenses (€8 000 maximum) for SME's.

The Cetim

Industrial companies benefit from:

- the Cetim's multi-disciplinary, certified teams and accredited equipment for sectors with special requirements, in particular the aeronautical sector (ISO 9001, COFRAC, NADCAP),
- cutting-edge technological resources via the Cetim's excellence clusters and the Technocampus EMC2,
- project confidentiality (Cetim classification – DCRI level sensitive site),
- an independent and objective approach.

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Recent news

IRT Jules Verne de Nantes : the bet paid off !

The Jules Verne Institute of Technological Research (IRT) project in Nantes has been selected by the State as one of its investments in the future. A success for all the project's partners in the field of advanced production technologies.

It's game on for the Jules Verne Technological Research Institute (IRT) project. Selected by the State as one of its investments in the future, its aim is to set a world standard in the field of advanced production technologies for composite and metallic materials and hybrid structures.

Led by the EMC2 competitiveness cluster, Technocampus EMC² and Nantes-Angers-Le Mans University, the project supported by the Regional Council and the CCIR (Regional Chamber of Commerce and Industry) of the Pays de la Loire as well as Nantes Métropole, has many partners. As well as the Cetim, partners in industry include: ACB, Aerolia, Airbus, Alstom Power, Daher Socata, DCNS, EADS, Faurecia, Hydrocean, PSA, Segula, STX Europe. University partners include: PresUnam, GIP Gemac, the Central School of Nantes, Nantes School of Mines, Nantes-Polytech' Nantes University, the Icam, LAUM – University of Maine, the CNRS, Ifsttar and the CEA.

Many SME's are also taking part in the project via the networks of the EMC² cluster and the CCIR. Beyond this, a whole region has been mobilised. The IRT Jules Verne, which will be based on the Bouguenais site, will be supported by the platforms of the Technocampus EMC², Technocampus Océan and the Industrial Centre for Virtual Reality. It will cover up to 60 000 m² with a university campus of 1 000 students and a "Training Center". Satellite sites in Le Mans and Saint-Nazaire will also help to complete this project.

A huge complex, in the long term the IRT Jules Verne will have a thousand research staff, of which one-third will be in-house staff. This would create 5 000 jobs and keep 3 million industrial jobs. The provisional budget of around 500 million Euros is to a large extent provided by industry (150 million Euros). An equivalent sum will be provided by the State. The rest comes from the Pays de la Loire Region and the local authorities.

As well as its involvement in Technocampus EMC², as part of the IRT Jules Verne the Cetim will be specifically involved in developing composites for high rate manufacturing for land transport.

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Cetim, your partner in aeronautics

Aeronautical composite tests: accreditations and certifications

The Cetim has all the major accreditations and certifications.

Nadcap

The Cetim (Technical Centre for the Mechanical Industry), has just received Nadcap (National Aerospace and Defense Contractors Accreditation Program) accreditation for its test laboratories in Nantes, an important form of recognition for the aeronautical sector, which accredits the Centre as a mechanical and physico-chemical test laboratory for composite materials. This new accreditation comes on top of the previously obtained accreditation for metallic material testing. The Cetim now has a complete range of Nadcap tests for the aeronautical business. This accreditation strengthens the Cetim's position as it continues with its rapid growth alongside its partners, on behalf of the companies of the EADS and SAFRAN groups in particular.

ISO 9001

All the Cetim's services across all its sites have been assessed and deemed to meet the requirements of the ISO 9001 standard.

Safran accreditation

The Cetim's test laboratory in Nantes is Snecma-qualified for a wide range of tests and trials.

COFRAC accreditation for polymers and composites : mechanical testing, thermal characteristics, reinforced laminate plastic, prepreg.

AIRBUS Qualification Certificate

The Cetim's test laboratories in Nantes have received the AIRBUS Qualification Certificate for test procedures: mechanical tests, mineral chemistry, polymer and composite engineering, organic chemistry etc.

In September 2009, the Cetim joined forces with Airbus and EADS at the Technocampus EMC² in Nantes.

This centre was created at the request of the Pays de la Loire Region and includes 18 000 m² of university and industrial research laboratories and a composite expertise centre. For the Cetim, this project constitutes a basis for innovation and the development of new products for a wide range of sectors, such as equipment manufacturers (agricultural machinery, machines for lifting and handling and public works, industrial bodywork etc.), component manufacturers (pumps, furniture, tools etc.) and mechanical sub-contractors (machinists, equipment suppliers etc.).

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The technological strategy is geared towards **thermoplastic composites**, which are easier to recycle and are more suitable for serial production than thermo-hardening composites. These materials also have the advantage of being similar to metals to work with.

As well as mechanical and physico-chemical test laboratories, **there are three project steering units dedicated to feasibility studies and pre-industrialisation**. A forming press weighing 450 tonnes developed by PEI (Pinette Emidecau Industries) incorporates three systems which are usually separate: infrared heating, pressing and a rapid transfer system. There is a dedicated pultrusion line for continuous production of structural composite profiles (tubes, flat blades, rings, parallelepipeds). Finally, there is a dedicated filament winding machine for manufacturing revolving parts obtained by continuously depositing impregnated filaments onto a mould or mandrel with a rotating movement (cisterns, silos, tanks, pipes etc.). Mechanical and physico-chemical test laboratories complete the unit. Created in November 2007, Cetim Morocco represents an important stage in the history of the development of Cetim, as it is the first concrete demonstration of Cetim's desire to develop on the international stage.

Cetim Morocco

With an initial investment of 3 million euros, Cetim Morocco today achieves a turnover of €1.875 m, a growth of 29% between 2009 and 2010. Cetim Morocco's aim is to provide new methods of technological transfer and to encourage mechanical companies from around the Mediterranean to work closer together. Aimed at local markets, its activities focus essentially on mechanical testing (fatigue, creep, tensile strength) and metallography in the aeronautical, automobile, railway, mechanical, energy sectors.

Based in Casablanca, stretching over a total surface area of 5000 m², the subsidiary comprises a metallurgy laboratory, a fatigue testing laboratory and a tensile and creep laboratory with a team of 20 engineers and technicians.

Cetim Morocco aims to extend its markets in the aeronautical and automobile sectors in particular, by using the support of the French structure. It has thereby been able to position itself on the aeronautical market in Morocco. With the presence of more than 90 leading international players including EADS, Boeing, Snecma, Aircelle, Creuzet, Daher, Souriau, Labinal, Zodiac, Casablanca Aéronautique, Piston Français, etc., the Moroccan aeronautical market is enjoying a new phase in its development with the arrival of new activities as well as the integration of more technologies and added value.

The strategic deployment of Cetim Morocco is accompanied by a special partnership with Snecma (Safran group) in the sectors of high technology testing. Snecma called on the expertise of Cetim in order to set up testing and control procedures in Morocco for its reactor parts, a process which, until now, has been carried out exclusively by its French and American laboratories. This partnership is a result of Snecma's desire to support Moroccan technological development, especially in the area of testing. Cetim Morocco is now the first international testing laboratory for Snecma.

New markets have since been gained notably in the fields of high speed railways, materials quality control, train comfort, damage assessment, environmental plans, etc.

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The expertise implemented by Cetim Morocco for the Snecma/SAFRAN project:

- Ambient and high temperature fatigue testing
- Creep strain, rupture testing
- Ambient and high temperature tensile testing
- Metallography (macro-Micro) (grain size and inclusion content)
- H2 assay
- K1C and da/dN testing (investment in progress)
- Qualified workshop for the blanking and machining of test specimens
- PTP international comparison programme
- ISO 9001 certification and ISO 17025 accreditation in progress (prior to NADCAP accreditation)

Today, Cetim Maroc Développement is working with aeronautical companies from several European countries including: Techspace Aéro, Ottofuchs, FirthRixscon Forged, eads, Aircelle, Ségula Aéro, Indraéro, Creuset Aéro, Piston Français.

Four years after its launch, Cetim Maroc Développement is in its third investment phase. This investment is part of its export activities relating to the mechanical and metallurgical compliance declaration of unfinished civil and military engine parts. It involves the acquisition of fatigue testing machines, a tensile machine, optical microscopes, a scanning electron microscope with EDS probe as well as preparation methods for test specimens and samples. This 1 million euro investment thereby brings the total investment of the Cetim group in Morocco to 4 million euros since 2007. This investment is accompanied by the recruitment of 10 senior technicians.

To complete its range of activities, the next investment will concern composite materials testing facilities. Cetim Maroc Développement is also focusing on ensuring repeat business from its current customers and developing the portfolio of local customers.

Cetim Maroc Développement in figures

Turnover:

- 2008: €960 k
- 2009: €1460 k
- 2010: €1875 k
- 2011 forecast: €2200 k

Current testing facilities:

- 3 laboratories:
 - 1 metallurgy laboratory
 - 1 fatigue testing laboratory
 - 1 tensile and creep laboratory
- 14 ambient and high temperature fatigue testing machines (100 kN).
- 2 tensile machines:
 - One 100 kN machine (ambient temperature and high temperature).
 - One 250 kN and 50 kN machine
- 7 creep rupture testing machines (2 arms)
- 2 creep strain testing machines (2 arms)
- 4 optical microscopes
- 1 binocular unit with image processing.

Employees: 20 engineers, 10 people currently being recruited