



Meetings

12/17/2015, REA meeting, Brussels



11/23/2015 Coimbra meeting, Portugal



07/06/2015 Abrantes meeting, Portugal



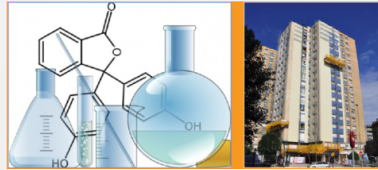
04/20/2015 Würzburg meeting, Germany



13/10/2014 Meeting and visit to Va-Q-tec.



Highly Sustainable and Effective Production of Innovative Low Cost Vacuum Insulation Panels for Zero Carbon Building Construction



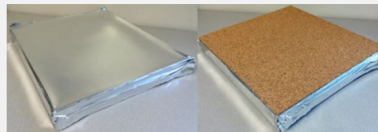
While the world is experiencing a strong demand for energy savings measures, today still 40% of energy consumption and 36% CO₂ emissions in Europe are directly related to the construction sector, due mainly to inefficient insulation materials and systems. On the verge of a major European building retrofitting action that must be put into practice within a deep economic crisis, inevitably traditional thick and cheaper insulation products are still the first consideration, as the best state-of-the-art solution, Vacuum Insulation Panels (VIP) is unaffordable for the majority of homeowners and householders. The building sector has to overcome the biggest dilemma of coping with high mandatory levels of energy savings, at reasonable costs, without losing considerable areas of living space left for insulation.

VIP4ALL project aims at developing a true technical and cost-effective VIP solution by using natural minerals and/or renewable organic by-products, as low cost VIP core materials through careful microwaving and doping of minor fumed silica, which will not only cut its final price by 50%, but also guarantee a superior thermal performance and eco-friendly status.

The VIP4ALL proposes to bring to the market a new generation of highly sustainable and energy efficient solution for low budget renovation actions, creating an exceptional opportunity for SMEs (>99% in EU building sector) to increase their competitiveness before the current dominant US and/or Asian companies seize this market, which represents around 9% of European GDP and a total workforce of 25 million jobs. The VIP4ALL RTD results (products and technologies) will be scaled up through three SMEs of the VIP4ALL consortium members and exploited by five SMEs of the seven consortium members, who will hence lead the market entrance with a new and truly competitive superior insulation solution.

VIP4ALL: achieved results

VIP4ALL project aim was to generate for the building sector a real and cost-effective VIP alternative solution, specially designed for energy efficiency goals of the major EU building renovation action in progress and able to provide superior thermal insulation for building retrofit activities at real competitive and affordable prices.



To outstand the new product solution, it is also provided to the novel VIP4ALL panels with a new thin exterior encapsulating face layer made with cork, making it much more user-friendly, e.g. easier to handle during stock, transportation and installation on-site, as well as protective, with less restriction regarding puncturing and consequent loss of performance.

VIP4ALL aims to be recognized for their excellent thermal insulation properties (achieving lambda value 7 mW/mK) at thickness smaller than one third of conventional air-filled insulation for the same R-Value.

Apart from excellent thermal performances, VIP4ALL products gather equal acceptance as standard VIPs regarding its design and fire resistant capabilities for building application (Class Bs1d0 as constructive solution with OSB and anti-fire gypsum board), but with superior handling resistance providing better installation capacities than its counterparts currently available.

With thicknesses between 3 and 4 cm, VIP4ALL products reach minimal thermal conductivities at common pore pressures, comparable to commercial VIPs for building applications and an expected lambda of 10 mW/mK after 25 years under ambient conditions, and about 15 mW/mK after 50 years, still providing much superior thermal insulation than any other conventional material used in the building market.



The VIP4ALL project finished on 30/11/2015. For more information on the achieved project results the final Product Data sheet can be downloaded below in the following languages: English, Español, Deutsch, Português, Dansk.



[Product_Data_ENGLISH.pdf](#)
Documento Adobe Acrobat [283.2 KB]



[Product_Data_SPANISH.pdf](#)
Documento Adobe Acrobat [284.2 KB]



[Product_Data_GERMAN.pdf](#)
Documento Adobe Acrobat [358.4 KB]



[Product_Data_PORTUGUESE.pdf](#)
Documento Adobe Acrobat [286.0 KB]



[Product_Data_DANISH.pdf](#)
Documento Adobe Acrobat [284.2 KB]





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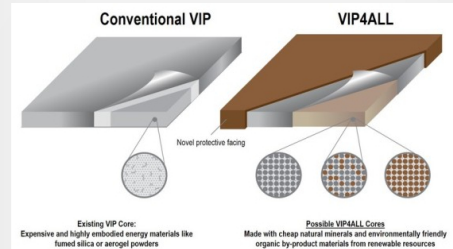
13/10/2014 Meeting and visit to Va-Q-tec.



Project Proposal

Generate for the building sector an alternative and cost-effective VIP solution, specially designed for energy efficiency goals and able to provide superior thermal insulation for building retrofit activities, at competitive and affordable prices, for the major EU building renovation action in progress.

The price of standard VIPs is largely driven from the cost of the core materials that can contribute up to 50% of the final product price.



VIP4ALL is the acronym of a research project entitled "Highly Sustainable and Effective Production of Innovative Low Cost Vacuum Insulation Panels for Zero Carbon Building Construction". It was launched in 2013 and it's funded by the [Seventh Framework Program] ([FP7]), under the FP7 Theme "Capacities", aimed to strengthen the 'innovation capacity' of [Small and Medium Enterprises (SME)] in Europe and the development of new technology-based products and markets. VIP4ALL is a 2 year medium-scale project that relies on a consortium made out of 7 European partners, representing 5 different countries, including research institutions and private small and medium companies.

The Context

While the world is experiencing a strong demand for energy savings measures, today still 40% of energy consumption and 36% of CO2 emissions in Europe are directly related to the construction sector. Aware of the importance of energy savings and climate change, the [European Union] (EU) has set gradual "Climate & Energy" objectives, expecting that, by 2020, European Greenhouse gases emissions will be cut by 20% and energy savings increased by the same level. The EU has also committed to achieve an 80-95% [greenhouse gases] (GHG) reduction by 2050, as part of its roadmap for moving to a competitive [low-carbon economy]. Under this scope the "Energy Performance of Buildings Directive, 2010/31/EU, has established stricter energy performance requirements both for new and old buildings, marking December 2020 as the deadline for new ones to be "Nearly Zero Energy Buildings" (nZEB) (2018 for public buildings), with energy requirements covered substantial by [renewable sources]. On the verge of a major European building [retrofitting] action that must be put into practice, still today heating and cooling needs represents the largest energy end-usages of the building sector, mainly due to inefficient [thermal insulation materials] and systems available. Inevitably traditional thick and cheaper insulation products are still the first consideration in the market, while today's best state-of-the-art solutions like [Vacuum Insulation Panels](VIP), are still unaffordable for the majority of homeowners and householders. Under this context, the building sector has to overcome the biggest dilemma of coping with high mandatory levels of energy savings without losing considerable areas of living space for insulation and make it at reasonable costs.

The Project

VIP4ALL project aims at generating for the building sector an alternative and cost-effective VIP solution, specially designed for energy efficiency goals and able to provide superior [thermal insulation] for building retrofit activities, at competitive and affordable prices. **VIP4ALL** aims to be a true state-of-the-art thermal insulation solution by using natural minerals and/or renewable organic [by-products] as low cost core materials which will allow, not only to cut the final product price by 50%, but also guarantee a superior thermal performance and [eco-friendly] status. The **VIP4ALL** proposes to bring to the market a new generation of highly sustainable and energy efficient solution for lower budget renovation actions, creating an exceptional opportunity for SMEs (>99% in EU building sector, representing around 9% of European [GDP] and a total workforce of 25 million jobs) to increase their competitiveness.

Application and Target Users

The **VIP4ALL** [R&D] results (products and technologies) will be scaled up through three SMEs of the **VIP4ALL** consortium members and exploited by five SMEs of the seven consortium members, who will hence lead the market entrance with a new and truly competitive superior insulation solution.

The Concept

While today's VIPs existing in the market are generally unaffordable for the majority of end-users for being mainly made with expensive raw materials like [fumed silica] or [aerogels], the proposed low-cost solution, **VIP4ALL** will completely or substantially replace these core materials by natural, cheaper and more sustainable ones, creating hybrid multi-level networking structured cores, using wood-based materials and/or special minerals. These alternative natural materials will have much less energy consumption processing needs and an eco-friendly status, some being even made of renewable resources. Complementary, **VIP4ALL** intends to create a new thin protecting facing for its VIPs, making it much more user-friendly to handle, stock and transport before and during installation.

Main Objectives and Project Results

The main goal of the project is to develop a really competitive thin and durable insulation product, specially targeted for the retrofit market. Under this context **VIP4ALL** aims to:

- Efficiently derive new VIPs by using natural and renewable raw materials with optimal thermal, environmental and mechanical performance;
- Develop new enhanced multi-level VIP core systems from low cost natural mineral resources and organic renewable/recyclable resources to replace standard high cost materials currently used;
- Refine the low cost **VIP4ALL** processing technology, up-scale it from a laboratory testing environment to a large industrial production;
- Design **VIP4ALL** panels with the integration of traditional building materials and different envelope systems, assess their thermal insulation performance, energy savings skills and payback times;
- Develop VIPs with low thermal conductivities, comparable to standard VIP solutions and life-time expectancy of at least 50 years, without losing significant thermal performance;
- Develop **VIP4ALL** with reduced production costs: cutting up to 50% the costs of the conventional silica VIPs, making **VIP4ALL** capable of competing in terms of price with standard fiber and polymer insulation products;
- Offer a new product to the retrofitting sector, capable of saving at least 3 times more living space compared to conventional fiber insulation products;
- Achieve sustainable construction by using at least 50% of low energy renewable materials for the VIP product.

The expected project results will be:

- Sustainable functional core systems for vacuum insulation products and their related

- processing technologies;
- Novel generation of thermal insulation vacuum panels called **VIP4ALL**;
 - Composition and performance simulation software to assist product development and market acceptance.

Current Status of the Project

Covering 10 work packages (WP), seven being related with research & development (R&D) activities, the project has passed the stage of enhancing the scientific knowledge, acquiring a deeper understanding of the relevant and important technical issues needed for the rest of the work plan. In particular, scientific literature on the topic of vacuum insulation technology, thermal transfer and current regulations and standards for building applications have been reviewed under project work package 1 (WP1). Commercially available VIPs have been revised, providing a database of VIPs products for future product comparison (different types and associated materials and technologies). The first candidate raw materials have already been characterized during WP2 and are currently being subject of testing towards the development of new VIP core systems in WP3, using different incorporation systems. The modification/treatment of new core materials to optimize internal networking structures towards the enhancement of the thermal properties of the **VIP4ALL** cores is currently under development (WP3), focusing on natural materials, like special perlite grades and wood based renewable materials, along with fumed silica. The goal of these tests is to develop diverse "level" structures within the hybrid core of **VIP4ALL** by using different dispersing and intruding techniques. Finally constitutive modelling and simulation tools are currently being developed under WP4 to guide the **VIP4ALL** development process, as well as to enable the prediction of the performance at both element and component levels, being either physical simulation tools to assist on the nano/micro- composition definition or predictive ones to assess the future thermal performance of the novel restructured cores.



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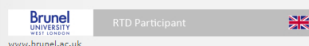
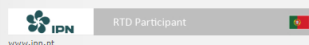
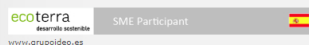
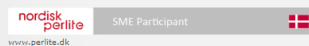
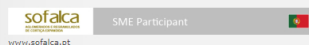
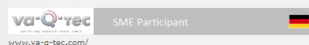
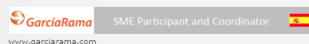


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Consortium

(click to go the website)



GARCÍA RAMA

GARCÍA RAMA is a private company created in 1991 to meet the growing demand in the refurbishing of façades. RAMA offers services of housing development, construction and rehabilitation of buildings from a global approach, energy efficiency analysis, solutions to structural conditions of habitability, and design and installation of ventilated façade systems, among others. It also manages legal aspects of the construction industry: licensing, technical direction and coordination, etc. GARCÍA RAMA has its own ventilated façade system and participated in various national and EU research projects, e.g. FP7 R4SMEs-AGS: StorePET and FP7 R4SMEs: ICECLAY.

VA-Q-TEC

VA-Q-TEC is an innovative highly-experienced manufacturer and supplier of VIP systems for construction, refrigerators, freezers and storage boxes. VA-Q-TEC is a recognised innovative SME with 170 employees and an extensive patent portfolio. VA-Q-TEC has extensive experience in vacuum insulation development and manufacturing. It is the only vacuum insulations manufacturer, which uses different core materials such as nanoporous silica, glass fibers and open porous foams. VA-Q-TEC produces several hundred thousand square meters of vacuum insulation panels (VIPs) and several tens of thousands of boxes and containers per annum. Its expertise is enhancing thermal management and developing core materials for different applications of vacuum insulation panels. The project is deemed an innovation opportunity for the building and construction industry.

SOFALCA

SOFALCA is one of the world's leading producers and exporters of expanded cork agglomerate and regranulate solutions since 1966. Made by expanding cork grains through the action of steam and by agglutinating them only with the resins from the cork itself without the use of any synthetic agents, SOFALCA diversified products portfolio includes agglomerate cork tiles for inner roofs, walls and floating floors thermal insulation, soundproof and anti-vibration comfort and façade thermal insulation, as well as regranulate cork grains to be used not only as floor insulation fillers, but also to produce lightweight concrete. SOFALCA is most specialised in cork materials, including the fundamental properties, processing technologies and potential innovations and a company that continuously pursues new fields of and high value added application linked to this segment.

NORDISK PERLITE

NORDISK is one of the leading European companies dealing with the production of all types of perlite products from traditional expanded products to fine tuned milled ones. NORDISK develops perlite materials for a large number of industries and export around 60% of their product to many countries in the world. NORDISK PERLITE supplies a broad spectrum of perlite materials for building components and structures taking full advantage of the outstanding and unique properties of perlite, from low and high temperature insulation, filtration, chemical and environmental control industries.

ECOTERRA

ECOTERRA specializes in environment and sustainability, including all aspects of engineering and architecture: flexible structures, permeable materials, interconnection subsurface flow, etc. Bioclimatic approach of buildings is their core. Their aim is to increase eco-efficiency so that energy consumption for climatization reaches the lowest rate.

IPN

IPN is a non-profit private organization founded in 1991, promoting innovation and technology transfer. IPN Incubator was distinguished with the 1st prize in 2010 on the Best Science Based Incubator contest around the world. IPN work is made through RTD in partnership with enterprises; specialized training; dissemination of scientific and technological knowledge; promotion of the creation of technology-based enterprises. IPN have participated in many national and EU projects (e.g. SILENTWALL, CUTEWALL, STOREPET) with its own technological infrastructures – six laboratories.

BRUNEL UNIVERSITY

The Nano cellulose and Bio Composite Research Centre at BRUNEL has intensive research experience in nano materials and their innovative application in construction, including polymers, ceramics, cementitious materials, nano-composite processing and soft solids and natural materials. In addition to the processing of materials, the centre has expertise in the synthesis and morphological control of small inorganic micrometre and nanometre size particles. It is equipped with an extensive arrangement of processing equipments. The Centre has generated a substantial portfolio of research contracts from the UK and EU (FP5, FP6 and FP7 projects, e.g. PERPAN, PANELS, SHEAR, WOODRUB, FIBCEM, CELLUWOOD) and also directly from major industries. BRE, Unilever, Rolls-Royce, National Power and British Aerospace have all featured significantly in the work of the Centre. Several most recent FP7 projects are in particular relevant to VIP4ALL: e.g. FIBCEM 'Nanotechnology enhanced extruded fibre cement based environmentally friendly sandwich panels for building construction' involving the development of models and modelling of nano particles and properties of nano based fibre cement composites, and CELLUWOOD 'Highly functional wood based building composites and system enhanced by nano cellulose' involving the product development and constitutive modelling of nano composites and systems.



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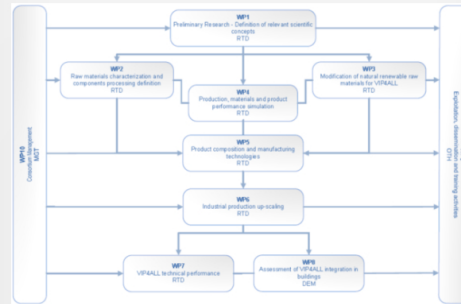
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Methodology



List of Deliverables

Deliverable Number	Deliverable Title	WP number	Lead beneficiary number	Estimated indicative person-months	Nature	Dissemination level	Delivery date
D1.1	Thermal insulation materials for buildings	1	6	1.55	R	RE	3
D1.2	Vacuum Insulation Panels (VIPs)	1	6	1.55	R	RE	3
D1.3	VIP4ALL simulation software framework	1	7	2.00	R	CO	3
D2.1	VIP4ALL core	2	6	3.50	R	CO	6
D2.2	VIP4ALL envelope	2	6	3.50	R	CO	6
D2.3	VIP compositions and production	2	7	6.00	R	CO	7
D3.1	Restructured cork and perlite	3	7	3.50	R	CO	9
D3.2	Prototype and database of the restructure natural raw materials	3	7	3.50	R	CO	11
D4.1	VIP4ALL development software	4	7	3.50	P	CO	11
D4.2	VIP4ALL performance software	4	7	3.50	P	CO	20
D5.1	VIP4 production	5	6	5.00	R	CO	16
D5.2	VIP4ALL products	5	7	5.50	R	CO	16
D6.1	VIP4ALL prototype line production	6	7	5.00	P	CO	21
D6.2	Report on VIP4ALL production and products	6	6	5.00	R	CO	21
D7.1	VIP4ALL performance	7	6	7.00	R	CO	22
D8.1	VIP4ALL products and their integration with other building materials	8	1	1.60	R	RE	23
D9.1	Consortium's webpage	9	5	1.00	O	PU	3
D9.2	Interim plan for the use, dissemination and knowledge transfer to SMEs	9	5	1.00	R	CO	9
D9.3	Wikipedia page on the project and its publishable results	9	5	0.50	O	PU	9
D9.4	Patent and novelty search	9	1	0.20	R	CO	5
D9.5	Filing of patents	9	1	0.20	R	CO	9
D9.6	Final Wikipedia page on the project and its publishable results	9	5	0.20	O	PU	24
D9.7	Report on the training activities	9	1	1.50	R	CO	23
D9.8	Final plan for the use and dissemination of the knowledge	9	5	0.50	R	CO	24
D9.9	Video Clip of the project results	9	5	0.20	O	PU	24
D10.1	Consortium Agreement	10	1	1.70	R	CO	2
D10.2	Report, minutes and attendance lists of meetings for the mid-term reporting period	10	1	1.00	R	CO	9
D10.3	Report, minutes and attendance	10	1	1.00	R	CO	24

	lists of meetings for the final reporting period								
		Total	70.40						



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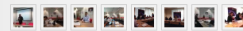


12/17/2015, REA meeting. Brussels

The VIP4ALL consortium met at the Research Executive Agency for the final evaluation of the VIP4ALL project. It received very good feedback from the Project Officer and the Reviewer. The project finished successfully and all the goals were achieved. More information about the project results can be found on the [main page](#).

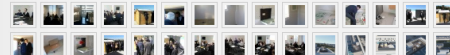


VIP4ALL members from left to right:
 Dr. Roland Caps - VaQtec, Germany
 Jess Larsen - Nordisk, Denmark
 Seyed Ghaffar - Brunel University, UK
 Prof. Hizi Fan - Brunel University, UK
 Dr. Flávia Almeida - Instituto Pedro Nunes, Portugal
 Susana García Rama - García Rama, Spain
 Ángela Llamas Delgado - García Rama, Spain
 Nuno Estrada - Sofalca, Portugal
 Jorge Corker - Instituto Pedro Nunes, Portugal



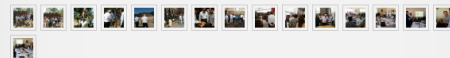
11/23/2015 Coimbra meeting. Portugal

The last meeting of VIP4ALL project took place at IPN facilities in Coimbra, Portugal. There was a training activity where the partners could see the demo houses built at IPN as well as the performance, production and installation of the VIP4ALL panels. IPN explained the main technical features, installation and outcomes of the project to the partners. All SMEs are optimistic with the results obtained and discussed future actions for the product.



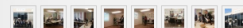
07/06/2015 Abrantes meeting. Portugal

The VIP4ALL consortium met at SOFALCA facilities in Abrantes, Portugal. The partners could see the process of cork extraction as well as the production of the expanded cork agglomerate that is used for different purposes besides insulation.



04/20/2015 Würzburg meeting. Germany

Meeting and visit to va-Q-tec facilities in Würzburg, Germany. The Consortium could see the process of manufacturing different types of VIP, the materials used for the panels, the equipment and machines, and the controls made on the VIPs at the laboratories.

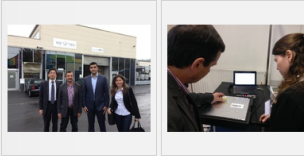


VIP4ALL video. IPN laboratory



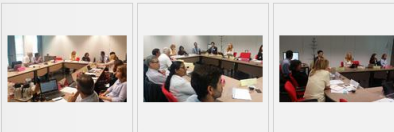
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Visit the production line. We have visited the whole company facilities, warehouse and processes of the VIP products. The products of the Va-Q-tec range from panels, cool container, appliances insulation systems and many others.



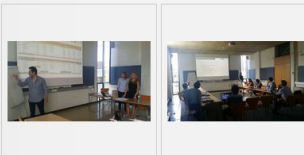
18/09/2014 Brussels Meeting. Belgium

The Review Meeting for the Project Period 1 has taken place at REA premises in Brussels, with the presence of our P.O. Ms Petra and her assistant. The day before, a closed preparatory meeting was carried out by all partners in another venue in Brussels, in order to prepare all issues to be introduced and discussed with the Officer the day after. The meeting with Ms Petra was intense and quite constructive, leading to the full understanding by the officers about the project's aims and work achieved, results accomplished and the future success with realistic likelihood analysis. The specific role and significant contributions by each partner to the project as well as the high degree of mutual understanding and coordination was also showed and was acknowledged by the officer. Finally, a very high overall valuation was received by the officer, which is quite a lot encouraging to go on working hard in this promising project. Thanks to all partners for the hard work and congratulations!



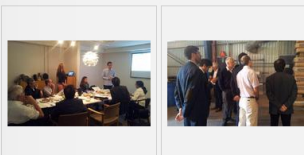
09/09/2014 Coimbra Meeting. Portugal

The 4th technical meeting was held in Coimbra (Portugal), hosted by IPN. The main aim was to review the work done during the Period 1 of the project in all aspects research, dissemination, management, and to prepare the review meeting that was to be carried out in Brussels with the REA Officer. Updates about the current state of the project results and the product prospect were thoroughly analyzed and discussed with very optimistic feelings.



28/04/2014 Hilerod Meeting. Denmark

During the 28th of April a technical meeting was hosted by our Danish partner Nordisk Perlite. All partners had the opportunity to visit Nordisk factory and facilities at Hilerod (Denmark) where their perlite is produced. The technical meeting have been carried out with the goals of reviewing the initial work performed until that moment, as well as the planning of research work and dissemination activities and interim plan for the final months of Project Period 1.

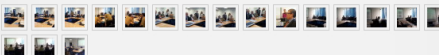


References:

HillerodPosten news
[Hillerod Company is involved in developing new, thin insulation for all](#)

24/01/2014 London Meeting. United Kingdom

Work developed and the running work of WP2, WP3 and the start of WP4.

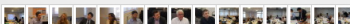


06/11/2013 Kick-off meeting in Gijón. Spain

On the 6th of November, 2013, It was held in Gijón the First Consortium Meeting in order to discuss the Activities Plan related to the Project and The Consortium Agreement, among other issues.

References:

- [El Comercio](#)
- [La Nueva España](#)
- [RTPA](#)



06/06/2013 Negotiation meeting in Brussels. Belgium

On the 6th of June 2013, It took place in Brussels a Negotiation Meeting among future Consortium Partners of the Project and Members of the European Union. For more than 3 hours the Partners of the Project explained to the Project Officer all the objectives, expectations, aims and details related to the Project.



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**13/10/2014 Meeting and visit to
Va-Q-tec.**



Contact

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