

Publishable summary - Executive Summary



HIP is the project acronym for the following full project title: **Development of low-cost, lightweight Highly Insulating Polymers for refrigerated transport, heating and cooling installations.** The project is being conducted over a 36 month duration, finishing in October 2013.

The overall objectives are to develop an innovative new class of polymer insulation material to fill the performance gap between low cost poorly performing foams and high performance and cost aerogels or vacuum insulation panels. We hope the HIP material will offer high thermal resistance but at the cost close to that of insulating foams. The key objective is to achieve a thermal conductivity of 0.015W/m.K at a cost of less than €500 per cubic metre.

Our project members represent a number of industrial sectors, including refrigerated transport, HVAC installers and the construction industry. Affordable, optimised insulation materials will reduce wasted energy and increase efficiencies in all these industrial sectors.

The HIP project has progressed well over the last 24 months. We have now determined the industrial requirements for a high performing insulation material identified as a polyHIPE (High Internal Phase Emulsion). This has been developed to best match the criteria and specifications of the industrial partners involved in the project and is now undertaking an up-scaling process. The RTD Performers are working closely together, undertaking research and developing the candidate materials and production processes with a great level of collaboration and the results to date reflect their great working relationship.

The industrial partners are contributing enthusiastically to the materials development, offering feedback to the RTD performers and participating fully in the regular project meetings. Many of the industrial partners are very active in hosting their own events and attending conferences and tradeshow (see Figures 1c,1d and 1e), this has given HIP a great opportunity to complete some early awareness dissemination. TTMD has shared a poster design for all the partners to display at their events to prompt appropriate discussions, see Figure 1a and a pull up banner has also been produced by TICA, see Figure 1b. The project logo was provided by MATRI.



Figure 1a project poster and 1b a pull up banner, both available for dissemination events

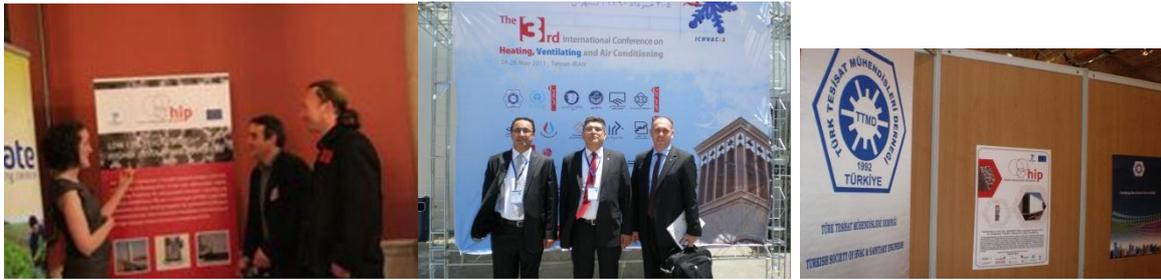


Figure 1c, showing EASCA at their Better Building Conference, Dublin 2011 with the HIP pull-up banner and Figure 1d and e, showing TTMD at Ichvac, Tehran 2011 with the project poster

Work Completed to Month 24

The consortium have successfully met 9 times to date, with meetings hosted by a number of the project partners around Europe. There has been a thorough investigation into techniques and formulations of polyHIPEs, see Figure 2 and 3. So far we have established the industrial requirements and produced a range of candidate materials, a number of which were subject to mechanical and thermal performance tests. These materials are now optimised for their performance and being scaled up for future production. The consortium are on track with their project plan and are optimistic the project objectives will be met by the end of the project in October 2013.

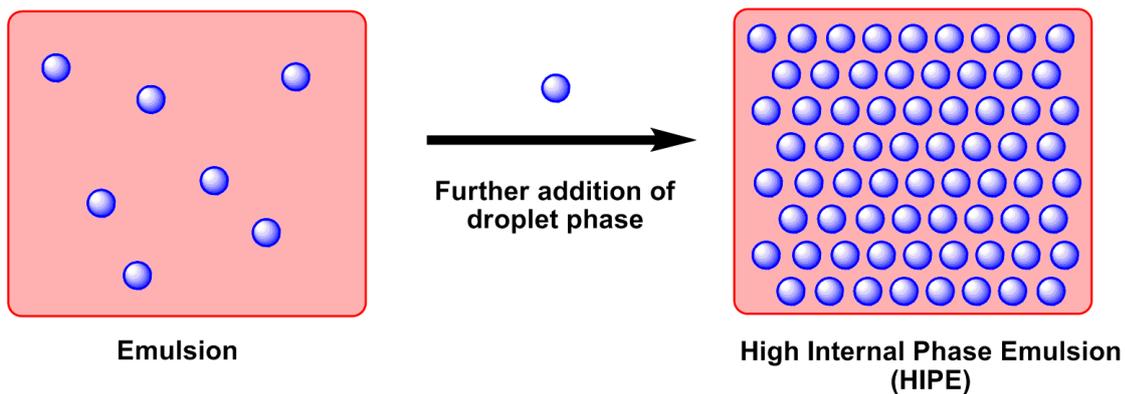


Figure 2, graphic representation of a polyHIPE

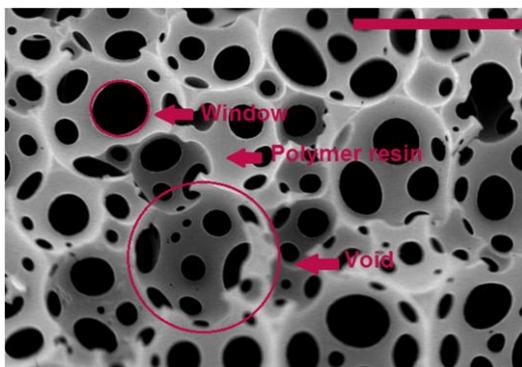


Figure 3 SEM image of typical polyHIPE internal structure

The consortium were also represented by a project speaker, Prof. Neil R Cameron from Durham University at the World Insulation & Acoustic Congress (WIACO), in Paris between 19th and 22nd September 2012. He gave the presentation, 'PolyHIPE microcellular foams as insulation materials'. The presentation was well received and much interest was shown in the project developments by the industry audience, see Figure 4.



Figure 4, showing Prof. Neil Cameron from the University of Durham giving a HIP Project presentation at the WIACO conference, Paris 2012

Final results Expected

We remain entirely confident that we can achieve all the project objectives by the time the project finishes in the autumn of 2013. With this in mind we will be delivering a product which can offer energy and cost savings for the industrial sectors identified.

Project Website Information

The HIP Project Website has been set up by TICA with contributions from Heatrae Sadia, MATRI, Tecnove and UDUR. TICA will maintain the website and operate as the administrators of the site for the duration of the project, see Figure 5 of this Publishable Summary. The HIP Project Website can be found with the following website address:

www.fp7-hip.eu

In addition to providing background information about the project, the website also displays the Consortium Beneficiaries information, see Figure 6, with hyperlinks through to their respective company websites and a Contacts page where visitors can email the project and indicate their areas of interest, see Figure 7. This means interested parties can be contacted directly with project information when it is an appropriate time to disseminate this widely. More generalised publications can be shown as per Figure 8, currently displaying the EC Cordis Project Abstract

The HIP Project Website has now been fully developed and is published on the internet. It is disseminating the overall objectives of the HIP project, and displaying all the partners involved with an explanation that it is funded through the EC Framework Programme 7. The website will continue to be developed throughout the life of the project and will further disseminate pertinent information and the progress of the project development, where IPR will allow.

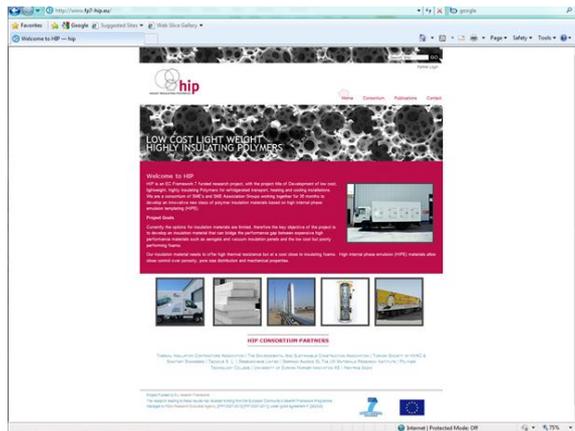


Figure 5.0; HIP Project Website, Home Page



Figure 6.0; Beneficiaries Consortium page for the website's public pages, with hyperlinks

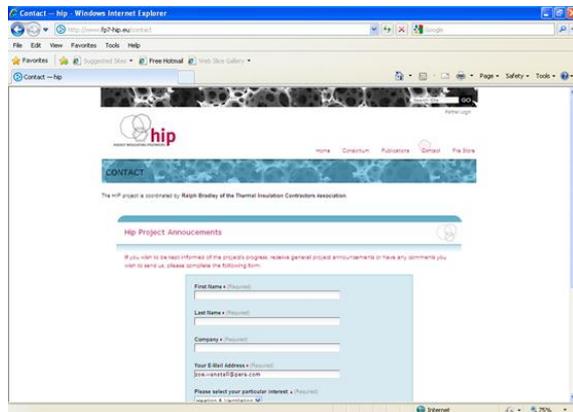


Figure 7.0; Public Contacts Page

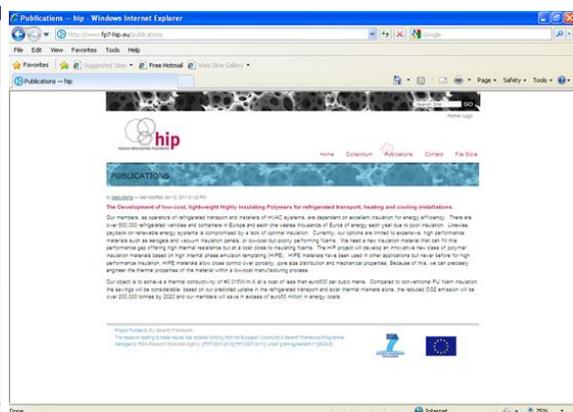


Figure 8.0; Publications Tab Page

Project Partners

The following partners are currently engaged with the HIP project.

