



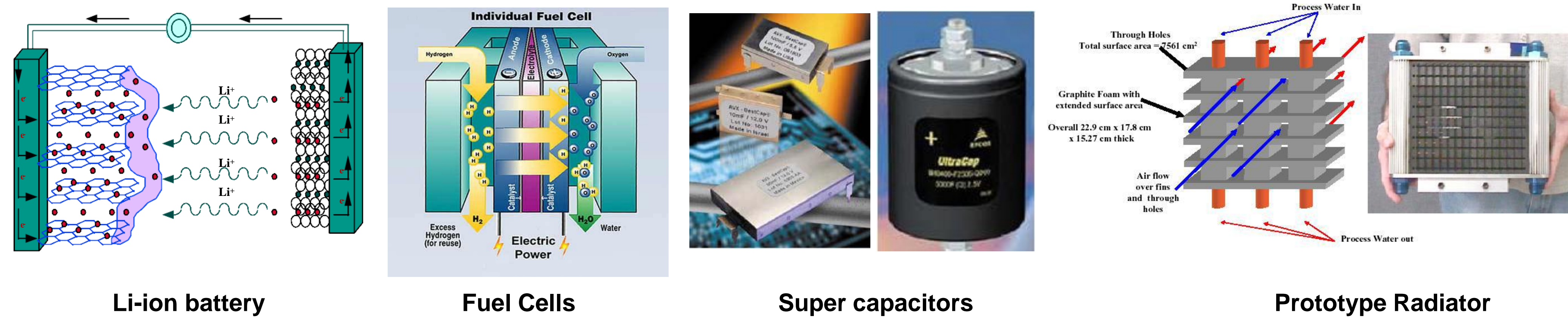
SYNTHESIS AND CHARACTERIZATION OF CARBON FOAMS

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Introduction

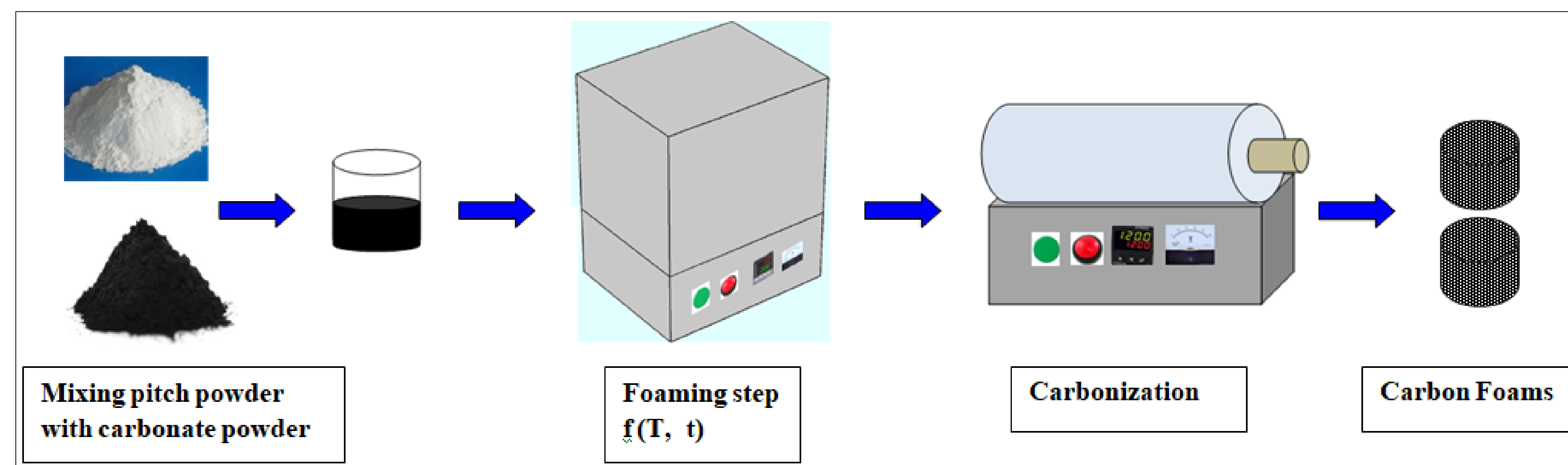
The need for high strength, light weight and low cost structural engineering materials has led to recent developments in the field of advanced materials technology, carbon and carbon-based materials being one such material. Carbon foams are new cellular materials with many novel features, such as low cost, low specific weight, high temperature tolerance (sustain up to 3000^o C in inert atmosphere), larger exposed surface area, enhanced energy absorption and flexible thermal and electrical properties. They have become the most attracting materials during last decade because of their wide potential applications in the areas of aerospace, military, offshore, power production, and for other commercial applications. Some of the applications are shown below.



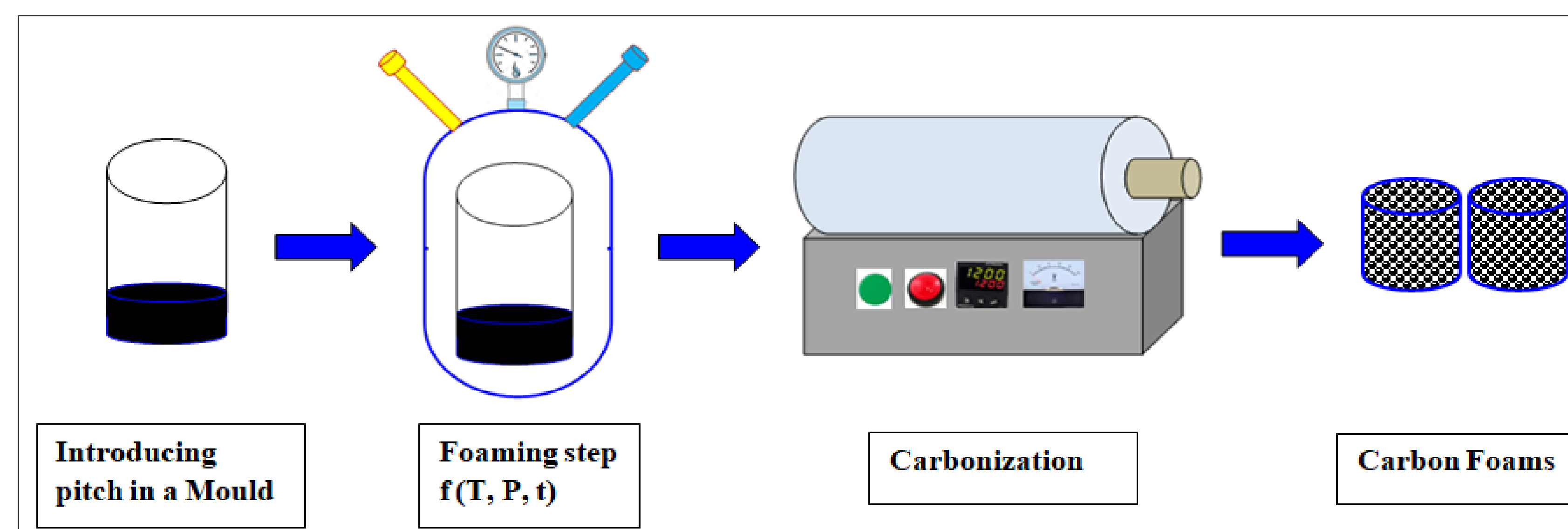
Experimental Details

Process flow diagram for synthesis of carbon foam

Powder Foaming Route



Liquid State Foaming

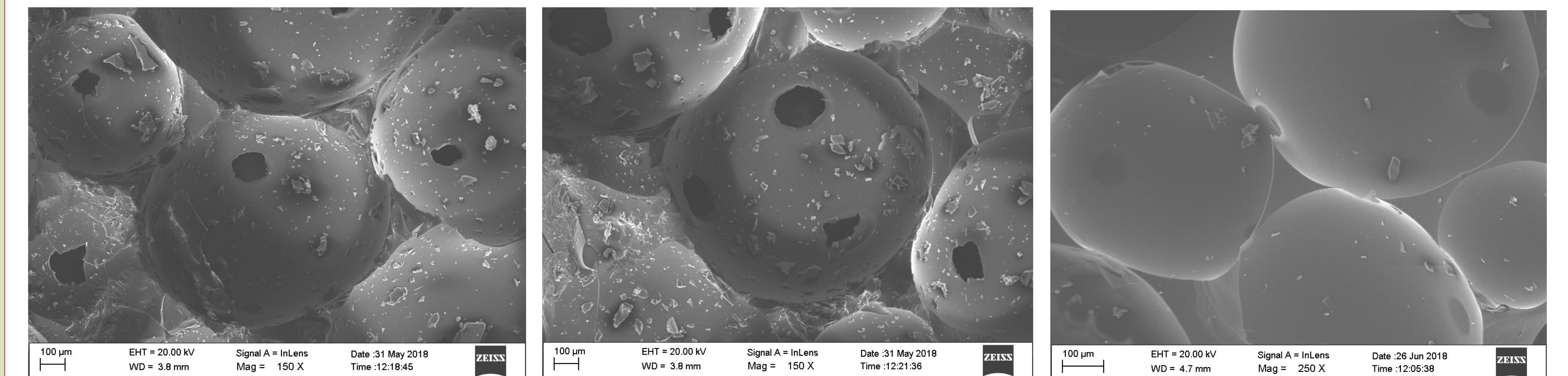


Result and Discussion

Photograph of foam samples before carbonization



SEM image of foam samples before/after carbonization



Summary and future work

- ❑ The foam produced in this process were mixture of closed and open pores.
- ❑ The pores are almost spherical in nature, suggests that the foaming process is similar to bubble formation as proposed by plateau.
- ❑ The vertex is likely to be triangular in shape with three touching spheres.
- ❑ The carbonization temperature is optimized to 950-1050^o C.
- ❑ Further work is being carried out on evaluation of mechanical and thermal properties of the foam.

References

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