

## Co-operation profile details from Enterprise Europe East of England

### 10 GB 41n8 3G6D - A new way of using ice as a disappearing template for use in casting applications Technology collaboration OFFER

#### Abstract

A UK Engineer has developed a process that uses ice as a template for the manufacture of a range of products made from cement, concrete or other cold-poured hard set materials. It offers a number of advantages over traditional molding processes. The process is fully developed and is currently targeted at the 'garden architecture' market. Agreements are sought with manufacturers or with arts and design schools interested in evaluating the technology.

#### Description

Garden architecture products (ornaments, sculptures, etc) are traditionally mass produced using rubber or fiberglass moulds which act as a fixed template for products made from cement, concrete, resin-based composites etc.

A UK engineer has now developed a novel method for the production of bespoke, handcrafted items which does not rely on the use of rubber moulds, but uses ice as the template for the finished product. Because ice can be fashioned into many and varied shapes and designs, the method provides a low-cost way of producing a bespoke range of unique works of art, garden architecture, furnishings and many other objects.

The process is considered low-tech with low energy costs, low waste and does not require skilled labour, being limited only by the user's artistic imagination for the designs of the ice templates.

In brief, the process involves three simple steps, each involving a degree of secret know-how which would be transferred to licensees. 1) Production of ice templates: These are effectively produced in kit form and can be either simple or complex. Methods for the shaping, cutting and gluing of ice as well as the process for production of the ice itself all form part of the know-how. 2) Mould production: Having crafted the template, the ice is submerged in a harmless liquid substance that produces a hard coating around the ice. The ice is then allowed to melt away, leaving a hollow one-off mould. 3) Casting the product: The mould is then poured with the chosen product material (concrete, cement, resin-hardened composite etc) and left to cure. Finally the mould coating material is removed and can be broken down for re-use. The resulting products are effectively replicas (in concrete, cement etc) of the original ice template. The types of possible product are many and varied and include for example, garden furnishings, concrete panel fencing, weight-bearing carved pillars, water features, house-hold products such as lamp holders and many more. Product size is limited only by the size of the equipment used (refrigeration equipment for ice making and the bath used for the ice coating process) and can be up to several hundred kilogrammes. Steel reinforcement can be used for larger structures such as life-sized sculptures. The images copied below illustrate some of the designs possible. The objects in the photographs were crafted out of ice, and then put through the system described above to turn them into solid objects made from permanent materials.

This represents a novel process which may be of interest to manufacturers, but also to arts and design schools

#### Innovative Aspects:

The process is a completely new way of manufacturing hand-crafted bespoke products which enables the production of objects that cannot be produced in other ways using a single casting step. Traditional moulds for garden architecture products for example do not allow the intricacy of design (e.g. hollow interiors) as is - DESCRIPTION CONTINUES ON NEXT PAGE>>>

#### Target partner expertise sought:

- Type of partner sought:  
Industrial partner or arts and design schools or colleges
- Specific area of activity of the partner:  
Manufacturers of garden architecture
- Task to be performed:  
License the process to bring to market.

Country of origin: United Kingdom

Listed under: Industrial Manufacture

#### Key dates:

Profile created on: 13/01/2010

Closing date: 12/01/2011

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CONTINUES >>>possible with this system. The system is low-tech, low cost and considered to be environmentally friendly as the materials used (ice and the hard coating) can be re-used. It would be possible to establish a production line workshop. The breadth of possibilities for products is limited only by the craftsman's imagination and ability to produce the template in ice.