NRC·CNRC
Industrial Materials Institute

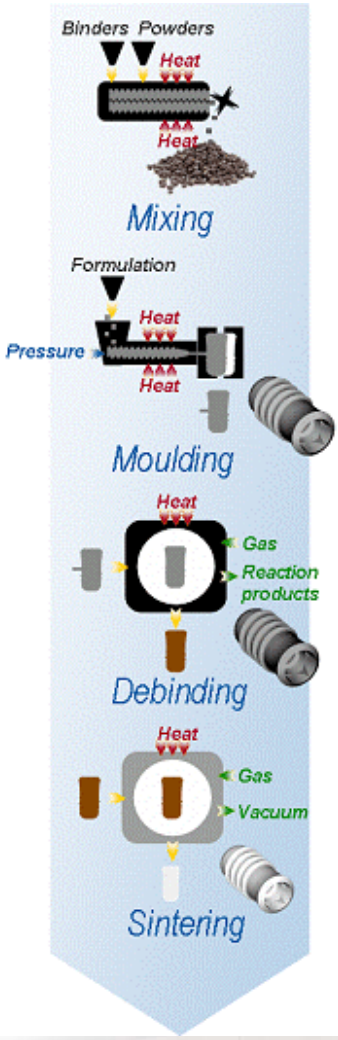
Information

Titanium powder injection moulding for the medical, dental and aerospace fields

NRC-IMI is seeking for partners for a multiclient project aimed at developing a titanium and titanium alloy forming process through powder injection moulding (PIM) for applications that meet the most demanding standards of the medical, dental and aerospace sectors.

Powder injection moulding (PIM) is well adapted to the production of complex precision-built components using a wide range of materials. This industrial forming process allies the design flexibility associated with polymer moulding to the intrinsic properties of metallic materials. These characteristics make PIM a select net-shaping technology for the production of small parts made of titanium and titanium alloys.

Beside a sustained annual market growth of more than 15%, PIM is still marginally used for titanium-based parts. This is mainly due to difficulties of maintaining an acceptable low level of oxygen and other interstitials in the final part. Based on its expertise on titanium metallurgy, polymer engineering and powder metallurgy, NRC-IMI proposes the multiclient approach to meet the challenge posed by titanium PIM forming



Objectives

- Develop a powder injection moulding (PIM) forming process for titanium alloy Ti6Al4V to minimize contamination with interstitial elements (O, C, N and H) and so obtain the chemical, physical and mechanical characteristics specified in the most demanding standards for finished parts in the medical, dental and aerospace sectors (Ti6Al4V-ELI–Grade 23)

- Prepare a user's guide containing mechanical, physical and chemical properties of the Ti6Al4V – Grade 23 parts produced by this PIM process
- Demonstrate the technical feasibility of this PIM process for the production of complex parts made of Ti6Al4V–Grade 23
- Transfer the developed scientific knowledge, know-how and technologies to the industry

Potential partners

The project is aimed at parts users, designers and manufacturers, as well as to the producers of titanium powders.

Multiclient approach

NRC-IMI proposes the multiclient approach to meet the challenge posed by titanium PIM forming. The project should involve the participation of at least 10 partners. The advantage of the multiclient approach is that it brings together the components manufacturers and the prime contractors, exposes them to the titanium powder injection moulding process and creates synergy to foster the integration of skills available from NRC-IMI and within these companies.

Participation in the multiclient titanium PIM forming project offers the following advantages:

- Preferential access to the results of the R&D project
- Access to the state-of-the-art expertise of IMI and other NRC Institutes
- Format facilitating the transfer of NRC technology to the partners
- Technology watch activities
- Major leverage effect on R&D investments
- Sharing of costs and risks associated with a $500k project

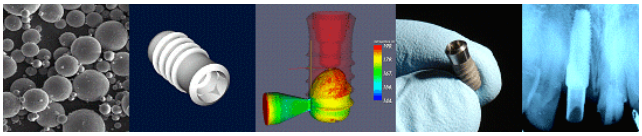
When and where?

The multiclient project proposed by NRC-IMI will start during the first months of 2007 and will last two (2) years. NRC-IMI invites you to an information session that will take place on November 24, 2006, 9:00 am, at 75 de Mortagne Blvd., Boucherville.

You will obtain all the information needed to assess the benefit of being partner of this multiclient project. You will also have the opportunity to discuss with our specialists all the details of the project.

Registration

To register your participation in the information session, please fill out the following registration form.



For further information concerning this multiclient project and the information session, please contact:

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Ce document est également offert en français
October 4, 2006

Titanium powder injection moulding for the medical, dental and aerospace fields

Information session

November 24, 2006

To learn more about the objectives and the planning of the titanium powder injection moulding project as well as the benefits of the multiclient approach, NRC-IMI invites you to an information session to be held in his laboratories in Boucherville, Quebec. You will also have the opportunity to visit the new NRC-IMI powder injection moulding installations.

Agenda

9:00	Welcoming remarks
9:15	New NRC-IMI Powder Injection Moulding Installation
10:00	Visit of PIM laboratories
10:45	Break
11:00	Presentation of the Titanium powder injection moulding project for the medical, dental and aerospace fields
11:30	Questions, comments and discussion
12:00	Lunch

Participation is free of charge.

You can also register by e-mail at Danielle.Dufresne@cnrc-nrc.gc.ca or by fax at (450) 641-5105.

You may consult the IMI web site (http://www.imi.cnrc-nrc.gc.ca/) to obtain directions on how to get to IMI as well as the directory of Hotels located in near IMI as well as Downtown Montreal.

Titanium powder injection moulding for the medical, dental and aerospace fields

Registration Form

November 24, 2006

Name	
Title	
Organization	
Address	
Address (cont'd)	
Town	
Province/State	
Postal Code/Zip	
Country	
Telephone	
Fax	
E-mail	

Please forward this form by e-mail at the following address: Danielle.Dufresne@cnrc-nrc.gc.ca
or by fax at (450) 641-5105.