The Royal Academy of Engineering

Daphne Jackson Trust Fellowship

Manufacture of Porous Metals by Lost Carbonate Sintering

Co-funded by Equalitec

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1. Introduction

Metal foams have recently attracted considerable attention in both academia and industry because of their exceptional mechanical, thermal, acoustic, electrical and chemical properties. Lost Carbonate Sintering (LCS) is a novel method developed at Liverpool for manufacturing various porous metals. Compared to other methods, LCS has such advantages as controllable pore size and porosity, simple procedure, low cost and, above all, applicable to metals with high melting points.

2. Principle of LCS

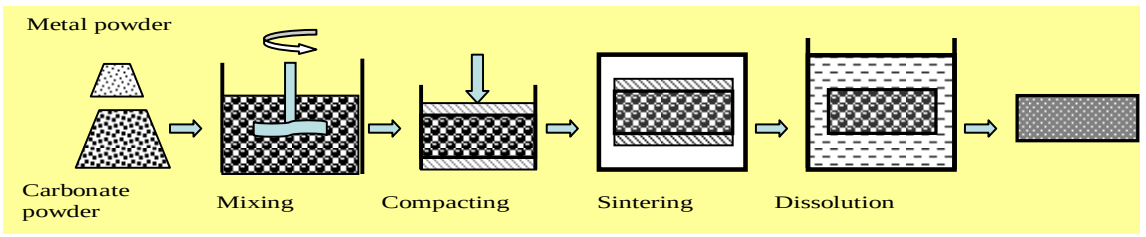
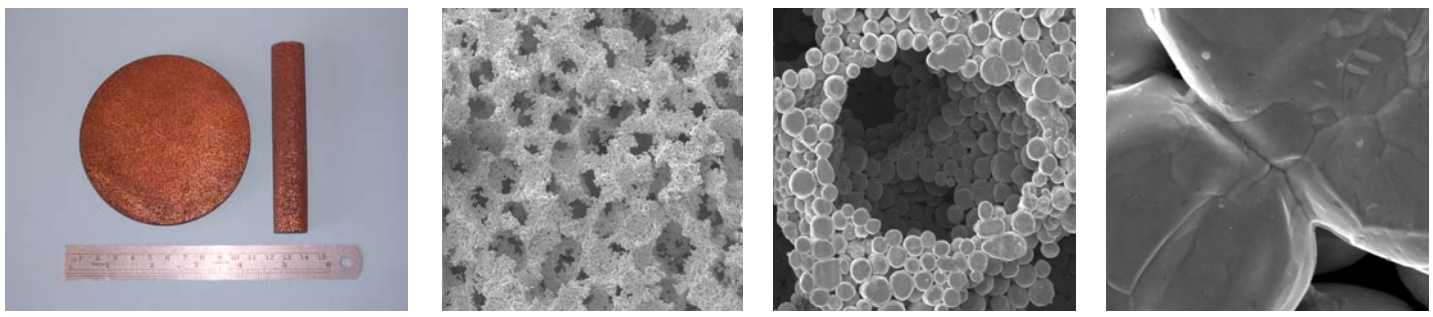
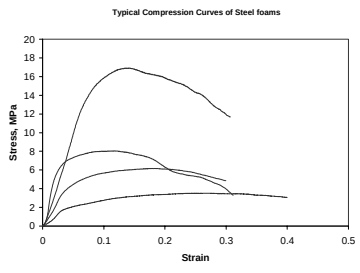


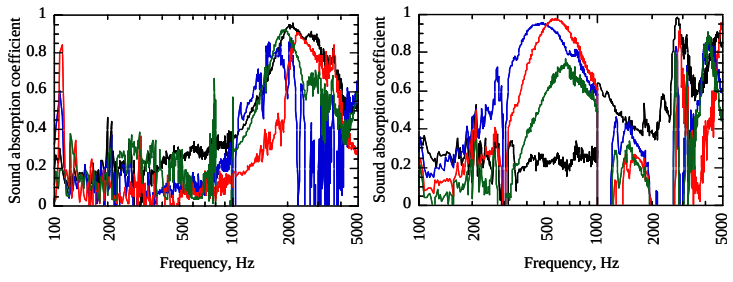
Illustration of LCS procedure in manufacturing a metal foam

3. Unique structure of the porous metals fabricated by LCS



4. Properties of porous metals fabricated by LCS: Examples

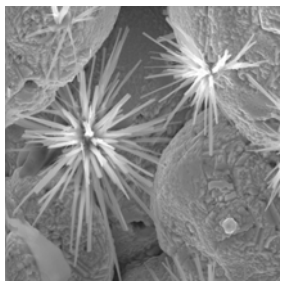




5. Concluding remarks

Porous Cu, Fe and Ni have been fabricated successfully during the fellowship. The samples showed good properties in compression and impact energy absorption, heat transfer and sound absorption.

A big achievement for me was being awarded a 2007 BFIIN Award in the High Education category for the contribution to the development of the LCS process.



Carbonate in bloom

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