Faculty of Life and Medical Science

Dept. of Biomedical Engineering

Development of Moulding Process for Thermoplastic Composites and Evaluation of Their Material Properties

Biomechanics Group
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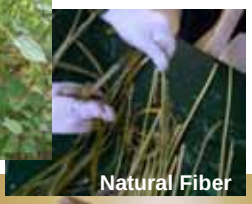
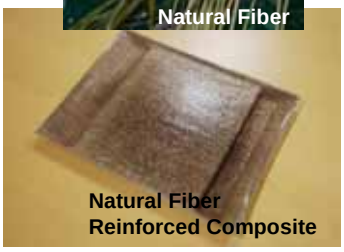
1 Development of Biodegradable Composite Materials

Green Composites

Carbon neutral
Small environmental impact

Natural fibre reinforced biodegradable polymer
Bamboo fibre, Jute fibre





2 Development of Semi-product Materials for Thermoplastic Composites

Matrix Resin

Thermoset Resin
Large number of available process and material data
Chemical reaction time (Cross linking process)
Difficulty in recycle
Thermoplastic Resin
Toughness
Recyclability
Short production cycle

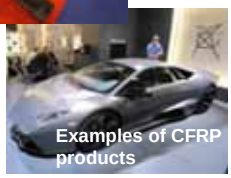
Non-woven Stitched Multi-axial Cloth: NSMC

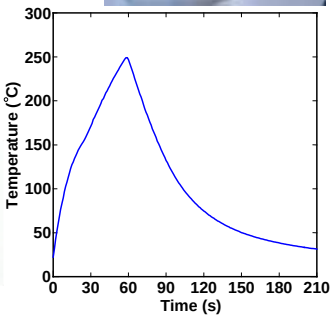
NSMC

3 High Speed Compression Moulding of FRTP using Electromagnetic Induction Heating System

Electromagnetic Induction Heating

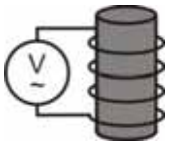
Due to the skin effects, only the surface of the mould is heated by high frequency current.



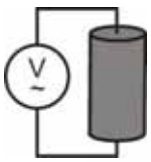


4 Development of Rapid Pipe Moulding Process of Carbon Fibre Reinforced Thermoplastics by High-frequency Direct Resistance Heating

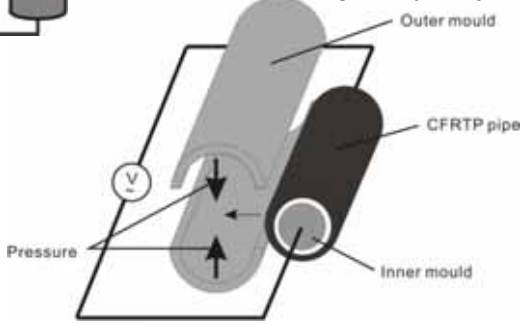
Heating Methods



Induction heating
Need coil
Magnetic field → Eddy current



High-frequency direct resistance heating
Direct heating without coils
Skin effect of high-frequency current



Reduction of production cycle time and manufacturing cost