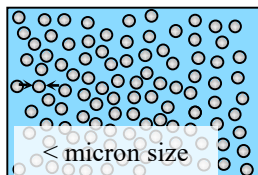


Control of polymer melt flow and processability

Professor, Masataka Sugimoto

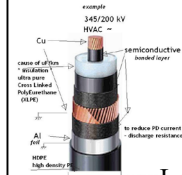
Research activities

Fine cell foaming



- Micro ~ nano cellular foam
- Supercritical fluids
- Light weight, cushioning
- Environmental friendly

Recycling



Cross-linked PE of high-voltage cable

Landfilling, incineration
→ Recycling



Multi-layered films



Multi-layered film

- Metallic gloss
- Radio permeability
- Gas barrier

Figures (3D printing)



Development of molds for figure processings

※Funding from the Small and Medium-sized Enterprise Agency

Content:

Generally, most plastic manufacturing is composed of three processes: melting, flowing, and solidifying. Especially, we are focusing on the melt state behaviors, since the viscoelastic response plays an important role in polymer processing. We have studied not only the linear viscoelasticity but also the nonlinear behaviors, which can be related to the practical applications such as foaming, film casting, film blowing, blow molding, electrospinning, etc. In order to realize desired shapes, our goals are to design the materials which have appropriate rheological behaviors, and to optimize processing methods and conditions.

Appealing point:

We have carried out the researches on the correlation between polymer rheology and the processing from academic and practical points. Some of our results have yielded practical applications in industry.

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Research Interest : Polymer rheology, Polymer processing

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