

Theme : Functional Material

Subject : Self-healing Materials

Introduction

The goal of this research is to design novel self-healing materials to replace the tempered glass screens that are currently being used in mobile devices. These self-healing materials must be colorless, and transparent. Additionally, they must have improved surface hardness, and better solvent compatibilities with different organic solvents than the currently available self-healing materials. These materials should also have improved recovery capabilities for fine scratches. It is believed that such self-healing material can overcome the chemical & physical limits of the conventional polymeric films, and may have wide range of applications such as window films for flexible OLED, and protective cases for mobile devices.

Scope

Challenges that significantly develop the advanced self-healing materials having the performance include:

- High transmittance (> 90%)
- High Pencil hardness
- Fast recovery speed of scratch
- High flexibility, High solvent resistance & Good processability

Expected Deliverables

The following is open to discussion:

- Suggestion of advanced materials with new structure and/or composition.
- Detailed progress reports every 3 months summarizing accomplishments.
- Prototype samples
- Patents with Samsung Electronics (if agreed)