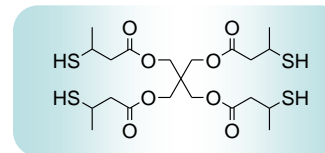


# KarenzMT™ PE1 – Photo Curing Additive, Epoxy Hardener –

- Multifunctional secondary thiol structure
- Possible to enhance the performance in many applications : Adhesive, Coating, etc.  
 Photo curing additives : Enhancing UV/LED sensitivity, Better flexibility.  
 Epoxy hardener : Low temperature/fast curing, Better flexibility.

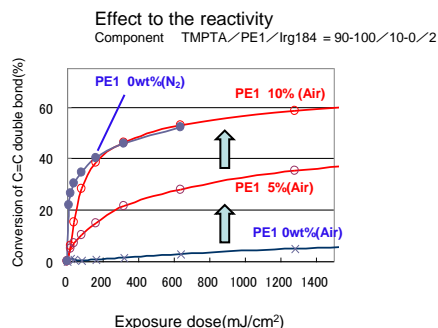


Fine Chemicals Group  
 Specialty Chemicals Department  
 Functional Chemicals Division  
 SHOWA DENKO K.K.

KarenzHP URL <http://www.karenz.jp/>

## Improvement of Reaction

- Saving energy / Enhancement of Productivity



## Improvement of curing of high contents carbon black ink

- Enhancement of light blocking / Enhancement of Productivity

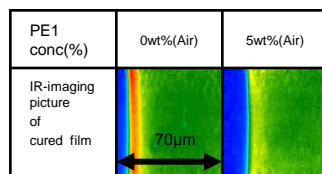
	Exposure till tack free
No additives	0.2J/cm²
PE1 5 phr	0.06J/cm²



Base materials : Normal paper  
 Film thickness : 10µm  
 Monomer/Resin : 75 phr  
 Carbon black : 20 phr  
 Initiator : Irgacure907 5 phr

## Improvement of surface curing (IR-imaging)

- Enhancement of Productivity / Simplify of Production facilities



Component  
 PE1/U-15HA/TMPTA/Irg184=0/48/48/5  
 PE1/U-15HA/TMPTA/Irg184=5/45/45/5  
 Exposure dose 1,000mJ/cm²

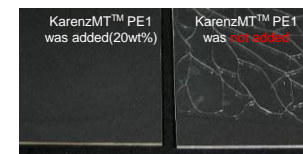
Improvement was observed by addition of KarenzMT™ PE1

Un cured own to Oxygen inhibition

## Stress relaxation

- Prevention of Crack / Detachment

- Stress in UV curing film can be relaxed by addition of KarenzMT™ PE1
- Dimensional accuracy can be also improved

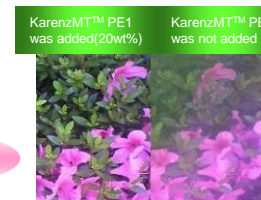


Component  
 PE1/TMPTA/U-15HA/Irg184 =20/37/37/5  
 Base Plate  
 Exposure dose 500mJ/cm²(N₂)

## Transparency of film

- Enhancement of Transparency

Transparency of UV curing film can be enhanced by addition of KarenzMT™ PE1. No decrease of transparency was observed after water resistance test



Component  
 PE1/TMPTA/Irg184=10/90/2  
 Exposure dose 500mJ/cm²  
 Photo was taken through each cured film