Solar Cells are the path to a greener future. Polymer donor materials are an excellent candidate to replace current silicon materials in solar cells. They are lighter, less expensive and flexible, making their processing simpler. However, they suffer from several limitations. One of those limitations is the tendency to phase segregate from their acceptor material (usually a fullerene derivative) upon heating (which happens during solar cell use). We propose a self-healing material capable of arresting and slowing phase segregation by a reversible cyclization, induced by light and reversed by stress.