

March 25, 2010

Sojitz Corporation

Sojitz to Accelerate Research and Development of Soluble Polyimide Resin

—Development of New Polymers Leads to Expansion of High-Performance Materials

Business—

Sojitz Corporation invested in Solpit Industries, Ltd. (Head Office: Tsukuba, Ibaraki, Representative: Hiroshi Itatani) to conduct research and development of soluble polyimide, a high performance resin material. Demand for soluble polyimide is expected to grow in cutting-edge fields including aerospace, vehicles, and electronics. Recently, Solpit employed the raw materials used in current polyimide film and successfully dissolved polyimide in a solution, making it possible to apply polyimide resin to a variety of materials. Sojitz will accelerate research and development of soluble polyimide and is considering mass production and commercialization in the near future.



Solpit 6,6-PI, a solution of soluble polyimide resin

Sojitz invested in Solpit through a private placement of shares in September 2008 (Sojitz owns 36%) and has been supporting research and development of soluble polyimide. The two companies have submitted joint applications for five patents. Solpit is also conducting joint research with the Toyohashi University of Technology as a part of its efforts to develop applications.

Polyimide resin is a plastic with very high temperature resistance and strength and is called super engineering plastic. Because of its outstanding temperature resistance, electrical insulation, and dimensional stability, there is strong demand for polyimide resin for use in circuit boards in digital consumer electronics and mobile phones, but it is insoluble and non-soluble, which means that it cannot be distributed in pellet form, and as a result, molding and processing is extremely difficult and applications have been limited to films. Recently, Solpit used the relatively inexpensive raw materials that are used for polyimide film and made it possible to dissolve polyimide in a specific solution. By applying polyimide resin to a variety of materials, applications are expected to expand greatly.

Primary Applications

- (1) Heat resistant, insulated adhesive for electronic circuit boards
- (2) Boards for the flexible displays that are expected to be developed in the next generation of development
- (3) Heat resistant, insulated coatings for flexible photovoltaic boards
- (4) Environmentally-friendly materials and cutting-edge fields such as temperature resistant coatings and binders for internal components of lithium-ion batteries
- (5) Providing functions such as heat resistance and fire resistance through application on general-purpose plastics
- (6) Compound materials such as composites with carbon fibers
- (7) Molded products such as nano-fibers and nano-particles

Sojitz has positioned high-performance monomers and electronic materials as strategic fields and is developing new monomers and polymers to create a value chain. Soluble polyimide has a broad range of applications, and Sojitz will continue to support research and development by Solpit Industries while forming alliances with the broad range of business partners with the intention of making a decision on commercialization in fiscal 2011.

Solpit Industries will exhibit at the Neo Functional Material 2010 trade show to be held in the East Exhibition Hall of the Tokyo International Exhibition Center (Tokyo Big Sight) on April 7 to 9, 2010 where it will announce the results of its soluble polyimide resin

research.

Characteristics of Solpit 6,6-PI soluble polyimide resin solution

- (1) High-temperature resistant soluble polyimide has essentially the same characteristics as existing general-purpose polyimide.
- (2) Handling is easy and distribution and production processes can be simplified and streamlined.
- (3) Since it is insoluble, direct resin manufacturing is possible, leading to higher speeds and lower costs.
- (4) Molding and processing are easy, so many applications are possible.
- (5) Re-dissolving in solution is also possible.

Category	Wholly aromatic polyimide resin solution
Imidization rate	100%
Heat resistance limit (Tg)*	300°C - 420°C (adjustable)
Resin concentration	10% - 15%
Solution	NMP (N methylpyrrolidone)
Storage stability	Good
Reforming characteristics	Functions can be added
Price superiority	Excellent

* Tg: Glass transition point temperature

Overview of Solpit Industries

- Name: Solpit Industries, Ltd.
- Representative: Hiroshi Itatani
- Head office: Tsukuba City, Ibaraki Prefecture
- Capital: 25 million yen
- Business activities: Research and development of 6,6-PI (soluble polyimide)
- Joint research: Professor Tsutomu Takeichi of the Toyohashi University of Technology

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