Development of New Heat-Resistant Polyamide Resin, "PA9T", for Electronic and Automobile Parts

Kuraray Co. Ltd. has developed a new heat-resistant polyamide, "PA9T" (trademark pending) by using innovative synthetic technology and begun commercial production at a semicommercial facilities. The main features of this product are as follows.

1. What is "PA9T"?

"PA9T" is a heat-resistant polyamide derived from terephthalic acid and nonanediamine, which Kuraray has developed a new and innovative technology to produce. "PA9T" has a superior balance of properties, including low water absorption, high chemical resistance, and excellent resistance to abrasion, in addition to heat-resistance, and is praised as "a new material with high functions", compared with other existing high-temperature engineering plastics like PA6T (heat-resistant polyamide), PPS (polyphenylene sulfide), and LCP (liquid crystal polyesters).

2. Technological Features

Nonanediamine, the raw material monomer for "PA9T", is a new diamine, first commercially produced by Kuraray, with a chemical structure of linear 9 carbon atoms. Its chemical structure makes "PA9T" a distinguished high-temperature high-performance polyamide with well-balanced superior properties.

3. Applications

(1) Electronic parts which require heat-resistance and dimensional stability

Mainly SMT (surface-mounting technology) connectors, switches, relays, parts for threedimensional circuits, bobbins, etc., for personal computers and portable communication devices such as cellular phones.

(2) Automobile parts which require heat- and chemical-resistance (in particular engine-related parts)

We are investigating possible applications for main engine parts, engine ventilation parts, and engine cooling parts.

4. Main Product Features

- (1) Electronic parts
 - (a) Heat-resistance (soft solder heat-resistance under actual-application conditions)
 Capable of withstanding temperatures up to 290 , as compared with existing materials
 Capable of withstanding temperatures of 250 ~ 260 .
 - (b) Dimensional stability thanks to its low water absorption

(2) Automobile parts

(a) Resistance to heat deterioration

Exhibits resistance to heat deterioration even at high temperatures.

(b) Chemical resistance

Superior resistance to gasoline, engine oil, alcohol, acid, alkali, hot water, etc.

- (c) Low weight
- (d) Resistance to abrasion and excellent toughness

5. Business Plan

(1) Semi-commercial facility

- (a) Production capacity: approximately 1,000 tons/year
- (b) Locations: Monomer (raw material) Polymer (resin)

Kashima Plant (Ibaraki Prefecture) Saijo Plant (Ehime Prefecture)

- (c) Capital investment: approximately ¥1 billion
- (d) Operational: from May 1999

(2) Second-stage

Boosting of production capacity to approximately 3,000 tons/year by the investment of an additional \$1 billion in 2000.

(3) Sales Forecast

Initially we will concentrate on developing the electronic parts market, but in two or three years will enter the automobile parts field.

(a) Product value:	¥1,200 ~ 1,500/kg	
(b) Sales targets:	fiscal 1999	¥1.3 billion
	fiscal 2001	¥3.0 billion