History of Innovation

Functional Materials: Thermal paper

Thermal paper was developed in the U.S. in 1968, and production began in Japan three years later in 1971. Demand expanded rapidly with the spread of information and communication equipment such as fax machines and word processors. In the 1990s, the market shifted to receipt and label paper used in commercial cash registers (POS) as the predominant application for thermal paper. Thermal paper, used as an information recording medium, has developed over a long period of time. The global market for thermal paper is still expanding, and research and development of new materials and production technologies is continuing to develop the business to meet a wide range of applications and further market needs.

1975

Kanzaki Paper started production of thermal paper

1978

Launch of thermal paper for fax machines

1986

Kanzaki Paper established KSP (Establishment of thermal paper production base in the U.S.)

Kanzaki Paper acquired Ludlow's Ware Mill, Massachusetts, U.S., in 1986, and established Kanzaki Specialty Papers Inc. (KPS) and began local production.

1987

Kanzaki Paper started operation of No. 4 KS coater

1989

Kanzaki Paper started operation of a film thermal coater

Yupo thermal paper for ultrasound imaging

The use of synthetic paper Yupo enabled the formation of coating layers and uniform adhesion with the thermal head, thus image expressiveness for ultrasound diagnostic use was achieved. The company continued to maintain a high global market share by developing and upgrading products from general grades with a water-based protective layer to high-density products with an EB cured resin layer and even photo-like high-gloss products.

1990

Kanzaki Paper established Kanzan Spezialpapiere GmbH (Establishment of therma paperl production base in Europe)

Established a joint venture with Zanders, which had a production base in Europe, and Marubeni Corporation, which had a track record of thermal paper sales in Europe. Kanzan Spezialpapiere (KANZAN) introduced top-coated thermal paper with a protective layer applied to the surface to the marketas early as 1993. KANZAN became a specialist in thermal paper with sufficient know-how in Europe.

Two-color thermal

Kanzaki Paper developed a microball technology that traps leuco dyes in microscopic polymer particles. By controlling the temperature at which coloring starts with this technology, the company was able to commercialize two-color thermal magnetic commutation tickets, which require high durability, and these were adopted by major private railway companies in the Kansai and Kanto regions. Furthermore, this technology was deployed to expand its product line to include train tickets for the largest railroad company and lottery tickets.

Tickets

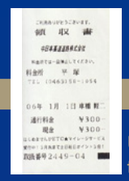
Kanzaki Paper developed high-sensitivity, high-definition thermal ticket paper capable of printing full color on the surface. It is used in a wide range of fields, including admission tickets to movies, concerts, amusement parks and train tickets, and airplane boarding passes. By applying a special color-emitting material that absorbs infrared rays, it also developed train tickets that can prevent counterfeiting.

Labels and barcodes

The development of "overcoat type" thermal paper, in which a protective layer is added on top of the thermal coloring layer, improved print quality and image durability and diversified the applications of thermal paper. Thermal paper has become widely used in labels that display barcodes, and it is now used in various everyday situations, such as price labels for food products and mailing labels for e-commerce services.

Ultra-high durability thermal paper 2

Based on a special resin blending technology that imparts water resistance to the thermal recording layer in combination with a high preservation color developer (B-TUM) originally developed by Oji Paper in 1991, Kanzaki Paper succeeded in commercializing a "non-overcoat type" of ultra high image durability thermal recording paper that does not stick even when wet with water. It became widely used as a meter reading form for water/gas/electricity used outdoors.



Ultra-high durability thermal paper 1

Kanzaki Paper (the company) has developed an encapsulation technology for ultraviolet absorbents to overcome the weak points of thermal paper, namely discoloration and image fading caused by light. Combined with chemical barrier technology using a blend of special resins, it succeeded in commercializing ultra-high durability thermal paper. The technology was used for product price tags, etc., and was later applied to expressway receipts for the Japan Highway Public Corporation (now NEXCO), which requires image durability performance under the harsh in-vehicle environment.

POS (for cash register)

Using a high preservation color developer (B-TUM) originally developed by Oji Paper in 1991, Kanzaki Paper developed an ultra-high durability thermal recording paper that does not lose its image when in contact with water, oil, or chemicals such as plasticizers in film wraps. It was adopted as a receipt for a major convenience store and began commercial production in 1992.

2005

Transparent thermal film for medical imaging

Transparency and high density coloration were achieved through material miniaturization and micro-ball technology, resulting in deep gradation for medical diagnostic images. With strict quality requirements for diagnostic use, the product was commercialized under a company-wide project structure to improve formulation, refine precision coating technology and defect detection/removal technology, and promote mass production by modifying the coater, introducing finishing equipment, and introducing simultaneous multilayer coating.

Expansion into South East Asia

New Oji Paper established Advance Oji Speciality Papers (AOSP) as a joint venture with Advance Agro (AA), a paper manufacturer in Thailand. Later, when the currency crisis hit Thailand, AA withdrew from AOSP and Oji made AOSP a subsidiary and changed its name to Oji Paper (Thailand) Ltd. In 1998, the company began producing carbonless paper, followed by thermal paper in 2005, and in 2009, a new thermal paper coater went into operation.

2011

Oji Paper established Oji Papeis Especiais, entering the Latin American thermal paper market

In 2011, Oji Paper acquired the business of Piracicaba Mill (São Paulo, Brazil) of Fibria Celulose S.A., a Brazilian company to which Oji paper had licensed its thermal paper and carbonless paper technology, and established Oji Papeis Especiais (OPE). By acquiring production and sales bases in Central and South America, the company established a four-point system for thermal paper, and further globalization progressed.

2014～2022

Construction to increase production at Oji Papeis Especiais

Semi-transparent thermal paper "Semi-Through" was developed

In response to the global trend to reduce the amount of plastic used, Oji Imaging Media developed thermal paper with transparency while maintaining the texture of paper by utilizing the thermal coloring, transparency, and coating technologies it had cultivated over many years. By replacing plastic materials with thermal paper products, the burden on the environment can be reduced through the reduction of waste plastic.

Scheduled to be completed in 2024

Construction to enhance competitiveness in Kanzan