

THE HISTORY OF GELLY ROLL®

INVENTION OF GEL INK

The history of the gel-based ink rollerball pen began over 30 years ago. In the late 1970's most writing instrument companies started producing a new technology known as the rollerball pen. Rollerball pens used a water-based fluid ink in comparison to the then popular ballpoint pen which used a thick oil-based ink. In Japan, the local market already had several strong rollerball competitors, and there were numerous overseas brands from the U.S. and European markets. The Sakura Color Products Corporation, located in Osaka, Japan, also wanted to develop a rollerball pen, but wanted to advance the technology further. Sakura decided to go after what no other company had been successful in creating - a gel-based ink. Within the industry, gel inks were discussed as a possible revolutionary development, but no research and development (R&D) team had yet successfully achieved a working formulation.

THIXOTROPIC?

In early 1980, Sakura put together a team of four technicians from its main laboratory in Osaka to research gel ink. Oil-based ballpoint ink always remains in a liquid state and is sensitive to gravity. If a ballpoint pen is stored incorrectly, ink collects at one end of the pen, causing inconsistent ink density and color. To combat this, Sakura's R&D team focused on a unique property of gels called thixotropic action. As gel stands still, its viscosity increases and it solidifies. Thixotropic means that when gel is disturbed, its viscosity decreases and it becomes more liquid. The idea behind a gel ink is that the solidity of a gel combined with the property of thixotropic action will ensure that the gel ink flow remains consistent for the life of the pen.

Mr. Shigeyasu Inoue, one of the original members of the team, remembers the frustrating process of discovering a formula. "In the beginning, we failed many times. Each time we developed a new prototype, a whole new set of problems would arise. We spent endless hours studying each problem, resolving them one-by-one. There were many ideas--many led to dead-ends. Others had merit, but could only be tried once we resolved other issues. It was a difficult process."



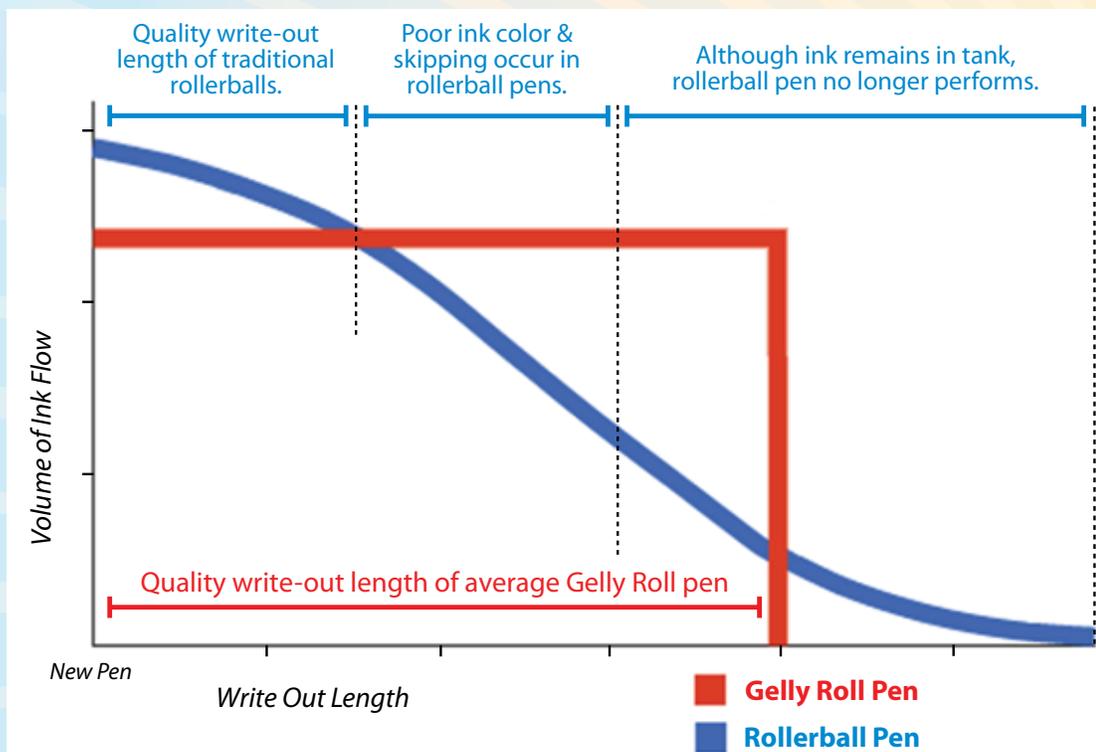
An original
Ballsign pen,
Gelly Roll Moonlight,
& Gelly Roll Metallic

Eventually, the team knew they were close to finding an answer. A key ingredient was missing, however, in perfecting thixotropic action for use in a gel pen. Inoue relates the team's building anticipation, "Every day, we checked newspapers, magazines, literature, and catalogs for information that might lead to a solution. We questioned everything we looked at and read."

Sakura's team tested more than a thousand materials in an attempt to develop the ideal gel ink: agar, grated yam, egg whites, and others. They considered any materials with the properties of jelly. Then one day it happened. Flipping through a chemical trade publication, Inoue saw an ad for an ingredient called xanthan gum, a food-additive in jam and instant soup. The ad was meaningless to most people, but Inoue still vividly remembers the moment. "My eyes suddenly focused on the words and the solution flashed across my mind!"

The R&D team quickly researched this new ingredient and successfully developed a working gel ink with the advantages of both water-based and oil-based inks! Sakura applied for a patent in Japan on October 20, 1982.

AVERAGE GELLY ROLL VS ROLLERBALL PEN INK FLOW CURVE



INK TO PENS—NOT AS EASY AS YOU THINK

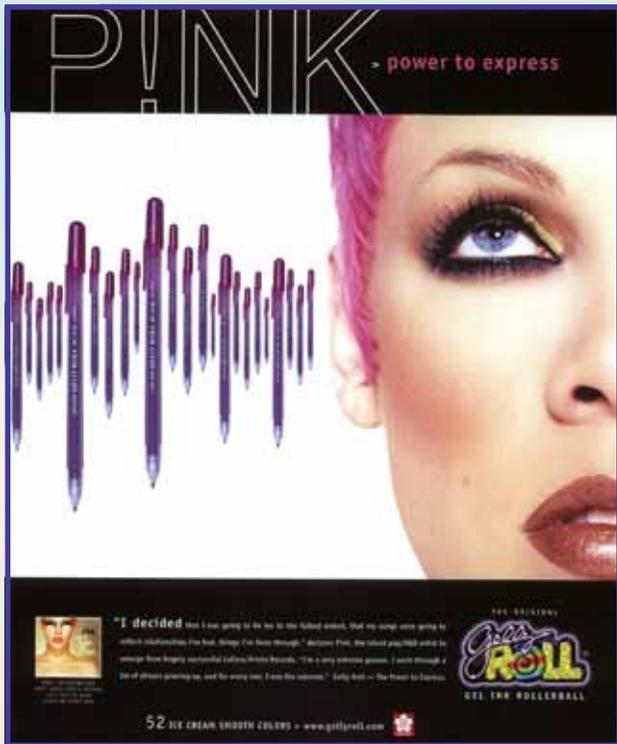
Gel ink is water-based and becomes liquid when the ink is disturbed, which creates complications when inserting the ink into the barrel of a pen. The problem is that gel ink needs to be placed into the barrel as a solid. As a result, the engineers and chemists at Sakura had to develop a new method for manufacturing pens made with gel ink.

The process, still used today, involves the centrifuging (spinning at a rapid pace) of each barrel refill for a precise amount of time. Inoue explained, "Even the length of time and the speed of spinning needs to be precise to obtain the desired writing performance."

The small ball used in ballpoint pens was not of sufficient quality for use with gel inks. "Sakura had to work with the ball part suppliers to develop a new, smoother surface sphere. This also affected the nib holder section, which also had to be improved. Since each part works co-dependently with other parts, we essentially had to re-engineer the entire assembly."

MAKING IT HAPPEN

From October 1982 until early 1984, Sakura developed pen designs for its revolutionary ink. Finally, in 1984, Sakura surprised the pen industry with its technological breakthrough. They named the pen Ballsign®, combining the terms Ballpoint pen and Sign pen (which is the generic Japanese name for water-based, felt-tip pens.)



(Left) This American ad from the 1990s features pop singer Pink. Gelly Roll's vivid colors give teens a perfect way to express themselves.
 (Below) This Japanese ad campaign from the early 1980s predicts that Sakura's new Ballsign will be the next big thing. They were right!



THE BEST INK

Since Sakura had decades of experience making art materials and expertise in refining quality pigments, Ballsign's ink was upgraded from a dye-based ink to a pigment-based formula. This was an advantage over most writing instrument manufacturers, who used inexpensive dyes and had little, if any, knowledge of the properties of pigments. The new and improved pigment-based gel ink was waterproof, fade resistant, and would not bleed through paper, giving it superior quality over non-gel rollerballs. Ballsign quickly became the gel pen of choice with Japanese consumers; both young and old.

THE NAME GELLY ROLL® IS BORN

In late 1988 Sakura approached Sakura of America, their newly established affiliate, to offer Ballsign in the United States. However, market research showed that U.S. consumers were satisfied with existing, non-gel rollerball pens and would be hesitant to trying something new. Sakura of America had to take a different approach by building a new pen category rather than fighting market share away from existing rollerball suppliers.

Peter Ouyang, Sakura of America's Vice President of Marketing explains, "Not only were we building a

brand, but a whole new pen category. I forget how many names went back and forth between Japan and America---we wanted to capture the qualities and essence of this pen in a catchy and descriptive way. We crossed our fingers when we decided on the brand name of Gelly Roll and now everyone agrees, even our competitors, that Gelly Roll is 'the standard' for a gel-based rollerball pen." In 1989 the Gelly Roll series was introduced to the North American market in black, blue and red inks.

MORE INK COLORS & SPECIAL EFFECTS

Over time, Sakura developed more ink colors and special effects. Popularity surged when Sakura introduced Gelly Roll Metallic in opaque reflective colors in late 1997. This new ink had the ability to write on both white and black paper. In 1999 Sakura debuted Gelly Roll Lightning® (now Gelly Roll Silver Shadow®) which outlines metallic silver in colors. In January 2000, Sakura introduced Gelly Roll Stardust® glittering gel pens.

Although there are now many suppliers who offer a variety of gel pen products, Sakura was officially recognized as the first and original inventor of the gel pen. In June 2000, Sakura Color Products Corporation, received the "Award of the Director General of the Japanese Patent Office" for the invention of the gel ink roller ball. This officially recognized Sakura's success in developing the world's first gel ink pen.

THE FUTURE OF GELLY ROLL

Due to the vast consumer demand for this new technology, other companies attempted to create their own gel ink pens or import gel pens that would only work the first few times they were

used. Manufacturers marketed these inferior gel ink pens the next several years, often under multiple



(Left) The Award of the Director General of the Japanese Patent Office - presented to Sakura Color Products Corporation for the invention of the gel ink rollerball.

brand names. As a result, the reputation of the gel ink market was severely damaged. Since then consumers have abandoned these inferior brands, putting many gel ink manufacturers and importers out of business. Unsurprisingly, Sakura's high quality line of Gelly Roll pens are still going strong, thanks to the innovative technology and careful engineering of Inoue's team in Osaka, 30 years ago.

Even now, the Gelly Roll story is far from over. Sakura Japan's President, Teichii Nishimura, expressed it best when he said, "Although global consumers have discovered our gel pen relatively recently, it is a product that has been in the works for over 30 years. Most of the difficult work is behind us and we hope to drive Gelly Roll's colors and technology further in the future."

GELLY ROLL® INK VARIETIES

| | Archival | Opaque | Glossy Paper |
|----------------------|---|-------------------------------------|-------------------------------------|
| Classic | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Metallic | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Gold & Silver Shadow | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Stardust (glitter) | <input checked="" type="checkbox"/> (except glitter) | <input type="checkbox"/> | <input type="checkbox"/> |
| Moonlight | <input checked="" type="checkbox"/> (except fluo.) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

1984 1987 1997 1999 2000 2002 2007 today

 **GELLY ROLL** TIMELINE