

Fukushima Prefecture

Sakamoto Urushi manufacturing CO., LTD. **(Aizu-wakamatsu City)**

Collaboration of arts and crafts to apply traditional Japanese lacquerware to modern life

Frontier Laboratories Ltd. (Koriyama City)

Novel Chemical Analysis Instrumentation for the Global Market,
Developed by Cooperation between Industry and University

Kishiro Optical CO., LTD. (Sukagawa City)

Ultra High Reflector (UHR) with 99% of Reflectance

Arena CO., LTD (Soma City)

From Micro-fabrication technologies to Nanotechnology

Collaboration of arts and crafts to apply traditional Japanese lacquerware to modern life

Sakamoto Urushi manufacturing CO., LTD.

1-4-51, Oomachi
Aizu-wakamatsu City
Fukushima Prefecture

Founded in 1900
Corporatized on 1988
TEL +81-242-25-4111

<http://www.eyes-japan.co.jp>



Asao Sakamoto
President

Sakamoto's Urushi products are the infusion of traditional Japanese arts and the newest material and technologies, beyond the inheritance and preservation of old customs. Its "historic and modern" arts are now being noticed around the world.

30 years of business based on clear principles and policies

Unprecedented as a manufacturer dealing with traditional crafts, Sakamoto has kept the principle of the "infusion of tradition and modern concepts" for thirty years, as well as the policy of not dealing with the products that (1) can be manufactured outside Japan, (2) are traditional craftsmanship and/or (3) can be mass-produced by major companies. Now, the eyes of the world are fixed on Sakamoto's technologies based on this unconventional concept, as well as the company's passion and confidence as a lacquer craftsman.

Incredible variety of products with heart-warming artistry and delicacy in detail

To introduce Sakamoto's marvelous technologies, the following examples of its unique products are more effective than a long explanation:

- Lacquered fountain pen by a well-known American company, delivered to the White House in memory of the inauguration of the U.S. president
- Fire-resisting material whose surface is beautifully coated, for the interior of airplanes used by a major American airline
- Japanese-style pocket watch
- Memorial bat for the 2000th hit by a professional baseball player
- Trim board of prestigious Japanese cars
- Fishing rod for sweet-fish, appealing to fishing lovers



Japanese-style pocket watch

Sakamoto's niche business has been highly acclaimed in and outside Japan, winning many international awards for its products.

The designs and colors of Sakamoto's products, which are the combination of Western and Japanese styles, are very unconventional and artistic. Sakamoto is the winner of various international awards e.g. inclusion in the permanent collection of Museum of Modern Art in New York (MoMA) and the Frankfurt Messe. In 2005, Sakamoto Urushi manufacturing CO., LTD won an award from Minister of METI (Japan) for the MONODZUKURI (Craftsmanship) Grand Prize.



CD player by major AV maker



Premium fountain pens with a stand by major U.S. maker

**Novel Chemical Analysis
Instrumentation for the
Global Market,
Developed by
Cooperation between
Industry and University**

Frontier Laboratories Ltd.

1-8-14, Saikon, Koriyama City
Fukushima Prefecture

Established in 1991
TEL +81-24-935-5100

<http://www.frontier-lab.com>



Chuichi Watanabe
President

Frontier Laboratories' unique technologies have been accepted worldwide by a wide variety of academic, industrial and scientific organizations, even by the SPACE LAB in NASA. Frontier's instrumentation for pyrolysis gas chromatography has captured about a 30% share of the global market.

Unique analytical instrumentation providing many positive contributions to society

Frontier Laboratories supplies sophisticated instrumentation for pyrolysis gas chromatography. Pyrolysis is the analysis of the chemical composition and structure of any substances which will yield smell and/or smoke when heated. Frontier's analytical instruments have various uses such as the detailed evaluation of polymeric materials used in various spheres of advanced technologies, the quality control for materials in the airplane/automobile industries, the identification of materials such as rubber, paint and paper in criminal investigation, and the analysis of environmentally harmful substances. Frontier Laboratories' products have even been applied in the SPACE LAB in NASA for the monitoring of working conditions for the space shuttle.

The reliability, accuracy, and user-friendliness of pyrolysis have been improved with Frontier's technologies.

Unlike Frontier's competitors, the Frontier Laboratories' instrumentation for pyrolysis gas chromatography is equipped with precise temperature control functions. By combining Frontier's novel devices with other analytical instruments, multi-functional analytical systems with high precision can easily be constructed. Frontier Laboratories has also succeeded in developing and commercializing high temperature metal capillary columns. These Ultra ALLOY metal capillary columns also work as a core of multi-functional analytical systems. Thus, Frontier's unique technologies, providing for more convenient and accurate analysis, have become noticed in the global market.

To be a "Small Giant" manufacturer

Frontier Laboratories, a small company with around 20 employees, has customers not only in Japan but also in America, Europe, Asia and the Middle East. Because they do not have their own sales staff, Frontier Laboratories has developed a unique selling strategy. Frontier's products are installed in the analytical instruments of the major worldwide manufacturers, who, through special contracts with them, provide for the sales of the packaged analytical systems. Frontier Laboratories has been steadily working with support from the academic world, to improve their established products and to develop new products based on the customers' demand: that is why Frontier Laboratories has won the highest respect from its customers.



Frontier's pyrolysis device



The metal capillary column
(for NASA use)

Ultra High Reflector (UHR) with 99% of Reflectance

Kishiro Optical CO., LTD.

119 Yokoyama-cho,
Sukagawa City
Fukushima Prefecture

Established in 1969
TEL +81-248-75-1890

<http://www.kishiro.co.jp/>



Takamasa Yoshida
President

Kishiro has developed epoch-making aluminum reflectors with 99% reflectance, and achieved economical mass production through continuous operation from material cutting to polishing, cleaning and vacuum deposition.

Kishiro has manufactured -and provided worldwide- ultra-precision glass components essential to high-tech products.

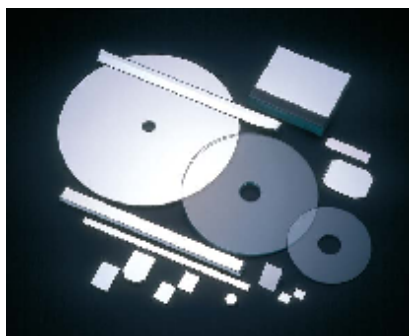
Kishiro Optical CO., LTD is a manufacturer of ultra-precision glass components including reflectors in copiers, glass foils for digital cameras and cellualars with camera functions, pickup components of DVD players, and color filters for LCD projectors. Kishiro has provided approximately 300 types of reflector as its main force, and occupies 55% of market share by quantity in the world.

Change of material for technological and environmental improvement

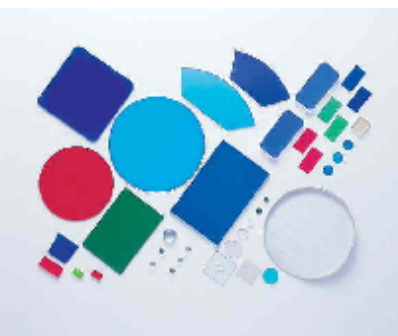
Reflectors, which require high reflectance, had been made of silver and cold (multilayer) mirrors. To reduce costs and environmental damage in manufacturing, Kishiro had researched to develop aluminum reflectors with 99% reflectance, which are highly acclaimed by various customers.

Coalescence of technologies for continuous manufacturing from cutting to polishing, cleaning and vacuum deposition

One of the advantages of Kishiro over other reflector manufacturers is its continuous operation system from material cutting to polishing, cleaning and vacuum deposition (ion-plating and sputtering): it enables more economical production of better quality components in a shorter time. By building up the coalescence of technologies for continuous manufacturing, Kishiro has strengthened its competitiveness.



Metal reflectors for OA devices



Color separation filters



Parallel polisher for dual polishing

From Micro-fabrication technologies to Nanotechnology

Arena CO., LTD

Fukushima Prefecture
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Soma City

Established on 1976
Tel +81-244-36-0111

<http://www.arena-net.co.jp>



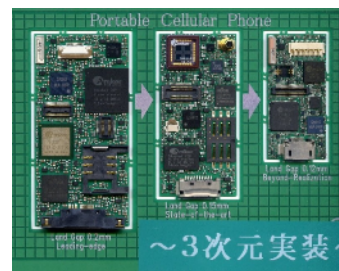
Shinya Takayama
President

Components of cellular phones, which are now indispensable in our lives, should be improved to enable more functions. Nanotechnology is required for the development of lighter, thinner and smaller cellular parts.

The gap between each chip is 0.1mm

Nanotechnology is now necessary for the development of smaller and lighter electronic products, indispensable in modern life.

Arena is proud of its world's-most-advanced mounting technologies "0603," with a chip electronic component downsized to 0.6 by 0.3 mm, as thin as a hair: in late 2005, approximately 100 million Arena chip electronic components were mounted per month. Arena's nanotechnologies have been applied to wireless communication devices e.g cellular phones, high frequency products for mobile communication equipment: Arena has supplied its technologies to the world's major manufacturers of cellular phones.



3-D mounting

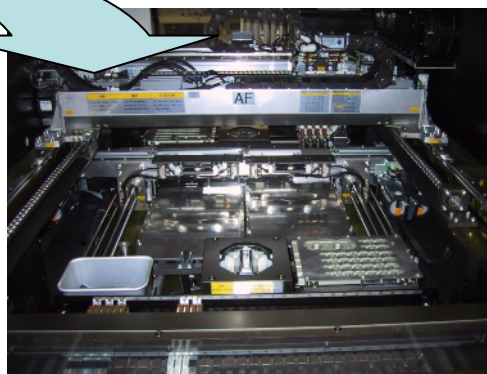
"0402," further challenges to technical limits

To downsize chip electronic components just slightly, by 0.2 or 0.1 mm, a mass of advanced technology is required for substrate designing and wiring, welding, and control of manufacturing conditions (including temperature, humidity and static electricity).

Arena has now been working towards higher density mounting "0402" (0.4 by 0.2 mm components at 0.06 mm intervals), by developing its 0603mounting (0.6 by 0.3 mm components at 0.1 mm intervals).



Operation of mounting



Inside of chip molder (partial enlargement)