

**PRESS  
RELEASE**



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Milestone International Japan Co., Ltd.  
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**Development of High Temperature Resistant “MSG (Multicomplex Super Glass) Lens”  
and Corresponding Manufacturing Technology**

Milestone International Japan Co., Ltd. having its headquarters in Fuchu City, Tokyo (hereinafter “Milestone,” Chairperson of the board of directors: Satoshi Do, President: Mitsuharu Kawano) has successfully developed and patented a high temperature resistant lens for use in camera cell phones and other applications.

In addition, SEIKOH GIKEN Co., Ltd. having its headquarters in Matsudo City, Chiba Prefecture (hereinafter “SEIKOH GIKEN,” President and CEO: Masatoshi Ueno) has developed the technology for manufacturing Milestone’s “MSG Lens.”

Demand for high temperature resistant lenses

Being able to use reflow solder for installing the lenses in camera cell phones would mean a considerable boost to manufacturing efficiency. Reflow soldering using solder paste is the preferred method for mounting electronic components to circuit boards, which are then placed in a high-temperature reflow oven where the solder melts and adheres to the parts, offering much greater productivity than conventional methods.

In the meantime, the use of lead in electric and electronic parts is restricted in order to protect the environment (RoHS Directive). Lead-free soldering requires higher-temperature ovens (approximately 270°C), so there is strong demand for a high temperature resistant lens for camera cell phones. In view of this, Nokia, a major player in the industry, recently announced that as of January 2008, it will completely switch to using lenses that support reflow soldering.

Developing lenses for camera cell phones that not only resist high temperatures but also have superior optical properties and are low cost, presented numerous issues, so even though they are in high demand by cell phone manufacturers around the world, they have not yet appeared on the market.

High temperature resistant lenses have the potential for a variety of applications in addition to use in camera cell phones, such as for automobile cameras. As parts used in automobiles must maintain their properties in harsh environments, lenses with the durability to withstand high temperatures of 150°C are being sought. For this reason, automobile manufacturers are also seeking high temperature resistant lenses with stable, superior optical properties.

Milestone receives patent for high temperature resistant lens  
Since its founding in 1998 as a venture company, Milestone has developed numerous small, high-performance plastic lenses and has been awarded over 80 patents. Among them, the world’s first camera cell phone lens that Milestone developed had a major impact on the way that cameras and cell phones are used. The company has received a patent for its high temperature resistant “MSG Lens” that is in great demand in today’s camera cell phone market.



**MSG (Multicomplex Super Glass) Lens**

For the newly invented high temperature resistant “MSG Lens”, Milestone employed a proprietary hybrid method to overcome most of the deficiencies in existing lenses made of plastic and molded glass (Material (1)). This new-structure lens meets the needs of changing times and begins a new era in the history of lenses (Material (2)). The innovative “MSG Lens” can be substituted for lenses currently used in a wide range of applications from camera cell phones to automobile cameras and surveillance equipment.

SEIKOH GIKEN develops manufacturing technology for high temperature resistant lenses  
SEIKOH GIKEN was founded in 1972 as a powder metallurgy mold manufacturer and today is expanding into the manufacture and sale of such products as optical disc molds and optical communications components. The company is diversifying its business based on its core technologies of molding, precision polishing and grinding, and precision assembly, and part of this strategy included investigating the field of optical elements, such as lenses.

The commercialization and mass production of Milestone’s innovative high temperature resistant “MSG Len” presented a number of material and manufacturing related challenges, but by applying SEIKOH GIKEN’s precision processing technology, an efficient manufacturing technology was developed with the goal of achieving mass production.

Manufacturing and sales prospects

Start of mass production in October 2007 with the target of producing and selling 40 million sets per month.

Material (1) Comparison of high temperature resistant “MSG Lens” with other lenses

	Optical Performance	Productivity	Heat Resistance	Compactness
Plastic lenses			×	
Molded glass lenses		×		
High temperature resistant “MSG Lens”				

Material (2) Modern lens history

Era	Years Since	Characteristics
1 <sup>st</sup> Era	About 100 years ago	Glass lenses invented by Newton and further developed by Carl Zeiss and others
2 <sup>nd</sup> Era	About 40 years ago	Injection molded plastic lenses, contacts, and Polaroid predominate
3 <sup>rd</sup> Era	About 15 years ago	Molded glass lenses
4 <sup>th</sup> Era	Since 2007	Hybrid structure used to achieve high temperature resistance and high productivity for the “MSG Lens”

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