

# Glass Coating Offers Comfort & CO<sub>2</sub> Cuts

## Japan Leads World in Environmental Technology

By Katsuo YAGISAWA

Precursors of abnormal weather are appearing throughout the world. Our pursuit of mass production, mass consumption and a rich life has produced massive CO<sub>2</sub> emissions, and global warming is becoming increasingly serious. Although there is an urgent need to develop non-fossil fuel sources, we are faced with the reality that we can no longer live without air conditioning.

Under these circumstances, agricultural producer Fumin Co. has developed ultimate energy-saving technology which is able to reduce CO<sub>2</sub> emissions almost permanently without using energy.

### For the Good of Man & Society

Fumin's philosophy is not to do it alone but do it in partnership with many people. Making money is not our primary goal. We believe that unless our work benefits society, our company has no reason to exist. An environmental business for saving energy and cutting CO<sub>2</sub> emissions will never be able to attain its goals unless many companies in this field value social contribution. One should be in this business with the passion of someone starting a new business. I propose this as a business model that can attain both job creation and energy saving.

Fumin's first business was to prevent the cadmium pollution of rice caused by waste from mines by using the Fumin substance that the firm had been producing for use in fighting bad odors. The substance not only prevented the pollution but also helped improve the quality of rice. As a result, it has come to be used widely in rice cultivation without agricultural chemicals. The joy we felt when we were thanked by many, moved farmers has decided the reason for the existence of our company.

### Glass-Coating Technology Saves Energy

The next product developed was a glass-coating method that blocks ultraviolet/infrared rays. The touch panels of automatic teller machines (ATMs) at banks are coated with a metal which absorbs and reacts to the heat from a human finger, but this metal coating does not respond to a touch with a pen or a notebook. This led us to the idea

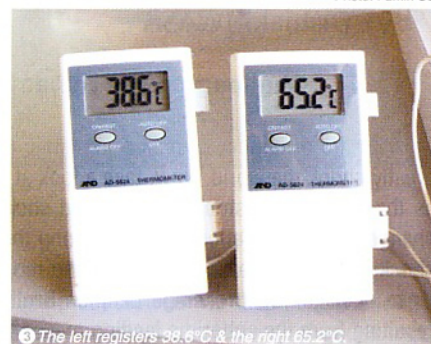
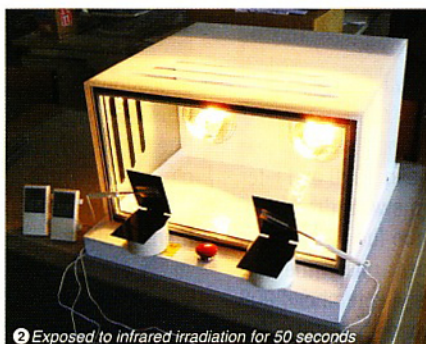
that if we assumed window panes as surfaces of large touch panels and treated them with something that works like this metal, they would be able to absorb heat from the sun and thereby save energy without using electric power. The resultant product is the patented Fumin Coating process. When we spray the surface of glass under the Fumin Coating method with simple equipment, it makes an even coating which can reduce the temperature of a room by approximately 2°C without obstructing the light that passes through the glass. This Fumin Coating also cuts ultraviolet rays by some 90%, and keeps away insects with compound eyes (such as moths, horseflies, bees and stinkbugs) which ultraviolet rays attract.

Conventional energy-saving sheet glass either has low transparency or reflects heat rays from the sun. As a result, "light pollution and heat island phenomena" are accelerating in urban areas with high-rise buildings due to light and heat reflection. While the reflectance of ordinary glass is 8%, the Fumin Coating reduces it to 6%. It is an epoch-making technology that absorbs, rather than reflects, the heat and ultraviolet rays from the sun and discharges them into the air. It

Photo: Fumin Co.



Glass coating under way



① Double glass: The left portion is coated.

② Exposed to infrared irradiation for 50 seconds

③ The left registers 38.6°C & the right 65.2°C.

*Difference in the temperatures of a steel sheet placed behind treated and untreated glass*

contributes to energy saving and CO<sub>2</sub> emission cuts semipermanently without using electric power. In Singapore, it was verified that this technology reduced the temperature within an elevator by 2°C. A reduction of heat by 2°C is said to be an energy saving of 20%. If we coated the window panes of buildings in the areas of the world where sunlight is intense by employing people for the work as a job-creation measure, an approximately 20% energy saving would be attained semipermanently.

### New Technology Also Creates Jobs

Fumin has developed a coating method using off-the-shelf spray guns to make a clear coating on all types of glass surfaces of existing buildings as well as of sheet glass in the process of production, including enormous glass plates and curved glass surfaces – a feat which is beyond the reach of expensive equipment. The company acquired a patent in Japan in 2007 and in Singapore in 2008. Today, it has filed patent applications in 10 countries and regions, including the United States, the European Union, China and India. When we invited applications to become our agents, a major Japanese company contacted us to say it would like to enter the business of coating glass to increase jobs as well. While suicides of the jobless became a social problem, this company thought about the lives of its employees and protected jobs by becoming our agent. This was the moment when a business model was realized for attaining both CO<sub>2</sub> emission cuts and job creation.

### Business Evolution in Tropical Countries

In 2006, the Tohoku regional office of the Ministry of Economy, Trade and Industry invited us to introduce Fumin's business at the Tokyo Stock Exchange (the company is based in Fukushima City in the Tohoku region, northeastern Japan). The content of the introduction reached Singapore, and we made a presentation at the Singaporean government's Building & Construction Authority (BCA) and also exhibited our business model at the Build Eco Xpo (BEX) Asia 2009, sponsored by the Singaporean government. It was such a

success that during the three days at BEX Asia, we gave out 1,200 business cards. A former minister of Oman expressed his interest in becoming our agent, while a minister in Brunei asked us to coat windows at his residence. Presentations are excellent business opportunities. As a result of the joint presentation with a Japanese construction firm at the BCA, the use of Fumin Coating-treated glass was accepted as a factor in awarding the BCA Green Mark "Platinum Award," which recognizes energy-saving buildings of the highest rank. For an empirical comparison, we treated a glass-walled elevator, with officials of the Singaporean government serving as witnesses. The temperature inside the elevator fell by 2°C and the officials were also able to feel the difference in the temperature.

### Business Not Only for Profit

We are entering an era of intellectual property. Although Japan depends on other countries for most of resources, it has patents, or intellectual property. If we respond comprehensively and on a large scale on the strength of patents, including in the way we think, business partners approaching us naturally become larger. We can not only contribute to saving energy and reducing CO<sub>2</sub> emissions in the world, but also create jobs with new technologies. Amid the present synchronous global recession, it is important for us to shoulder our share of responsibility by performing in the fields in which we excel.

If we only seek our own benefit, no one will support us. If we do "what pleases others and what is useful for society," business will come our way. Everyone has an opportunity to expand abroad if he or she aims at engaging in businesses of great significance. Japan's environmental and energy-saving technologies will surely be accepted throughout the world. I wish to see many ambitious Japanese companies take a chance on the world.

**JS**

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