

By developing and marketing highly competitive products, we aim to further expand our business in the automotive safety products field.



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Automotive safety products: Promising rapid growth globally

In developed societies where motorization is widespread, demand is growing for collision passenger protection, for improved performance of protective devices, and even for protection of pedestrians when accidents occur. We anticipate that in the future there will be increasingly varied paths of development for automotive safety products that will meet these demands, and these products will be installed in an expanding number of vehicles. While growth in vehicle sales is expected in Eastern Europe, vehicle sales have reached their zenith in North America and Japan. Nevertheless, rapid growth in automobile safety products can still be expected. From a global standpoint, Japanese automobile manufacturers are waging a successful struggle to expand in all corners of the world, and as a result much attention has been

focused on Japanese automotive parts manufacturers for their efforts to enter and expand in local markets throughout the world.

Our Safety Systems Division is riding this wave of expansion, and we are also working to greatly grow our business by applying the expertise and trust that we have developed over many years through business conducted with Japanese OEMs and Tier 1 manufacturers. For this purpose, our efforts are concentrated in the following two directions:

- Strengthening our R&D capabilities in order to continually develop and market new products with strong market appeal; and,
- Further boosting the competitiveness of existing products to increase our market share and expand our business.

Strengthening our R&D

Applying our industrial explosive technologies (particularly for explosive products such as igniters and detonators) and backed by our many years of experience, Nippon Kayaku has independently developed airbag inflators and micro gas generators used for seatbelt pretensioners. These two products are also described as precision explosive devices. By reinforcing this special R&D strength, and by further streamlining operation of our research organization, we are developing and marketing new products with the performance, price, and quality that strongly appeal to customers. In 2004, we began to market a new thick-type disk inflator with a unique structure that is different from conventional passenger inflators, and we are working to create new applications for this product. Currently, we are in the process of developing a compact inflator for use in side-impact airbags, and plan to complete and market it at an early date.

For our highly rated micro gas generators, we are developing high-reliability squibs with features that make them more competitive. These will help to greatly increase the attractiveness of the micro gas generators that utilize these squibs.

In addition, we are developing a range of new products that utilize our explosives technologies and expertise, and we are further increasing our focus on the development of semiconductor bridge (SCB) squibs, aiming for their utilization in vehicles beginning in 2008.

Strengthening the competitiveness of existing products

The expanding automotive safety products market has stimulated concerns over market share on the part of automotive parts

manufacturers. Consequently, the competitive forces are extremely fierce. In order to survive in this environment, it is mandatory that we strengthen the competitiveness of our existing products. Thus, all staff are urged to maintain strong cost awareness, and the company must continuously carry out product improvements, process improvements, distribution improvements, and streamlining of the organization. Total cost awareness must penetrate all production divisions, engineering divisions, and management divisions, and the combined strength of the company must be focused on achieving the highest level of competitiveness in the industry. This competitiveness will then lead to expansion of business.

Global business

In the safety systems business, we established Indet Safety Systems a.s. (ISS) in the Czech Republic in 1999, and LifeSparc Inc. (LS) in the U.S. in 2000. Together with our Himeji Plant (Himeji, Hyogo Prefecture), we have created a global manufacturing system for squibs and micro gas generators.

In the future, we will consider additional local production possibilities in overseas regions, coordinated with the business of Japanese OEMs overseas. We are also planning to establish a global system for inflators, and are focusing in particular on the rapidly expanding China market.

We are working for closer links between all of our production centers, including those located overseas, and are improving the efficiency of our organization worldwide. By constructing and utilizing the Internet, company intranets, and global databases, we are improving global communication, the distribution of responsibilities, and our many support services, and are striving to increase the profit-earning capacity of our consolidated business. At

the same time, we are gearing ourselves toward a sales target of doubling our current consolidated sales in FY 2006.

Topic

Plans for inflator production in China

In the Nippon Kayaku safety systems business, we have constructed a Japan-U.S.-Europe tripartite development and supply system for squibs and micro gas generators. Production at these facilities is on track. Because production by Japanese OEMs in China is growing rapidly, Nippon Kayaku is studying the possibility of entering this market, including the possibility of local inflator production. Decisions such as the location for plant construction, the business configuration (whether, for instance, to construct integrated operations that include the production of explosives used in protective devices), and the capital configuration will be made in FY 2004.

Acquiring a 100% share of our three safety systems subsidiary companies

To promote our safety systems business overseas, we established Indet Safety Systems a.s. (Czech Republic), LifeSparc Inc. (U.S.), and the patent management company NKNM (British Virgin Islands) as joint ventures with Nichimen Corporation. On March 31, 2004, we acquired the shares that were in the possession of Nichimen, transforming these three companies into 100% wholly-owned subsidiaries of Nippon Kayaku. This has enabled us to further strengthen the Japan-U.S.-Europe tripartite organization for our safety systems business.

Mechanisms of Airbag and Seatbelt Pretensioner Operation

◆ Inflator Mechanism

An inflator is a device, incorporated in safety airbags, that generates gas to instantly inflate the bag when a vehicle collision occurs.

[Operating mechanism]

- (1) A sensor detects the collision, and sends a signal to the inflator.
- (2) The squib inside the inflator operates, igniting a gas-generating agent. The generated gas enters the airbag, instantly inflating it.

◆ Micro Gas Generator Mechanism

The micro gas generator generates gas for the seatbelt pretensioner device, which winds up the seatbelt and instantly restrains the occupant's body when a vehicle collision occurs.

[Operating mechanism]

- (1) A sensor detects the collision, and sends electric current to the micro gas generator.
- (2) The squib inside the micro gas generator ignites the gas generating agent. The generated gas pressure becomes the dynamic force that winds up the seatbelt.

