

# News Releases

June 6, 2006

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## **Taiheiyo Cement Develops New Cement Production Technology to Boost Use of Recycled Resources**

Taiheiyo Cement Corporation announced that it has developed new cement production technology that makes possible the expanded use of recycled resources.

### **1. Background of the Technology Development**

The cement industry makes active use of a variety of wastes and by-products as recycled resources. In FY03/2005, the industry used approximately 29 million tons of recycled resources (total waste disposal in Japan in FY03/2004 was approximately 40 million tons). The cement industry, as a recycling industry, is expected to play an ever increasing role in the achievement of a recycling-based society.

In times of increasing domestic demand for cement, the amount of recycled resource use can be raised as a proportion of the amount of cement production without changing the level of technology. However, there is no prospect for any major future increase in the domestic demand for cement. Rather, it is expected to continue to fall. As a result, it has become more and more difficult to expand the use of recycled resources while maintaining cement quality. In response, Taiheiyo Cement has developed new cement production technology that allows the greater use of recycled resources.

### **2. Outline of the New Technology**

Cement is produced by the addition of gypsum to clinker, a material composed principally of four minerals - alite, belite, aluminite, and ferrite - produced using a kiln.

Maintaining the quality of cement and increasing the amount of recycled resource use requires adjusting the amount of aluminite, which has strong hydraulic activity. Under current technology, because of the need to adjust the amount of alumina in the raw materials, only a limited amount of recycled resources can be used.

The new technology developed by Taiheiyo Cement generates gehlenite, which has practically no hydraulic activity, rather than aluminite, even when a large amount of recycled resource with a higher alumina content than natural resources is used. This makes it possible to increase the amount of recycled resources used. The clinker produced using this

technology is mainly composed of belite, with a small amount of gehlenite. The final cement product is produced by adding gypsum to a mixture of clinker made using the newly developed technology and clinker made by the conventional method.

The final cement product contains very small amounts of gehlenite, but the quality is no different from the conventional cement product.

### **3. Potential Quantity of Increased Recycled Resources**

The new technology will make it possible to increase the amount of recycled resources by approximately 30 kg-wet per ton in the final cement product (actual performance at Taiheiyo Cement Corporation in FY2004 was 345.7 kg-wet).

### **4. Future Implementation**

The feasibility of actual production has been demonstrated through performance testing and quality evaluation testing in actual factory operations. Although capital investment will be required to put the technology into practical use, we believe that it will be significant for us to pursue its implementation as a responsibility we bear as a member of a recycling industry and we are currently preparing to put it into actual use.