Influence of Halides on Thermal Decomposition of Asbestos in Waste Cement Boards

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In order to improve fire resistance and strength, 5 to 20 percent of asbestos had been mixed with various cement boards. However, the addition of asbestos was prohibited in Japan because the fiber caused the sickness of lungs. We examined the thermal decomposition processing of the waste asbestos to prevent air pollution caused by various cement boards that passed the service life. Reagent-grade chrysotile asbestos or waste cement boards mixed with and without halides were heated at various temperatures, and then the burned products were identified by powder X-ray diffractometry. The asbestos decomposed to $2MgO \bullet SiO_2$ and SiO_2 at 700^oC and melted at around 1550^oC. However the needle-like shape of the asbestos was kept up to 1200^oC. On the other hand, the addition of the calcium fluoride has decreased the melting point of asbestos to 1200^oC or less. This method is expected to have an effect on energy-saving.