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Is NKK "still" a Steel Maker? ... Nippon Kokan Kabushiki Kaisha, one of the biggest steel makers in the world, is now expanding its activities to the Environmental management and Material recycling.

The NKK's environment field activities are in Waste materials treatment/Recycling technology, Wastewater treatment, Water treatment and supply, Air pollution control, Energy conservation/ Clean energy production and soil remediation. The key technology of these field activities is based on the blast furnace technology for steel manufacturing:

1. The waste plastics are recycled as a raw material for the blast furnace. The waste plastic that can be treated is a maximum 600 thousand tons per one blast furnace. Now, 120 thousand tons waste plastics are treated in the blast furnace in both Keihin and Fukuyama areas. The utilization efficiency is around 80% and CO2 emission is reduced by 1/3 from the conventional "coke" operation. **2.** NKK has unique technology to separate PVC from waste plastics. In addition, it has a dechlorination process, from PVC, which is used as raw material of blast furnace. **3.** The metals and plastics of the waste household electric equipment are easily used as a raw material for steel making and reduction agent for blast furnace respectively. **4.** The wooden materials from the construction waste are used as a raw material for the blast furnace. **5.** Shredder dust produced from waste automobile and waste household electric equipment can be treated by the NKK shredder dust treatment system that uses hot heat transfer media. By using this system, metal and plastics can be separated very easily, and metal can be recycled.

NKK has also gasification melting furnace technology to incinerate municipal waste. The waste is first thermal cracked in the upper part of the furnace to produce flammable gas, and then moved to the lower part to be melted by the high temperature produced by the perfect combustion of coke. The melted slug is withdrawn from the furnace. The gases (produced) are sent to the secondary furnace for the production of the steam, after this step, they're sent to a waste gas treatment system and then finally they're exhausted to the atmosphere. From February 2001, NKK is now operating an environment web site named "NKK Environment Solution". Over 20,000 inquiries were received during the first three months. <http://e-solution.nkk.co.jp/>

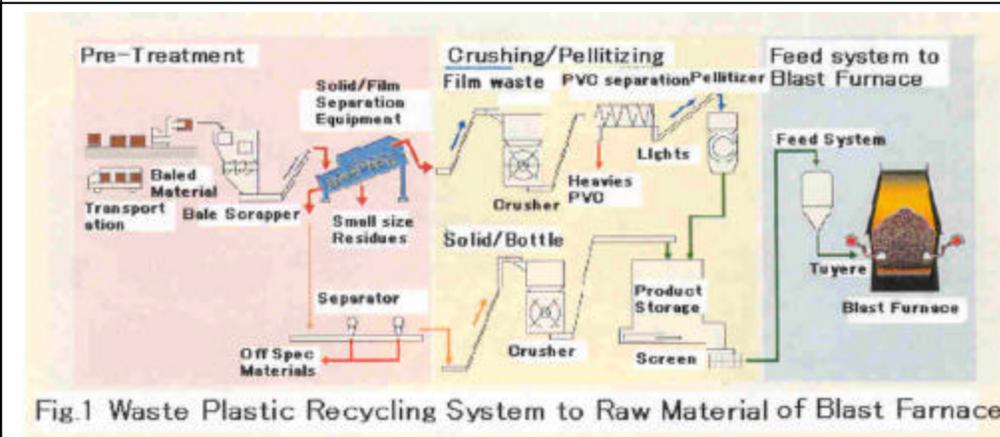


Fig.1 Waste Plastic Recycling System to Raw Material of Blast Furnace

Mechanical & Environmental Sciences