CFP CORPORATION which has been involved in plastics recycling. Group company - RECYCLE ENERGY CO., LTD devote themselves to developing the “Continuous Waste Plastic Catalytic Cracking Oil Production (RTP series)” plant and making it practical. This is a new technology which can efficiently convert waste plastics (such as mixed resins and composite material multi-layer material and also about 10% vinyl chloride) into cracked oil- the mixture of naphtha, kerosene, diesel oil, etc.

■ Plastics Recycling, Annual Business Results 20,000 MT

CFP CORPORATION was founded in 2003. CFP CORPORATION has been involved in purchasing, processing and selling the by-product, off grade product and scraps from/to chemistry makers and plastic molding makers. Now the annual business result is over 20,000mt. CFP CORPORATION can handle a wide range of resins. Not only general plastics such as Polypropylene(PP), Polyethylene (PE), Polystyrene (PS), Polyvinyl Chloride (PVC), etc. But also engineering plastics such as ABS, PET, Polycarbonate(PC), Polyamide(PA)/Nylon), Polycetactel(PO), LCP (Liquid Cristal Polymer), etc. CFP CORPORATION has business connection with about 120 domestic companies and 100 foreign companies. From early, they don’t only deal with the East Asian countries such as Hong Kong, China, Taiwan, Korea, etc. But also do business with the Southeast Asian countries such as Thailand, Indonesia, Singapore, Vietnam, etc. Even make a work net with India, Pakistan and Brazil. In order to make the import & export business better, they are going to establish subsidiary company in Singapore. Because of Lehman Shock in 2009, same trade companies all had a very hard time, but they broadened their market and had little influence.

■ Change in Makers and Emitters

In recent years, Petrochemical Industry, Plastic Molding Industry, Electrical Industry, Automotive Industry have changed their main market to Asia. In Middle East, giant petrochemical plant starts to run one after another. Plastic scrap is traded as global circulatory resource. On the other hand, the countries as Japan which have high added value are changing their direction to make high-functioning products, such as various composite material, multi-layer material, engineering plastics, etc. These materials are hard to recycle. Furthermore, these companies are still working hard on waste reduction, also they are considering safe and secure recycling method seriously. They also pay much attention to the plastic wastes from the users in much safer and securer way. Many emission companies are still asking for low cost processing in the prolonged economic slump. On the other hand, some makers and emitters appeared, they are looking for supply chain such as “Even if cost a little more, secure and continuous recycling method” “Produce circulatory plant to exceed European and American makers”. President Ms. Fukuda captured the changes sensitively. “Recycle some materials. The other materials which don’t fit recycling can be reproduced by the methods such as chemical recycle (blast furnace material recycle, chemical raw material recycling), energy recovery (fuel, energy collection). This is the basic way. We want to be the company which has high sense, can meet the demands of security and high quality. We will base on the situation of domestic and overseas, to find a way to realize the profitability of business.”

■ Petrochemical, A Way to Recycle

Nowadays, we’re thinking about the following step to introduce the unfit recycling materials and low grade waste plastics to the recycling market. New petrochemical technology. Chemical raw materials, Fuels. When the price of crude oil rises, or processing waste plastics becomes a social problem, plastics makers, waste disposal industry and recycling industry feel more challenge. However, there is a history of trial and error. A lot companies tried to entry this new business but all failed. Japanese related companies will remember to the end of their lives. It can be seen as TRAUMA. A lot of problems can be cited. There might be a danger of explosion due to the pyrolysis gas, corrosion happened due to Polyvinyl Chloride (PVC) and adhesion salinity; high initial investment and high running cost; cracked oil can’t be used due to bad quality. This is only a small part. There are lots of processing and recycling methods, how to choose is one more problem. We often used landfill disposal as the main method about 20 years ago. After that, there were a lot of methods coming out, such as incineration, cement fuel method, RPF, blast furnace raw material method, gasification, etc. Off grade materials from the chemical makers can traded in the market, this is another different way. On the other hand, there are lots of low cost processing methods. Petrochemical is difficult to spread if we can’t find the companies which need high technology and have high demand. RECYCLE ENERGY CO., LTD grasp the information that what waste plastics the clients produced and which recycle method they want to use through the plastic recycling business. They were looking for the method which can meet the clients’ demands. Finally, they found Catalytic Cracking Method till March.

■ Changing and Changeable in Processing

Catalytic Cracking method and Catalytic Cracking Production were patented in 2007. RECYCLE ENERGY CO., LTD succeeded in producing a continuous processing test plant by this method under the guidance of related organizations. There are several problems of the ordinary method-batch pyrolysis method. It needs the pretreatment for melting and dechlorination; the process is complicated; it needs a lot of energy for heating; low yield due to the dechlorination; lots of wax is generated, properties of cracked oil is not so good; many residual chlorine in cracked oil, etc. The test plant of RECYCLE ENERGY CO., LTD has been proved that process ability is 200kg/h and it can continuously process for 120 hours. Compared to batch system, it can continuously running and the cracked gas can be converted into liquid without remaining in the reactor. The gas can’t be liquefied would be disposed as off gas (reused as fuel). The construction of the plant can avoid unusual pressure rising and explosion. Process flow is that putting less than 15mm crushed plastics into the hopper on the top of the plant, though the vertical pipes controlled by several valves without melting. Plastics are rapidly heated to 400-450 °C for gasification. Cracked gas goes to the condensers and turned into naphtha, diesel oil and heavy oil which are stored in separate tanks. This point in this process is using special catalyst. It can convert general waste plastics such as Polypropylene(PP), Polyethylene (PE), Polystyrene (PS) into light oil such as naphtha, kerosene, diesel oil, only about 10% heavy oil and with no wax. The yield of test plant is 83%, which exceeds the standard yield of waste disposal method. Off gas is reused as fuel of burner for heating the reactor. If you mix about 10% PVC, the residual chlorine is controlled below 100ppm. RECYCLE ENERGY CO., LTD are negotiating with some petrochemical makers. This is the first step for the emitters to build a recycle system. Compared to the other waste plastics recycle methods such as cement fuel, RPF, container packing plastic materials recycle and so on, this method have predominance in both technology and exchange rate level. RECYCLE ENERGY CO., LTD accomplished a large-size plant than the test plant at Kitakyushu Eco-town (Wakamatsu-Ku, Kitakyushu). Take a new step to actual commercial plant.