PWMI Newsletter
Feb. 1994
No.7
PLASPIA in JAPAN

Material Recycling

Recent Plastics Waste Collection/Recycling Activities by Concerned Groups

— Close Cooperation Precipitated Remarkable Progress —

In an effort to preserve global environment and reuse valuable resources, plastics waste collection/recycling has become increasingly popular in the past few years.

Cooperative relationships among concerned industries, such as resin makers, plastics processors and recyclers, general consumers, and government authorities have expanded both at national and regional levels, and begun to produce not a little successful outcome.

Plastic Waste Management Institute (PWMI) on its part prepared in fiscal 1993 an action program designed to prompt plastics waste disposal/recycling projects. Specifics of the action program are now discussed, while keeping close contact with concerned groups.

Recent activities unfolded by plastics-related groups are reported below.

Comprehensive Backup System Installed by PWMI

PWMI, founded and managed by 30 general-purpose resin makers plus seven trade organizations, hopes to facilitate comprehensive efforts for adequate plastics waste disposal/recycling and, pursuant to this idea, has sponsored and/or participated in a wide variety of projects, while keeping close relations with national/local governments, consumer groups, etc.

PWMI's activities in fiscal 1993 had three columns. They were; thermal recycling to recover thermal energy, material recycling to recycle secondary raw materials or reclaimed plastics products from plastics waste, and researches/PR on recycling.

As major thermal recycling-related projects, the PWMI has supported demonstration tests on energy recovery from an incinerator designed to burn plastics waste alone, demonstration tests on fuel production from powdered plastics waste, and R&D on incineration technologies.

Among others, the PWMI organized basic data on thermal recycling, and also conducted a feasibility study on a project to supply recovered energy.

PR efforts included public relations to win consumers' sympathy with collection/recycling of post-consumer plastic products or scrap from the process. PWMI also joined various campaigns to encourage recycling.

Japan Expanded Polystyrene Recycling Association to Build No. 1 Thermal-Recycling Epsy Plaza in Maebashi City

Polystyrene form can be grouped in three by molding process; EPS (expanded polystyrene) largely used in packaging materials, fish containers, etc., PSP (polystyrene paper) in food trays, and extrusion expanded polystyrene in insulating materials, etc.

Of them, it is EPS that is covered by an ambitious project sponsored by Japan Expanded Polystyrene Recycling Association. In 1992 recycled EPS amounted to an estimated 29,500 tons, equivalent to 17.4% of EPS on domestic market in the year. The Association plans to increase the recycling rate to 25% by 1995.

Under its "Epsy Plaza 200 Plan," the Association stresses expansion/upgrading of EPS recycling centers (named Epsy Plazas). In specific terms, on top of increasing the number of technical recycling centers from present 35 to about 90 nationwide, "transit centers" to keep EPS briefly stored and "information service centers" to provide information about EPS disposal/recycling will be installed. The Association plans to open a total of 230 Epsy Plazas, for which preparatory works are under way.

Given that EPS contains heat quantity comparable to heavy fuel oil, thermal recycling is regarded most promising. By inaugurating a "Thermal Project," the Association initiated an additional plan to put EPS-derived energy resources to effective use, and the No. 1 Thermal-Recycling Epsy Plaza is slated to be installed in Maebashi, Gunma Pref.

Also, to prompt fish-container recycling, the Association has helped finance installation of EPS volume reduction machines in public wholesale markets. Aided markets numbered 25 as of 1992, and such financial aids are to be awarded to about ten markets in 1993.

PSP Industry Ready for Full-Scale Actions with Joint Committee Formed

Japan Formed Polystyrene Sheet Association and the Polystyrene Thermoforming Industry Association, the former consisting of PSP sheet manufacturers, and the latter of PSP tray molders, formed a "Joint Committee on Recycling" in 1993 based on a recognition that to collect/recycle PSP was a matter of extreme importance common to them.

The joint committee, devoted to the promotion/education of environmental measures and PSP recycling, is carrying out following actions, among other things.

① Collection/recycling of post-consumer PSP products, largely trays.
② Researches/studies/planning of efficient recycling approaches.
③ PR of PSP recycling (mass media, exhibitions, brochures, etc.).
④ Government relations/consumers relations.
⑤ Recycling-related information gathering (from PWMI, Japan Chain Store Association, Japan Expanded Polystyrene Recycling Association, overseas, etc.).

Specifically, the joint committee calls for ① creation of recycling centers, one each in Japan's eastern and western blocs, in order to lead regionwide PSP recycling activities, ② maximum utilization of disposal/recycling plants owned by their member companies, ③ penetration of volume reduction machines, and ④ cooperation with individual recyclers and their organization. To this end, the joint committee started multilateral efforts, including frequent unofficial talks with recyclers.

Japan PVC Recycle Promoting Council Helps Spread Correct Knowledge

Japan PVC Recycle Promoting Council, consisting of five trade organizations, including the Japanese PVC Association, the Japan PVC Pipe/Joint Molder's Association, the Japan Rigid PVC Sheet Producers' Association, the Japan Vinyl Industrial Association and the Japan Plasticizer Producers' Association, puts a special emphasis on the provision of correct knowledge about material/energy recovery from PVC products or scrap through its four principal activities; ① model recycling projects, ② technological development, ③ public relations, and ④ research.

Continuing from fiscal 1992, a top priority was given in 1993 to model recycling projects, particularly expansion of PVC bottle recycling. For instance, a model project to recycle 1.8-liter soy-sauce PVC bottles is planned to collect 100 tons of post-consumer bottles by March 1994. Also, under planning is a model project to recycle 600 tons/year.

Also, given growing demand these years, a model project to collect egg cartons has been favorably in progress at Okayama Co-op's Higashi-Kawahara shop as well as at Sunny Chain's shops in Nagano City. Encouraged by the outcome, it is now planned to double the number of shops participating in the project, and triple the target amount of collection.

Among others, a possibility of model projects of PVC recycling was studied in an additional 4 ~ 6 cities in 1993.

Technological development projects include preparation of incineration system menu, and R&D on the technology eliminating hydrogene-chloride, pyrolysis to fuel oil, etc. These are entrusted to outside organs, such as the Chemical Engineering Society, and still under way.

As for PR operations, far-reaching efforts have been made to get citizens of various classes interested in PVC recycling. In research sector, a wide range of studies have been made to prove usefulness of PVC, including how it can contribute to environmental preservation.

Japan PET Bottle Association Proud of Successful Collection Efforts

Demand for PET bottles has been on the constant rise these years, and reached an estimated 137,000 tons in 1992. Of it, 89% is held by food bottles, which can further be broken down into 80% held by beverages, and 14% by soy sauce/others. Collection currently under way centers on beverage and alcoholic drinks bottles. Given that these two groups, when combined, are responsible for 75% of PET bottles overall, their collection/recycling is nothing but significant.

Under cooperation with Hatano and Isehara Cities in Kanagawa Pref., as well as Harima Co-op in Hyogo Pref., the Association started in fiscal 1991 model projects to collect post-consumer PET bottles. Then, entering 1993, collection tests were carried out at Japanese Consumer's Co-operative's shops in Tokyo and Saitama districts. Collection rates were encouraging in general. The problem was the caps left unremoved. While the presence of caps cause technical troubles to recycling processes, the poor cap removal rates reconfirmed that it would be a matter of vital importance to have consumers well informed.

Also, to secure facilities where the post-consumer bottles collected by local governments can satisfactorily be recycled is a crucial subject ahead. As reported on next page, a recycling plant specifically designed for post-consumer PET bottles was built in July 1993 in Minami-Kawachi, Tochigi Pref., with the Association acting as the prime organizer. To develop outlets/consumers of recycled PET is an important subject as well. Reliable users, if secured, are expected to encourage recycling more than ever.

Brisk PR Efforts to Highlight Recycled Products

Japan Plastics Effective Utilization Association (JPEUA) and the Japan Green House Horticulture Association (JGHHA) alike have unfolded successful PR operations of recycled products.

Casting a catchword that "post-consumer plastics are valuable indigenous secondary resources," the JPEUA launched on a massive campaign to get recycled products known better and used more. A core activity of such efforts is exhibitions. JPEUA's activities also cover recycled PVC products and recycling of agricultural films.

In 1993 the JPEUA cooperated in the establishment of JIS specifications of recycled PVC feedstocks, and conducted relevant projects, including workshops, technological development, and the development of recycled-product testers. Also, the JPEUA surveyed if recycled PVC feedstocks could constantly be supplied, because the security of recycled feedstocks is the key to business expansion.

JGHHA on its part has contributed to stimulating plastics recycling projects, by extending for an additional 12 months its three-year project to encourage plastics recycling, originally planned to complete in 1992.

Under the extended project, the JGHHA subsidizes recycling projects run by local governments (¥200,000 each in a total of 20 prefectures). To select qualified projects, the JGHHA keeps in close contact with relevant offices engaged in plastics recycling promption nationwide by distributing PR materials and organizing training opportunities, among other things.

An example of subsidies given to hardware is to help finance construction of recycling capacity. For instance, given the JGHHA funds, construction of a core model plant is under planning in Yamagata Pref. JGHHA hopes to produce maximum effect from systematic operation of its activities, partly in cooperation with the JPEUA so that existing recycling capacity owned by JPEUA members can be best utilized.

PET Bottle Recycling Plant Completed in Tochigi Pref.

— Recycling Moves in Kanto District Prompted —

Recycling of PET bottles, widely in use in our contemporary life, just started.

With Waste Japan Co., Ltd., jointly incorporated by Japan PET Bottle Association and With Waste Japan Co., Ltd., built a PET bottle recycling plant. The plant completed in July 1993, and recently started recycling post-consumer PET bottles collected by local governments in Kanto regionwide.

The recycling plant is located in Nishi-Tsuboyama Industrial Complex in Minami-Kawachi, Tochigi Pref. The plant site covers an area of about 190,000m^2. The ¥3-billion plant is capable of recycling 5,000 tons/year.

At the plant, post-consumer PET bottles collected in the Kanto district are sorted, washed, pulverized, dried, and shaped into flakes. Flakes are packed in a 600-kg container, then shipped. They are used in manufacturing textiles, molded products, industrial-use members, etc. To produce high-quality flakes, the newly-built plant is equipped with bottle washer, pulverizer, aluminum separator, dryer, etc.

The completion of Japan's first PET bottle recycling plant in Maebashi is expected to open a path to an epoch-making model recycling project.

To help this plant function as a PET bottle recycling center in Kanto essentially requires cooperation of both local governments and general consumers. Japan PET Bottle Association and the Recycling Business Partnership for PET Bottle intend to unite their efforts to bolster a full-range effort from the development of recycling technologies to more efficient information service.

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