

Horizontal Recycling and Other Good Practices



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Horizontal Recycling

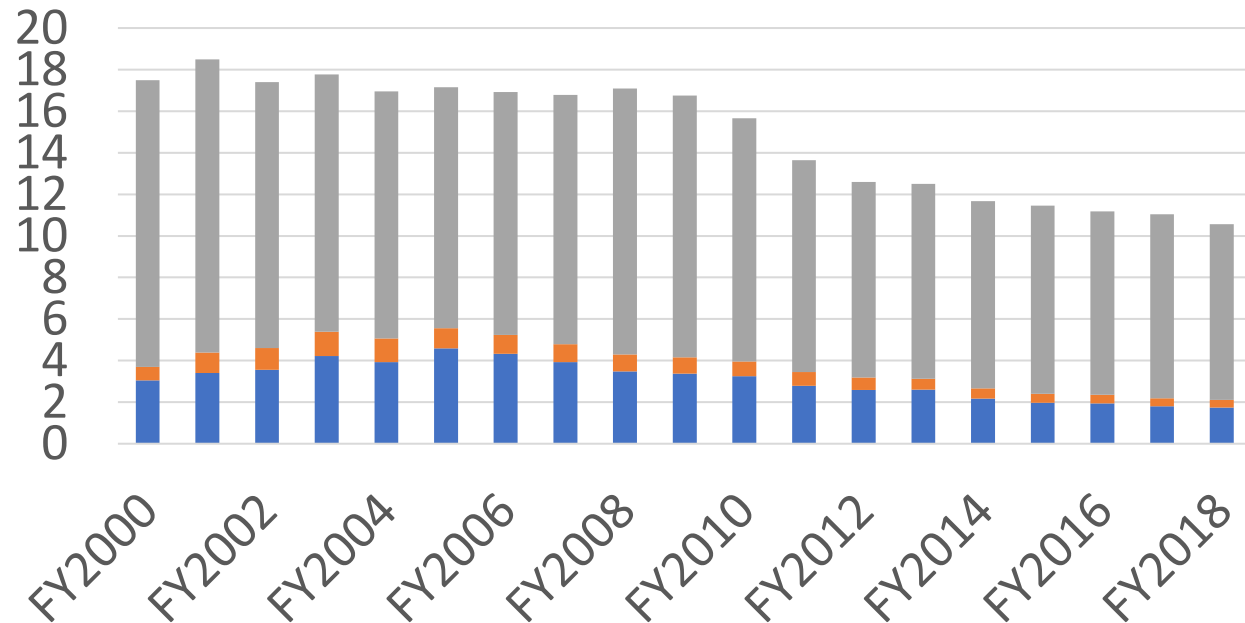


Polystyrene Paper Tray (PSP Tray)



Bottle to Bottle recycling

Three Collection Routes of PSP (polystyrene paper Tray for Recycling)



Self Collection Route

- Shops and recyclers set up collection boxes in stores.

Designated Body (PRO) Route

- Local government designates an organization to collect PSP trays with other plastic packaging and containers.

Own Collection Route

- Local governments separately collect PSP tray and send the waste to recyclers.



A voluntary collection box for PSP Tray at a shopping center in Chiba City, Japan. Trucks deliver new PSP tray to shops that will collect the waste PSP tray for recycling facility.

A best practice on design for recycling is the voluntary guideline for the design of PET bottles developed by Japan's Council for PET Bottle Recycling. The first version was developed in 1992. The guideline has been revised several times.

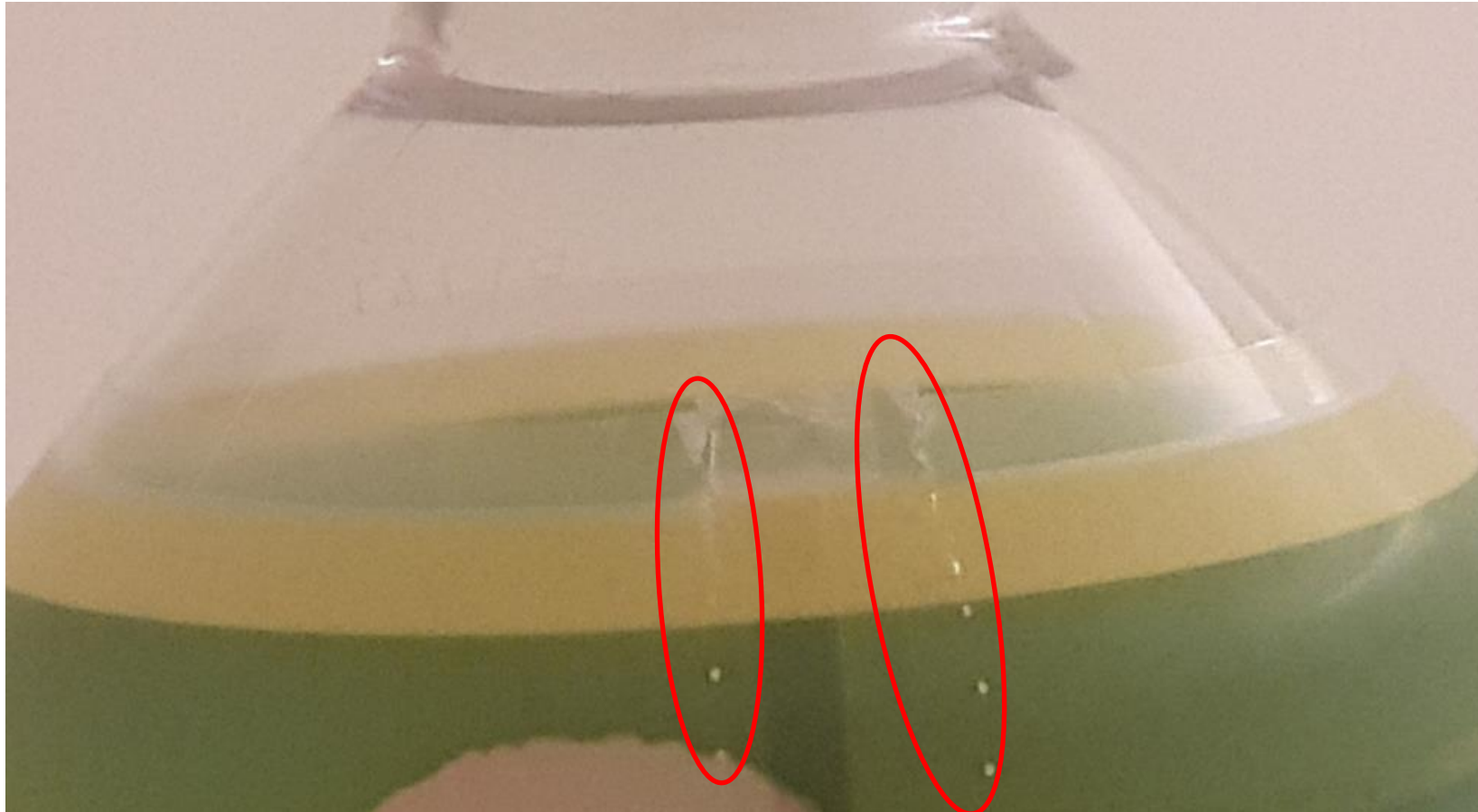
In 2020, Japan's collection rate is 96.7%. Bottle to bottle recycling rate is about 32% of total recycling volume.

- PE or PP which gravity are less than 1 should be used for caps, in order to sort caps from PET.
- Prohibit the coloring of PET, because waste PET with color has limited demand of recycling.
- It is also recommended to have perforation on the labeling.

- PET bottle to bottle chemical recycling was approved by the Food Safety Committee in 2004.
- Bottle to bottle mechanical recycling of PET was also approved in 2012.
- In FY2021, among 740 thousand ton of resin for PET bottle production, 118 thousand ton were recycled resin.

You can access English version of voluntary standard here: <https://www.petbottle-rec.gr.jp/english/design.html>

Design for Recycling: Case of PET Bottle



Perforation on the labeling of PET bottle.

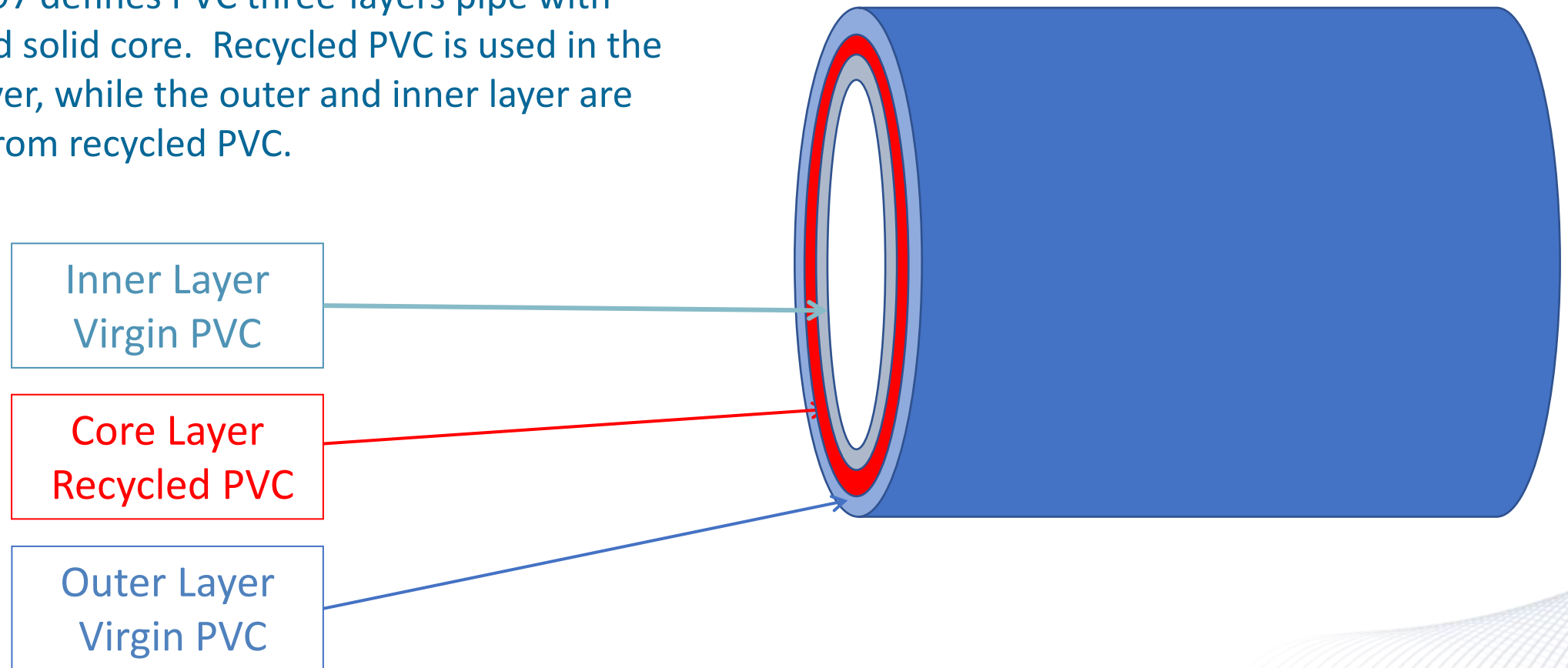
Ensuring the demand of recycled products

- It is also important to ensure that demand exist for recycled products. Some recycled products may not satisfy the level of quality desired by customers nor defined in conventional industrial standards for products made from virgin materials.
- To ensure an adequate level of quality for recycled products, and to reduce the transaction cost between the suppliers and buyers, industrial standards of recycled products should be developed.

JIS code	Title of Japan Industrial Standard (JIS)
JIS A5731	Recycled plastics inspection chambers and covers for rainwater
JIS A5741	Products of wood-plastic recycled composite
JIS A5742	Products of wood-plastic recycled composite – assembled decks
JIS K6930	Reclaimed granulate molding materials of agricultural polyvinyl chloride film
JIS K6931	Reclaimed plastics bars, rods, plates, and piles
JIS K6932	Recycled plastics stakes
JIS A9401	Recycled plastics medial strip block
JIS A9402	Recycled plastics buffer for parking
JIS K9797	Un-plasticised poly(vinyl chloride)(PVC-U) three-layer pipes with recycled solid core
JIS K9798	Un-plasticised poly(vinyl chloride)(PVC-U) three-layer pipes with recycled foamed core

Unplasticized poly (vinyl chloride)(PVC-U) three-layers pipe with recycled core

JIS K9797 defines PVC three-layers pipe with recycled solid core. Recycled PVC is used in the core layer, while the outer and inner layer are made from recycled PVC.



Wood-plastic recycled composite

- JIS A5741 for wood-plastic recycled composite was issued in 2006.
- JIS A5741 defines the definition of the goods, symbols depending on the content rate of recycled materials, various quality standards such as density, strength, water absorption rate and maximum level of hazardous substances.



Wood-plastic recycled composite use in an entrance of subway in Tokyo.

Expand Waste Collection services to Rural Area

- Urban and rural governments in Japan had expanded waste collection services in 1960s and 1970s. Percentage of population getting waste collection reached 90.47% in 1977, from 46.56% in 1961. During this period, central government urged local governments to formulate inter-municipal cooperation on waste management (regional waste management). Economy of scale works for waste-to-energy plant and landfill site. Inter-municipal cooperation can reduce the cost of waste treatment.

Reduce Waste and Promote Recycling

- Charge of Waste Collection (household should use specified waste bag. No or low charge for recyclables).
- Source Separation Program: Most of local government conduct source separation program for packaging and container waste, metal scrap, paper waste and others.
- Invest in some machines such as bailing machine, compactor of expanded polystyrene (Styrofoam) and others to reduce transportation cost to recycling company.



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