

Recycling Game

from the



What Do You Think Is Recyclable?

MULTI-LAYERED LAMINATES



Examples: Zipper and stand-up pouches/bags, foiled wrappers

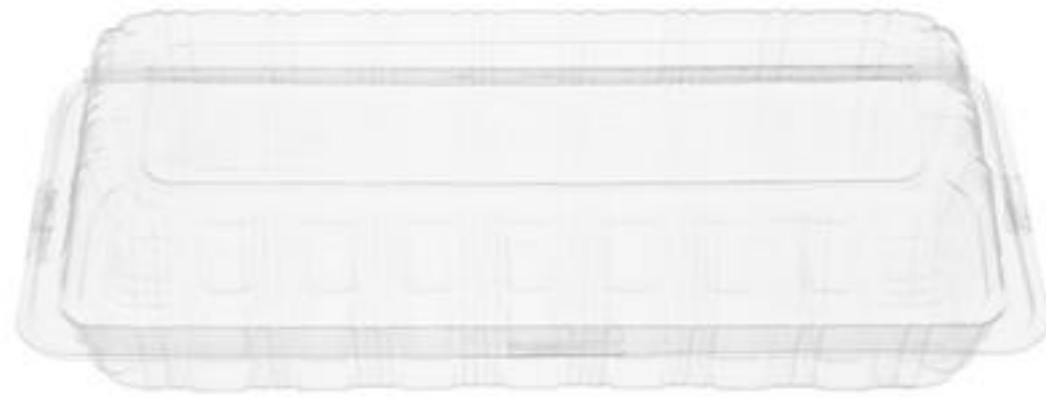


MULTI-LAYERED LAMINATES

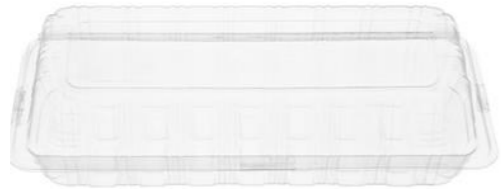


- This type of packaging is comprised of multiple plastic resins (and foil) and is currently not accepted in our recycling program. However, consumers are putting these materials into their curbside recycling bin and/or including it with flexible PE bag collection.
- Due to its flat shape and light weight this packaging material tends to behave like paper and, in a single stream system, may flow through a MRF with the paper stream, and therefore can contaminate the paper stream.
- It requires manual sorting to remove the laminated plastics as today's optical sorting technologies are not proven in removing all contaminants from the fiber stream. When removed at the MRF, these packages end up in residuals that go for landfill.
- There is no large scale end market for this packaging type at this time.

COMPOSTABLE PLASTIC



Examples: Takeout and single-serve containers, trays, cups, cutlery



COMPOSTABLE PLASTIC



- This packaging is primarily polylactic acid (PLA) and is generally not accepted for composting in food and yard waste composting programs. Due to its similar physical appearance to clear PET and PS, it does end up in the recycling box, although it is not accepted in our recycling program.
- Our facility uses optical sorting equipment, the PLA ends up with the residue as the PLA is easily distinguishable from PS or PET. Unlike PET, both PS and PLA tend to crack and break apart in the MRF. This characteristic can assist in distinguishing PS and PLA from PET.
- All colored PLA would end up in residue as typically PET thermoforms are only clear.
- Currently not enough PLA is being generated to significantly contaminate PET bales (less than 0.1% of any PET bale), though it can be sorted with optical sorters if volumes increase. PLA carries a very different signature from PET or PS and therefore it is easy to identify with optical sorters.
- Re-processors can separate out the PLA from PET bales using optical sorters. They cannot use the sink-float separation technology, as both PET and PLA sink in water (they would have to use different liquids with very tight specific gravities in order to separate PET from PLA in a sink float system).
- Some end markets exist to recycle this material but are limited. Typically, PLA ends up in residue bales that go to landfill.

BLACK PLASTIC CONTAINERS



Examples: Takeout and ready-to-serve containers, nursery pots and trays



BLACK PLASTIC CONTAINERS



- This packaging is not being sought as part of the acceptable materials.
- Black plastic is not identifiable by optical sorters because it is undistinguishable from the conveyor belt and therefore needs to be manually sorted. Otherwise, it ends up as residue for landfill.
- End markets exist primarily for single resin types, although this packaging may also be made of more than one resin (marked #7 Other).
- Black plastics have limited applications and typically end-up in residuals or lower grade mixed plastics.

FULL SHRINK WRAP LABEL



Examples: Full-wrap labels or sleeves on rigid bottles and containers



FULL SHRINK WRAP LABEL



- Bottles and containers with full shrink wrap labels are accepted at curbside.
- Full-wrap sleeves may confuse optical sorters if they cannot detect body material.
- A full-sleeved HDPE bottle may or may not end up in the HDPE bunker. As the sleeves are typically non-HDPE, the optical sorters may eject the HDPE bottle based on the resin of the sleeve, e.g., PETG. However, most equipment manufacturers report the optical sorters will detect the HDPE with a PETG label because the PETG is very thin. If sorting issues occur, it may be possible to modify the settings on the optical sorter.
- In the event an HDPE bottle with PETG labels are mis-sorted, it would be up to the Quality Control (QC) sorter to redirect it back to the sort line where it could be manually sorted into the HDPE bunker. In a smaller facility where the containers are manually sorted, sorters could be trained to associate a specific brand with a specific resin and sort the container into the appropriate bunker. In this case, the full-sleeved HDPE bottle would end up in the HDPE bunker.
- A full-sleeved PET bottle may end up on the PET eject line where optical sorting is used, if the sleeve is PETE or PETG. If the sleeve is another resin, it may be missed and would require manual sorting to ensure the bottle was captured for recycling. In a smaller facility where the containers are manually sorted, sorters can be trained to sort the container into the appropriate bunker. In this case, the full-sleeved PET bottle would end up in the PET bunker.
- For a full-sleeved metal package, a full plastic sleeve does not impact the action of an eddy current separator or ferrous magnet. As such, an aluminum can or steel can would be sorted into the appropriate bunker regardless of the coverage provided by the plastic sleeve.
- For a full-sleeved glass package, a full plastic sleeve does not impact recycling regardless of the coverage provided by the plastic sleeve.

HOT BEVERAGE POLYCOATED CUPS



Examples: Coffee/tea takeaway cups



HOT BEVERAGE POLYCOATED CUPS



- This packaging is not acceptable at curbside by all municipalities.
- In single stream collection, hot beverage cups will flow to the container side of the facility as long as they remain three-dimensional. If they are flattened, they will tend to flow with boxboard and end up in with mixed fibers or sorted out by quality control.
- Ideally, these cups would be captured by the optical sorters set up to capture the other polycoated materials (gable and aseptic); however, up until late 2015 technology was not set up to do this. Progress is being made in the area of capturing polycoated hot beverage cups along with other polycoat containers.
- Printing inks are applied directly on the fiber for cups whereas ink is printed on the polymer layer for gable top and aseptic containers. North American mills have the ability to de-ink during the re-pulping process, but South Korean mills do not. PS lids typically end up in residue.

METALLIZED TUBES



Examples: Toothpaste tubes, personal care products, prescription
creams



METALLIZED TUBES



- This material is generally not accepted at curbside for recycling. However, consumers tend to put these materials in the recycling box.
- It is manually sorted or ends up in residue.
- Multiple materials are used in this packaging (multiple plastics and sometimes metal) and residual product contents cause contamination in other materials.

SINGLE-SERVE HOT BEVERAGE PODS



Examples: PS K-Cups, metalized cups



SINGLE-SERVE HOT BEVERAGE PODS



- This is a highly evolving market where four out of every 10 dollars spent on ground coffee in the US is now spent on single-serve pods, such as K-Cups, according to Nielsen.
- This packaging is generally not accepted at curbside for recycling or composting due to the multiple components of pod, filter, seal/lid and grounds. While most of the pods are put in the garbage bin for landfill, some consumers are putting these materials (separated and unseparated) into the recycling bin.
- Unseparated pods tend to drop through the mechanical screens with heavy materials and contaminate other streams, particularly glass (n.b. the pods still contain coffee grounds). Pods end up in residuals that go to landfill.

COLOURED OPAQUE PET



Examples: Household and personal care bottles, energy drink bottles



COLOURED OPAQUE PET



- Opaque PET containers are not acceptable in the recycling program.
- An optical sorter will positively sort all PET regardless if it is clear or opaque.
- Opaque, coloured PET in significant quantities is a problem for the re-processor as it limits the yield from the bale of clear PET. Clear PET can be made into any new colour, whereas coloured PET, unless colour separated into specific colours, is generally limited to grey/black recycled PET applications.
- If manual sorting is used, the coloured, opaque PET bottles are added in with the clear PET bottles or mixed plastics.
- Opaque PET has limited end market applications (classified as devalued containers) and therefore, has significantly less value than clear PET

NON-PET CLAMSHELLS



Examples: Bakery goods, electronics packaging



NON-PET CLAMSHELLS



- These materials are referred to as look-a-like plastics to PET since most consumers cannot tell the difference. They are typically put into the recycle bin.
- Where optical sorting is used, the optical sorter can be set up to identify all non-PET clamshells and eject the non-PET clamshells into the mixed plastics stream.
- Where MRFs use manual sorting, extensive sorter education is required, including brand recognition to distinguish PET from non-PET containers (e.g., PVC has a blue glow and also turns white when folded over). This is tough to implement and sustain.
- Non-PET materials that end up in the PET bale are a contaminant. Also, labels, adhesive and inks that do not cleanly remove can further contaminate the PET material.
- Where markets exist for mixed plastics bales, non-PET clamshells can be included in the bale.

CORRUGATED TRAY WITH PLASTIC FILM



Examples: Beverage bottle and can cases, 12-count and higher

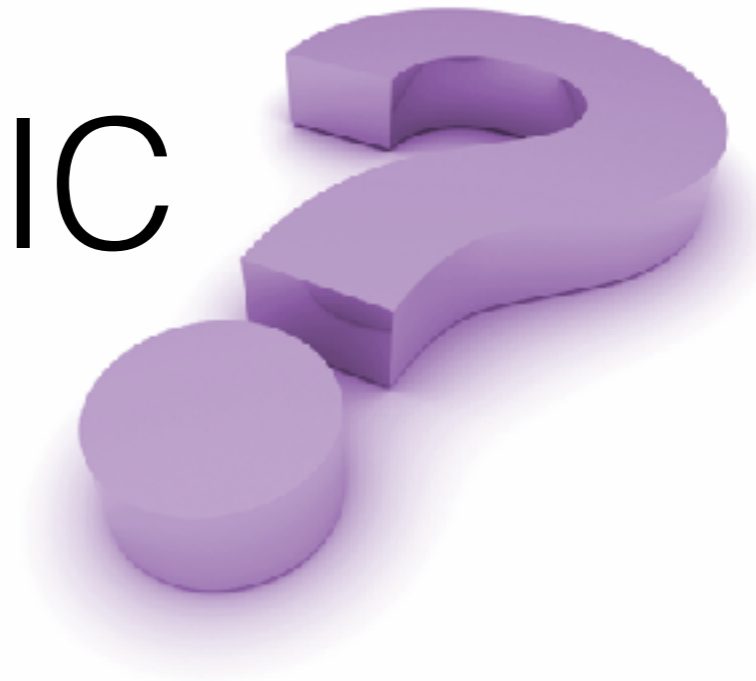


CORRUGATED TRAY WITH PLASTIC FILM



- Mixed materials entering the recycling stream must be manually separated and are cumbersome on sorting line at the MRF. If not captured during the sorting process, this material ends up in residue and to landfill.
- Film and corrugated box are recyclable materials. Plastic should be separated from corrugated tray before collection since end markets exist for both materials.

CAPS ON PLASTIC BOTTLES



Examples: Beverage bottle caps, personal care bottle caps



CAPS ON PLASTIC BOTTLES



- Mixed messaging exists leaving consumers confused whether to leave caps on, throw caps out or separate caps before recycling
- When caps are removed and put into the recycling streams, its small size falls through the screens and can contaminate the glass cullet stream
- Loose caps are also more likely to become litter or marine debris
- Light-weighted bottles are more prone to flattening during collection with resulting mis-sorting. Capped light-weighted bottles are more likely to retain their shape and be efficiently sorted at the MRF.
- End markets exist for PP and HDPE caps
- While it's true that at one time these caps could not be recycled, now they can, so keep the bottles and caps together!

LABELS ON PET THERMOFORMS



Examples: Labels on fresh produce and bakery packaging



LABELS ON PET THERMOFORMS



- PET thermoforms are accepted in the curbside blue bin programs
- Optical sorters can identify the thermoforms and send them to the PET stream. Any material not identified will most likely end up in mixed plastics.
- With manual sorting these materials will either be put in the PET bottle stream or the mixed plastics.

GLASS JARS AND BOTTLES



Examples: Sauces jars, condiment containers, beverage bottles



GLASS JARS AND BOTTLES



- Glass bottles and jars are acceptable in the recycling program.
- Single stream collection presents challenges for glass during handling. The resulting recycled glass is low grade and is more difficult to color sort, due in large part to contamination of several types of recyclables, and other non-recyclables included in the bin. The broken glass can contaminate other material streams if not removed early on in the sorting process, and may increase wear and tear on moving parts in the MRF. Typically, larger pieces of cullet would go into glass manufacturing. Smaller pieces of cullet/fines go into blasting sand, and may go into road aggregate.
- A glass container can go from a recycling bin to a store shelf in as few as 30 days. However, not all glass products are suitable for recycling - light bulbs, Pyrex products, lab glassware, mirror and window glass are not accepted for recycling.

PLASTIC BAGS AND FILMS



Examples: Single-use bags, bakery and laundry bags, overwrap films



PLASTIC BAGS AND FILMS



- Curbside collection of plastic films/bags is acceptable as long as you keep all your bags together in one bag.
- Films/bags wrap around mechanical machinery and envelope other recyclables causing sorting and operational inefficiencies at a material recovery facility.
- There are numerous return-to-retail programs where consumers can return plastic films and bags for recycling in bins located at or near store entrances. Typically these programs are not promoted heavily due to retailer concerns re contamination of store facilities.
- Consumers can also drop-off bags at recycling depots.
- Try to use less and make sure to return them to the store if they have a receptacle for them.

POLYCOATED CONTAINERS



Examples: Aseptic and gable top cartons used for juice, milk, soups and broth



POLYCOATED CONTAINERS



- Most municipalities accept polycoated containers and cartons today
- Aseptic and gable top cartons are typically reprocessed into high value fiber whether manually or optically sorted.
- Optical sorters for polycoated containers can see the polycoat on aseptic or gable top cartons.
- In single stream plants, if the cartons are flattened during collection (compaction) or from being handled in the material recovery facility (MRF) (piled up on the tip floor), cartons can end up flowing over a mixed paper or finishing screen thereby ending up in the mixed paper stream at a MRF. Mixed paper bales can accommodate a small level of cartons, however some components in cartons can impact the pulping process and lead to decreases in fibre yields in mixed paper pulping applications. Moreover, this outcome decreases the economic value of cartons as the price paid for polycoat bales is higher than the price paid for mixed paper bales. When cartons are sorted into their own grade, these problems are avoided.

GLOSSY PAPER



Examples: Magazines, flyers, brochures, etc



GLOSSY PAPER



- Magazines are acceptable in the recycling program.
- It is a myth that magazines and other glossy paper products can't be recycled. The glossy coating is usually clay which actually enhances the quality of the recycle paper. Only 20% of magazines are recycled, so don't forget to put them out for recycling.

SHREDDDED PAPER



Examples: Shredded paper generated in the home



SHREDDDED PAPER



- Paper is one of the most recyclable items out there, with a recycling rate of up to 60%, but shredded paper is actually very difficult to get recycling facilities to accept, since it is not compatible with the equipment used to sort the material. The material is small so it is hard to separate, it is easily cross contaminated, and when wet, it clings to everything.
- Instead use shredded paper for composting, shipping goods, or art projects. It is tolerated in the recycling program, if bagged separately.

FROZEN FOOD BOXES



Examples: Glossy boxboard boxes typically found in the freezer aisle



FROZEN FOOD BOXES



- Coated boxes are not acceptable in the recycling program.
- Paperboard boxes that were designed for freezer foods have a coat of a plastic polymer sprayed on them to protect against freezer burn. That same coating prevents the box from breaking up in the recycling process. These materials are not recyclable or compostable.

OTHER GLASS



Examples: Drinking glass, light bulbs, window pane, mirror



OTHER GLASS



- All “other glass” is fabricated using different ingredients than those used to fabricate glass bottles and jars. They sometimes contain lead or mercury and as a result, they cannot be recycled with bottles and jars.

ALKALINE BATTERIES



Examples: Disposable batteries used to power toys and electronics



ALKALINE BATTERIES



- Household batteries of any kind are not currently accepted in the recycling program.
- In the past, they used to contain hazardous materials but today, they can be disposed with regular waste.