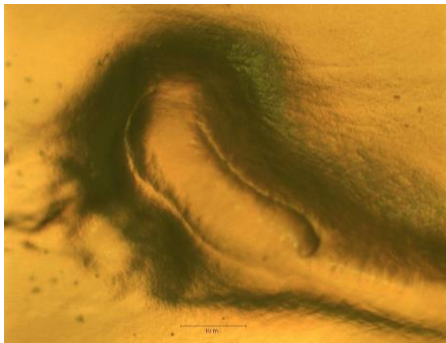


Pelletron DeDuster® Solves Gel Problem for rPET Processor

Gels were not on rPlanet Earth's radar when the vertically integrated rPET processor started up their 300,000+ square foot plant in 2018. Being an "advanced technology company" rPlanet initially focused its efforts on state-of-the-art automation to sort post-consumer materials and all of the other details that must be considered when starting up a new plant. rPlanet Earth's operation in Vernon, California is special because they do not simply convert bottles to flake or pellets for resale like most rPET recyclers. They convert the flake directly to extruded sheet to make thermoformed parts and injection mold bottle preforms under one roof making their carbon footprint very low.

The perennial problem of gels in their transparent extruded sheet appeared soon after the plant was started. Gels are visual defects in the sheet that can be caused by a variety of factors. Gels are not desired in consumer packaging because of the distorted appearance they create on the package so quality departments are trained to be on the lookout for them. They use industry standard references to manually count gels or expensive automated machines that can count them automatically. No matter how they are counted, nobody wants them. Rolls of sheet with out of spec gel counts are sold at a significantly discounted "off-spec" rates or have to be ground into flake for reuse which obviously hurts the bottom line.

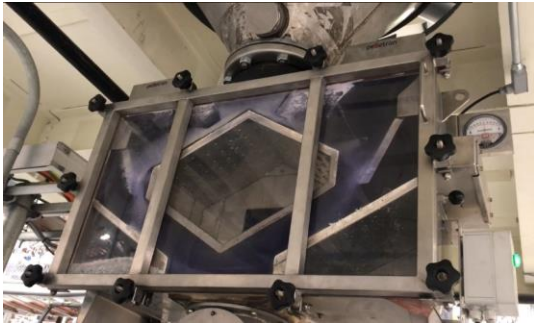
While gels can be caused by a variety of factors, dust and other fine contaminants are often a primary cause. Recycled bottle flake is



notoriously dusty because of the damage caused by grinding containers into a flake, decontamination and the numerous material handling and conveyance steps between the baled post-consumer bottles and the extrusion or injection molding machine.

After discovering that gels were creating quality issues, rPlanet Earth decided to do something about it and contacted Pelletron Corporation in Lancaster, Pennsylvania. Pelletron specializes in gentle pneumatic conveying and DeDuster® systems for the plastic processing and plastic

production industries. They were already very familiar with rPlanet Earth's operation since they supplied all the material handling systems from the wash line to the extruder and injection molding machines. Their DeDuster® systems use an electromagnetic flux field coil to disturb the fine dust that is stuck to the flake due to static electricity and counterflow air to separate dust and streamers from the flake. Pelletron's DeDuster® systems can lower the dust content from over 2,000 ppm concentration of particles between 0-500 micron particle size to less than 200 ppm. Other dust removal systems on the market cannot achieve that level of separation in a package as compact as the DeDuster®.



rPlanet Earth purchased an XP45 DeDuster® for 2 mt/hr of rPET flake for each of their 3 Welex sheet extruders. The low stack-up height of the DeDuster® made it possible to fit the DeDuster® directly on the extruder's inlets below the loss-in-weight feeders. Pelletron supplied the equipment and controls while rPlanet handled the electrical and mechanical installation. ***The incidence of gels diminished after the DeDuster® systems were commissioned on the sheet extrusion lines.*** In a controlled study performed on one line, up to an average of 1.00 gels per 1 m of sheet (0.2-1.0 mm²) were counted when the DeDuster® was not running. That count made the sheet off spec for their most fussy customers. Simply turning on the DeDuster® system reduced the gel count to an average of 0.17 gels per 1 m of sheet for the same gel size range. That was on spec so the material could be sold at prime rate.

Pelletron's DeDuster® systems are available in capacities that range from 50 lb/hr (20 kg/hr) up to 330,000 lb/hr (150 mt/hr) and they offer free-of-charge testing to prove how well the DeDuster® can clean your material. Contact a Pelletron sales engineer to learn more.

<https://www.pelletroncorp.com/en/>

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