



PLA AND ITS THREAT TO THE EUROPEAN PET RECYCLING INDUSTRY

It is less than a year since Petcore last made PLA the subject of its PETPlanet Column but the issues raised by our US counterpart, NAPCOR, in their press release¹ of 24 July are just as relevant in a European context.

PLA producers are investing a lot of effort on both sides of the Atlantic to “prove” that PLA bottles can be included with the PET collection stream with no adverse effect on PET recycling. This has yet to be proven on a commercial scale.

Last year Petcore publicised its report commissioned from an independent test house² which disproved NatureWorks’ claim that 0.1% of PLA in the PET recycle stream gave acceptable quality recycle. NatureWorks now claims that different resin benchmarks are used in the USA and Europe and 1000 ppm measured in the USA would only measure 800 ppm on the same sample in Europe. This might explain our results but it also highlights that PLA has to be removed from the PET stream at an efficiency of greater than 99.92% to maintain effective recycling.

It is possible to distinguish a PVC or a PS bottle during manual sorting of collected bottles because of its appearance or application – however a PLA bottle looks identical to a PET one on a moving conveyor belt. PLA bottles can be removed with varying degrees of success by a number of advanced technologies, including Near Infra Red (NIR) detection. Not all Material Recovery Facilities (MRFs) have these machines and this leads to variable quality in bale composition.

The undetected PLA bottles in bales may be removed by the recycler along with cap and label material and other non PET material in the waste stream. This raises the cost of PET feedstock for the recycler.

In May, the Petcore Technical Committee was told by a representative of a leading NIR machinery supplier that under industrial conditions an efficiently set up machine should remove 98% of PLA from PET. To achieve residual ppm levels of PLA a recycler would require a throughput of 2.5 tph and 2 NIR machines after the prewash stage. Each machine, its footprint and associated conveyors would cost about Euro 1 million. Payback on these machines requires the recycler to have a minimum throughput of 2.5 tph. Only about 30% of European recyclers have this capacity. Most European recyclers have a throughput of 1.5 – 2.0 tph with a maximum of one line which has a colour sorter plus NIR equipment or another machine. This is not sufficient to guarantee the removal of PLA down to the low levels required to sustain the current success of PET recycling.

There are many issues to be resolved before PLA can be successfully recycled. It will add a considerable cost and logistic burden to the sorting systems that have been funded for the past 20 years by local taxpayers and the packaging industry chain and its customers via funding systems such as the Green Dot. The PET recyclers are faced with increased contamination, yield loss as well as PLA’s impact on recycled PET’s quality and processing.

There is currently no market for separated PLA as it hasn’t yet reached critical mass. Recyclers cannot be expected to find millions of Euros to accommodate another polymer in their process stream. This polymer already adversely impacts their profitability.

¹ www.napcor.org

² Available from petcore@btconnect.com



In 2007 more than 1.3 million tonnes of PET bottles were collected for recycle in Europe, more than 40% of the total available. The addition of PLA to the packaging polymer palette cannot be allowed to undermine the existing successful PET recycling value chain.

We believe PLA will also impact negatively on the ability of existing polymers to contribute effectively to the new waste Framework Directive (2008/98/EC) which stipulates that 50% of all household waste (including packaging) should be collected for reuse and recycling by 2020.