Why the plastics recycling industry is *not* supporting oxo-biodegradable additives?

SAPRO considered and debated the impact that biodegradable additives would have on the local recycling industry and the environment as well as certain statements made in advertising campaigns, using the facts known to us at present. It was decided that a document should be made available to the industry that will clarify SAPRO's decision not to support the use of biodegradable additives in the South African plastics industry.

Local industry

The local PE-LD/PE-HD/PP recycling industry is a stand-alone industry developed by entrepreneurs that is producing a cheaper alternative to virgin polymer that has and still is, conforming to the requirements of our customers. The industry has shown a steady growth for many years despite difficult times and the recycling rates were used by the plastic industry in many documents and presentations.

Entrepreneurs initially developed collection activities centered around industrial and shopping centre waste based on the infrastructure of the paper collection industry. A recycling survey in the year 2000 reported that this type of industrial waste was almost 100% utilised by the industry and that further growth was dependent on household waste scavenged from landfill sites. This was again reported in the 2006 survey. The backbone of the growth in the recycling industry over the past 8 years has thus been the poor people of the country scavenging on landfill sites. SAPRO does not support this activity and considers this activity as inhumane. The reality however, is that the lack of investment and progress in the separation of household waste has created this market and provides an income for many thousands of poor people.

It is furthermore important to note that most paper collectors rely heavily on the income from their plastics collection activities and any negative movement on the collection of plastic will directly impact on the collection of paper.

The recycling industry is at present not subsidised and has never received any subsidies as for example in the USA and European countries. The current economic climate is a classic example where the collection and separation of recyclables continues in these countries despite extremely low prices paid for recyclables whilst in South Africa, recycling is governed by a minimum price below which the collection infrastructure and activities will collapse. Mandatory identification of plastic products and separation of household waste is not common practice as yet.

SAPRO is of the opinion that any unqualified comparison between recycling in South Africa and recycling in the USA and European countries is fatally flawed.

Bio-degradable additives, stabilisers and the recycling industry

Biodegradable additives currently marketed in South Africa are extremely powerful pro-degradants and poses a real threat to the integrity of products manufactured from recycled material.

Solutions that are focused on the use of stabilisers to counter the effects of the biodegradable additives will require significant capital investment. A further problem foreseen is that certain recyclers will ignore the advice to use stabilisers and therefore directly and indirectly compromise the quality of the product from responsible recycling companies.

A number of technical questions regarding the use of stabilisers to counter the action of biodegradable additives, remain furthermore unanswered.

Advertising campaigns

SAPRO feel obliged to comment as many of the oxo-biodegradable additive claims are misleading.

- **It will solve the litter problem**

  It is commonly accepted by the role-players in the industry that biodegradable additives will not solve the litter problem. "Litter is a behavioral issue that requires a combination of education, awareness, the enforcement of suitable laws and sound waste management practices", according to EPIC (Environment and Plastics Council)

- **It will have a positive impact on landfill sites**

  Almost no bio-activity exists in a compacted landfill site. The intended effect of biodegradable additives is therefore nullified on a landfill site.

  "An unqualified claim that a product is degradable, biodegradable or photodegradable should be supported by competent and reliable scientific evidence. Waste in a sanitary landfill state is deprived of air, moisture and light, significantly retarding any degradation of the product. In the current context of consumer items destined for landfill, current scientific opinion indicates that degradability claims as an environmental benefit, may not be supportable. Products or packaging that are not diverted from the waste stream will invariably end up in disposal facilities such as landfill so any claim of degradability would not be appropriate", according to "Principles and Guidelines for Environmental Labeling and Advertising" (Industry Canada No.11368 94-03).

- **Bread bags are not recycled**

  Most recyclers have banned bread bags from their factories since it became known that an oxo-biodegradable additive was included in the *Albany* bread bags.

- **Green washing**

  It is illegal according to our constitution to make claims regarding the environmental impact of products or packaging that are not factually correct and could be miss-interpreted or misleading.

  Advertisements of biodegradable products should not only be precise on the positive effect it would have on the environment, but also quantify the expected percentage of the product that will be exposed to an environment that will allow the product to fully biodegrade. This will require a proper life-cycle assessment.

  There is a major difference between:
  a. ”Our product is biodegradable” vs.
  b. ”Our product is biodegradable and we expect that 0.06% of the product will biodegrade"

Energy used in the recycling process

An article published in the Popular Mechanics (January 2009) has shown that the plastic recycling process requires significantly less energy (more than 80%) than the process required to manufacture the same article from virgin material (this includes the process to manufacture virgin material).

“Across the board, the key factor is the energy intensity of extracting virgin material, which is an order of magnitude higher than that of recovering the same material through recycling.” Even if you doubled the emissions from collecting recyclables, it wouldn’t come close,” Morris says. Overall he found, it takes 10,4 million Btu to manufacture products from a ton of recyclables, compared with 23,3 million Btu for virgin materials and all of the collecting, hauling and processing of these recyclables adds just 0,9 million Btu”

Surely this should end the debate that the recycling process consumes more energy than the manufacturing of virgin material and that it is also more costly.

Energy value of the polymer

The energy value of the polymer is 45 MJ/Kg against that of coal which is 19 to 25 MJ/Kg. What sense is there then in adding an additive to something with such an energy value in order to make it disappear?

CO_2 emissions

Plastic waste is a captured form of carbon. Biodegradable additives will encourage the release of the carbon in the form of CO_2. Litter can be managed by humankind but the management of the release of CO_2 is near impossible. This is again an example on that what is visible, creates the most emotion.

Who will judge what is more harmful to the environment – The contribution of CO_2 to the greenhouse effect or the bags that end up as sea litter?

Financial impact

A catastrophic collapse of the recycling industry will necessitate the use of 50 000 tons of virgin polymer that will have to be imported or would have been available for exports. The current value of this material is approximately R575 million.

It is also estimated that the imported additives (pro-degradant and subsequent stabilisers) will cost the industry many 10`s of millions of rands.

Money spent on a ***quick fix*** solution could be better utilised on public education, clean-up campaigns and the promotion of the **reduce, re-use and recycle** concept.

Conclusion

The use of oxo-biodegradable additives to solve environmental problems is a selfish ***quick fix*** solution, in order to green wash the image of a product or a company. Companies in South Africa that decided to use these pro-degradant additives, based it on emotional issues without a proper lifecycle assessment and without taking into account what effect it will have on various aspects of the recycling industry.

SAPRO cannot support the use of biodegradable additives regardless of the r*ecipe* used to convince the industry that biodegradable additives and the recycling industry can co-exist. The comments made about the positive effect of these additives on the environment are misleading. The plastics and packaging industry can utilise these funds for better sustainable solutions that is unique to the South African environment.

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