Bioplastics NEWS

Serbia, India, Pakistan and European Bioplastics

Michael Stephen, an international spokesperson from the plastics industry, shares his thoughts and opinion on important issues impacting the bioplastics industry. Today, Michael writes about Serbia, India, Pakistan, Printweek, Re-inventing the Wheel and European Bioplastics.

Michael Stephen

Serbia

I was reading an article "Plastic bags must be regulated by comprehensive law" on 21st February about a conference in Belgrade. It seems that everyone agreed that Serbia has to regulate the issue of plastic bags in a systematic way, and that producers are rightly complaining of uncertainty in policy.

As appears from the Green Alliance report mentioned in my column on 14th January there is nothing wrong with plastic bags except that they will lie or float around for decades if they escape into the open environment as litter. There is therefore no reason to ban plastic bags if that problem could be solved.

Fortunately it can now be solved – by manufacturing the bags so that they would oxidise and biodegrade in the open environment much more quickly than ordinary plastic, requiring no special conditions other than oxygen and bacteria, which are abundant. This is called oxo-biodegradation and is achieved by including a

special catalyst in the polymer mix at 1%. Oxo-bio products are tested according to ASTM D6954 to make sure there are no heavy metals or toxic residues. These are not the same as "compostable" plastics.

In 2018 Belgrade banned the sale of bags with thickness between 15 and 50 micrometers, but very sensibly they excluded biodegradable bags for the reason just mentioned. Actually there is no reason to prefer thick bags, as they are using more plastic, and will cause more pollution if they get into the open environment, unless they are oxo-biodegradable. One of the advantages of oxo-bio is that its useful life can be controlled, from 6 months to 6 years or more as required. Also, if the thick bags are re-used many times they will become a breeding ground for bacteria, fungi and viruses as the inside is hardly ever washed.

It is not correct that "thinner special bags decompose in the holes people dig at home." It is also incorrect that "other versions, including those with additives, warrant industrial equipment, high temperatures and a much longer time." The author is here confusing "those with additives" ie oxo-bio bags – which need no special conditions – with "compostable" plastics which do require industrial equipment and high temperatures.

Siniša Mitrović, of the Chamber of Commerce and Industry of Serbia, is reported as saying that "The state would need to provide subsidies for any sudden turn" This would be true if the state mandated a change to bio-based or "compostable" plastic, but no subsidies are necessary for making oxo-bio bags. These are made by existing factories at little or no extra cost.

There is in any event no reason for changing to bio-based or "compostable" plastic. Oxo-bio plastic is made from a by-product of refining oil, which would be extracted for fuels even if plastic did not exist, so why use land and water resources, and burn fossil fuels, to grow and polymerise crops to make plastic? Not only this, but "compostable" plastic does not convert into compost – it converts instead into CO2, and the last thing the planet needs is more CO2. Worse still, it is tested to biodegrade in the special conditions found in industrial composting (not in the open environment) and the industrial composters themselves don't want it. See my **column on 7th** and **14th Feb**, and below.

The article notes (presumably with reference to oxo-biodegradable plastic) that "Fraudsters print the mark but do not put additives in." Yes, this does sometimes happen, so the Oxo-biodegradable Plastics Association provides governments with a portable device for making spot-checks. Anyone found committing this fraud should be severely punished and their stock confiscated. The participants at the conference also mentioned cases of astronomical margins for plastic bags at supermarket tills as well. This is an abuse of the environmental consciousness of customers, and should be stopped.

The article mentions that Delhaize Serbia plans to completely switch the packaging for its private label to recyclable and compostable materials by 2025. With the greatest respect to them, this is a mistake. There is no point in "compostable" plastic for the reasons mentioned above. Bags made from recyclate are OK provided they are made with oxo-bio technology, but there is no point in trying to recycle low value contaminated plastic waste – it is simply not worth it in economic or environmental terms – see my **column on 7th January**. They should switch to oxo-bio packaging made with recyclate, at little or no extra cost – and it can itself be recycled if anyone wants to do it.

The article is correct that “if compostable bags get into water streams, they lack light and oxygen. Then they aren’t decomposing, but fragmenting into harmful microplastics. The tiny pieces enter the food chain just like polyethylene.” This would not be the case with oxo-bio bags. The author is however incorrect in thinking that any type of plastic is suitable (or even desirable) for home-composting.

I am glad to hear that the Serbian chamber’s sectoral group produced a draft rulebook on technical characteristics, and that all interested parties are working on a national strategy and the amendment of the Law on Packaging and Packaging Waste. I am sure the Oxo-biodegradable plastics Association would be willing to participate in this important work, as it is essential to avoid mistakes based on misunderstandings.

The article says that “biopolymers can’t be composted in Serbia at the moment, and that the German organization GIZ is working on a project for two composting units. Italian firm Novamont intends to join forces with the government and build a test facility in Gornji Milanovac, followed by several more. The idea is to compost organic waste together with the bags.”

This might be useful for composting organic waste, but as already mentioned, the plastic bags do not convert into compost – they convert into CO2. The Serbian government would do better to invest in a modern incinerator like the one in Zurich which can incinerate almost anything without causing pollution, and turns the energy into electricity. They even find gold and other precious metals in the ash!

If you have read so far, I am sure you will be thinking “but I have been told that oxobio technology does not work, and serves only to create microplastics.”

A report was indeed published in 2017 by the Ellen MacArthur Foundation which claimed that “oxo-degradable” plastics simply fragmented into tiny pieces of plastic – but having engaged with OPA scientists they no longer say that. They now admit in their May 2019 report that “oxo-degradable” (they mean oxo-biodegradable) plastics are manufactured so that they can degrade faster than conventional plastics and that they do become biodegradable, but they say that “it is not yet possible accurately to predict the duration of the biodegradation for such plastics.”

For that reason a broad indication only can be given as to timescale. It is however possible to say with certainty that at any given time and place in the open environment an oxo-biodegradable plastic item will become biodegradable significantly more quickly than an ordinary plastic item. Sunlight and heat are not essential, but they will accelerate the process and it will therefore proceed more quickly in hot countries than in the UK.

It is not important how long a particular piece of plastic in a particular place will take to biodegrade – the importance of oxo-biodegradable technology is that it will gradually reduce the overall burden of plastic in the environment.

India

Printweek India (21 Feb) sent reporters to Plastivision 2020 to look at the new technologies on offer. They noticed a company, Hyderabad-based Blend Colours with "an oxo-biodegradable range of additive masterbatches, which uses Oxygreen technology activated by natural sunlight that will enable the disposed product to lose its molecular weight and turn it into hydrophilic molecular fragments, which helps in faster degradation."

I have never heard of the Blend Colours company or Oxygreen technology, and as they are not members of the OPA one would need to be satisfied that their product has been correctly formulated, but they do seem to have the right idea. India is a country where there is plastic waste in the environment in monumental proportions – apparently the astronauts could see the railway lines from the moon because of the plastic waste strewn alongside the tracks!

Oxo-biodegradable technology is the obvious answer to this problem as it will make the plastic biodegrade much more quickly than it otherwise would. Recycling is not the answer, even if this plastic could all be collected – because waste plastic of this kind is of such low value that it is not worth recycling in economic or environmental terms.

Apparently the landfill in Ghazipur, New Delhi, is set to surpass the height of the Taj Mahal this year. Why on earth are they still sending plastic to landfill in India? They should be sending it to modern non-polluting incinerators and using the high calorific value in the plastic to generate electricity instead of burning coal or oil.

The reporters spoke to some "experts" who said that "if a material is oxo-biodegradable then it is mixed with chemicals to enable the product to be oxidised" – so far so good, but they then told the reporters that "the particles won't disappear on its own if the specific conditions aren't met. This, in turn, can cause more hazards to the environment." They are confusing this with "compostable" plastic, because oxo-biodegradable plastic does not need specific conditions – it is designed to degrade and biodegrade in the open environment, where it needs only oxygen and bacteria, which are found in abundance in India. There is also strong sunlight in India, which will accelerate the process

One of the experts (from the bio-based plastic industry) said "A lot of additive manufacturing companies claim that these smaller particles are digested by bacteria, but there is no evidence of this yet." He needs to bring himself up to date with the scientific literature, where there is plenty of evidence. Even the Ellen MacArthur Foundation now admits that they do biodegrade. It would be helpful to everyone if these "experts" engaged with experts from the oxo-bio industry, as they clearly have a lot to learn.

One exhibitor mentioned that the availability of raw materials such as sugarcane or corn starch to cater to the rapid consumption of Indian plastics, is still a big question mark. But why should India want to make plastic from sugarcane or corn-starch when people do not have enough to eat? For some strange reason these have become fashionable, but it makes no sense. Plastic is made from a by-product of oil extracted to make petrol, diesel, and aviation fuel, so why not use it, instead of using land and water resources to make plastic bags – especially as the agricultural and polymerisation process burns so much fossil fuel.

A few years ago I went for a walk with the India representative of one of the multinationals. I showed him dozens of pieces of litter with his company's brand on them and asked what he was going to do about it. "Nothing" he said "until the government tells me to do it." Perhaps now is the time to tell him to make his packaging oxo-biodegradable, so that it will not be there as a problem for future generations.

Pakistan

ISLAMABAD 20.2.20: **Plastic bags back in use despite ban**

"Despite a blanket ban on the sale and use of polythene bags in Islamabad, these are being used without any fear of legal action in the federal capital and elsewhere." This shows that it is totally unacceptable to ban plastic bags, especially in poor countries, and that the people will not accept it. It seems that plastiphobia will not be tolerated by the population.

"In August last year, the Ministry of Climate Change had declared the use of polythene bags illegal due to its harmful effect on the environment" There was no need to ban the bags, they should have been required to be oxo-biodegradable, and their effect on the environment would be much reduced.

"Shops and grocery stores that were previously wrapping items in paper or packing them in paper bags are now back to using plastic carrier bags, and fruit and vegetable vendors are using plastic bags at weekly markets." Hardly surprising, as paper is not an acceptable alternative to plastic, especially for protecting food from contamination and preventing disease.

A senior official from the ministry said that people are continuing to dispose of garbage using plastic bags, "which is evident from the heaps of garbage dump sites in the outskirts of Islamabad, on the roadsides and around bins outside streets in residential sectors." Yes, but if the bags were oxo-biodegradable they would harmlessly biodegrade very quickly in the hot climate of Islamabad.

He added that the Pakistan Environment Protection Agency has not been able to rein in their use by cart vendors in the streets. "They continue to package items in plastic bags." Yes, because that is what the people want and need.

Another senior official of Islamabad Capital Territory said that consumers are not co-operating with the ban either." Of course not. People will not accept unreasonable legislation which damages their interests for no good reason.

Residents have complained that they cannot help it if shopkeepers have returned to using plastic bags. "I often carry my items in my hands. But sometimes you cannot carry all the groceries in just your hands." Of course not.

"To make matters worse, there seems to be no end in sight to the use of oxo-biodegradable plastic bags, which according to the ministry of climate change are far more hazardous to the environment and to

human health." This is nonsense. Oxo-bio plastic bags are much better for the environment than ordinary plastic.

Pak-EPA officials on condition of anonymity told APP that oxo-biodegradable bags can affect soil fertility and water when they disintegrate, which they do upon interacting with elements such as sunlight, water and oxygen. They argue that the tiny particles of plastic can also be inhaled and are equally threatening to marine life that can also consume them." Not surprising that these officials wanted anonymity, as they are making statements without any real understanding of plastic technology. Oxo-bio plastics were invented not to create microplastics, but to deal with them by making them biodegradable.

"Shopkeepers are taking the government for granted by thinking the efforts being made would fade away." Yes, the shopkeepers have more sense than the government. Let the shopkeepers keep their plastic bags, but make them oxo-biodegradable at little or no extra cost.

Re-Inventing the Wheel

A European project to reduce the burden of plastic waste in the environment

Public money is being wasted on a European project called BioICEP (Bio-Innovation of a Circular Economy for Plastic), "to reduce the burden of plastic waste in the environment," to "reduce the polymer molecular weight of the base polymer to make it amenable to biodegradation" and "to accelerate the degradation of traditional plastic." If this project succeeds, it will be many years before anything becomes commercially available, but in the meantime a technology which can do all of this has already been invented. It is called oxo-biodegradable plastic.

They are apparently also trying to make new plastic from waste plastic, but what is the point of that? If you can collect it, surely it is better to mechanically recycle it if suitable, and incinerate it if not, thereby using the calorific value to generate electricity. There is no need to be obsessive about "circular economy principles."

Printweek

Carried an article on 12th February "**Brands switching away from plastic could increase their carbon footprint**" saying that a "new report about the grocery sector has found that the switch by many brands and businesses from plastic packaging to alternatives is both confusing consumers and, in some cases, having detrimental effects on the environment. This has led to knee-jerk reactions by many businesses who, in some cases, have switched to alternatives without fully evaluating the environmental impact of those alternatives."

Joanna Stephenson, managing director of PHD Marketing, is quoted as saying that "there has been "much maligning of the packaging sector, misinformation and lack of understanding of what is a really complex issue" and that the Green Alliance report (see my **column on 14th January**) "accurately reflects the concerns the retail and packaging industries have had for some time".

“Those of us that have tried to communicate the carbon agenda against what has been fairly aggressive anti-plastic lobbying have been shot down voraciously by consumer groups”

She says “plastic has become ubiquitous in packaging design for a number of reasons. “[It’s] lightweight, robust, puncture resistant, high barrier, recyclable (for some polymers), transparent, etc. No other material offers the same functionality in one single material at a low cost.” The only problem is that is can persist for a long time if it gets into the open environment – but that is a problem which can be solved without abandoning plastic.

Stephenson concludes “Let’s switch the debate to the things that are really going to make a difference to the planet and climate change instead of attacking something that is actually minimising waste and supporting society.”

Press Release by European Bioplastics

Berlin, 20 February 2020 – “A recent study by Wageningen University & Research Netherlands, analysed the fate of compostable packaging products in a full- scale industrial organic waste treatment facility. The results show that the EN13432- tested certified products break down within a maximum of 22 days.”

However, the industrial **composters of Oregon**, USA published a report in January giving nine reasons why they do not want it. They were followed by the City of Exeter, UK and the Suez waste management company, who also rejected it, and last week the editor of Bioplastics News drew attention to what he called “The Composting Fairytale” having read another report from the Netherlands.

He said “The Dutch TV program “De Monitor” makes an inquiry into compostable bioplastics. What they discover is groundbreaking! They reveal the truth behind compostable bioplastics. “After viewing the programme I’m astonished … I’m falling off my chair.

Ladies and Gentleman… apparently … compostable bioplastics are not being composted. You’ve been paying more for compostable packaging for no reason. I don’t believe in the composting claim anymore, thanks to the Dutch!”

The report was published on demonitor.kro-ncrv.nl the investigative journalistic platform of KRO-NCRV who say “We investigate social issues with the help of knowledge, experiences and input from the public. The Monitor addresses social issues such as healthcare, work, safety, education, sustainability and housing. We try to detect abuses and contribute to change.”

Even if the industrial composters did want it, “compostable” plastic does not address the main problem with which policymakers are concerned. That is “what do you do with plastic waste which has escaped into the open environment from which it cannot be collected for composting?”

For the reasons mentioned earlier in this column, and for the 21 reasons given by the OPA “**PLASTICO “COMPOSTABLE**”

I find it hard to understand why anyone would want to buy "compostable" plastics. That industry seems to survive because some very large companies were persuaded to invest millions in the technology, and they keep it afloat by aggressive marketing and political lobbying.

The pressure on retailers to buy "compostable" plastics is coming from consumers and politicians who have not been given all the facts. How many of them know that:

- "compostable" plastic is tested (according to EN13432 and ASTM D6400) to biodegrade not in the open environment, but in the special conditions found in an industrial composting facility.
- "compostable" plastic does not convert into compost
- "compostable" plastic converts rapidly into CO2 (or into methane in landfill)
- Industrial composters don't want it.

Michael Stephen

Michael Stephen is a lawyer and was a member of the United Kingdom Parliament, where he served on the Environment Select Committee.

When he left Parliament Symphony Environmental Technologies Plc. attracted his attention because of his interest in the environment.

He is now Deputy Chairman of Symphony, which is listed on the AIM market of the London Stock Exchange, and is the founder and Chairman of the Oxo-biodegradable Plastics Association.

Earlier Postings in this Column

- 1/ 1/ 20 – Plastiphobia, Microplastics and A Throw-Away Society
- 7/ 1/ 20 – Recycling, Lab Testing, Bangladesh and the Right Bioplastic
- 14/1/20 – Plastiphobia and Bioplastics Definitions
- 21/1/20 – Composting, the European Union and Unemployment
- 30/1/20 – Plastiphobia, Malaysia and a Case Against Compostables and Paper
- 7/02/20 – Coronavirus, MPs Letter, Montreal, Australia and the Dominican Republic
- 14/02/20 – Oman, MacArthur Foundation, Stifling Innovation, South Africa and Compostable Plastics

Interview with Michael Stephen

- Questions and Answers on OXO-Biodegradability

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