

“We need to move towards sustainable, safe, affordable technologies and solutions”

– **Vikram Bhadauria**, Director, Alok Masterbatches

Alok Masterbatches has made steady investments in developing future-ready R&D capabilities that enable it to make plastics safer, sustainable and affordable.

Vikram Bhadauria, Director, with over 15 years of experience leads the technology team at Alok to collaboratively create solutions that address the growing needs of the plastics industry. Vikram was recently accorded the “National Innovation Award” by the Prime Minister of India, Mr. Narendra Modi.

Vikram is a polymer engineer from University of Mysore and holds a Master’s Degree in Plastics Engineering from University of Massachusetts, USA, where he specialized in polymer materials and process technologies. Vikram began his career as a Development Engineer at Clariant Masterbatches in the United States, where he learnt about additive masterbatches and compounds for specialty applications. He heads the prestigious Alok Technology Incubation Centre (ATIC) in New Delhi where he mentors young engineers. The ATIC has recently been awarded accreditation by NABL.

In this email interaction with **Chemical Industry Digest**, **Vikram Bhadauria** speaks of the company’s successful development of various products while adhering to the tenets of sustainability.

Chemical Industry Digest (CID): You had won the National Award for two innovative master batches you developed. Could you give brief details on those innovations and what applications these master batches serve?

dresses the issue of heat built-up in electronics, appliances, lighting, automotive, and industrial products.

Vikram Bhadauria (VB): We are humbled to have been recognized by the Government of India for our innovation in light diffusing masterbatch - LumaNex and thermally conductive polymer - ThermoFlux.

LumaNex works on the concept of diffusing harsh light into a softer form, without sacrificing the lumen intensity of the LED. This not only prevents eye damage caused due to unfiltered LED light, but also saves energy through superior light transmission.

ThermoFlux evenly distributes heat generated from a device to improve performance and service life. It ad-



Unmanaged disposal of plastic waste is a mounting environmental issue, raised across the country. At ATIC we designed Envoplast based on Oxo-Biodegradable technology which is an affordable insurance against plastic waste accumulation in the environment. Envoplast based plastic degrades by conventional means of Oxidation, but at an accelerated rate.

What makes this a groundbreaking win for team Alok is that we tailored both these solutions at India's first R&D lab for the masterbatch industry - Alok Technology Incubation Centre (ATIC). This award is a testament to our innovation capabilities.

CID: Your corporate statements describe your company as innovation oriented with reliability and responsibility. Could you please amplify this a little more?

VB: Innovation for us is to identify the problem and its implications, and thereby extend our expertise to co-create and customize solutions that address the concern. We don't think the way forward for Indian manufacturing lies in high volume low cost solutions, nor does it lie in the high margin game of exotic or high end technology and adaptations.

What we need is to move towards sustainable, safe, affordable technologies and solutions that cater to our burgeoning market. This, I believe, is what makes a responsible company. At Alok, we are committed to sustainability and focus on pure play chemistry to create innovative uses of plastics that can improve the lives of Indians, and global citizens.

CID: Could you state what all end use applications, the plastic products where your master batches are used serve?

VB: We cater to the growing sectors of the Indian market - agriculture, automobile, industrial and packaging. Our innovative solutions have performed well and are finding relevance in the Indian market. To name a few -

Our anti-microbial masterbatch, Bactisafe based on pure Micro Silver Technology, is a definitive solution to

sanitizing public and private spaces, including high contact areas such as the metro facilities, hospitals and hotels.

Another solution that has gained predominance is in the agricultural space is UVNox Mulch masterbatch. UVNox Mulch makes the material durable, agrochemical resistant which protects the final produce from unwanted contamination and is customized to withstand season fluctuations.

Another leading Alok solution designed for the packaging industry is AirLite. As the name suggests, AirLite offers a unique alternative to thermoplastics by using hollow glass microspheres designed to reduce part weight.

CID: While plastics industry is very important to a developing country like India and as it also seems to replace many natural products like wood and metal, yet due to non-biodegradability it creates lot of problems in the environment – accumulation, in landfills, choking drains etc. So how can it be termed sustainable?

VB: Unmanaged disposal of plastic waste is a mounting environmental issue, raised across the country. Conventional non-biodegradable plastics, when unmanaged, accumulate and leave behind an undesirable visual footprint that has an adverse impact on the environment.

At ATIC we designed Envoplast based on Oxo-Biodegradable technology which is an affordable insurance against plastic waste accumulation in the environment. Envoplast based plastic degrades by conventional means of Oxidation, but at an accelerated rate. This solution by Alok was a big hit at the Kumbh Mela Festival in Madhya Pradesh. ATIC assisted the local Ujjain municipality in creating Envoplast which was used for over 20 lakh bio-degradable garbage bags.

The chemistry that goes into making plastics is a misunderstood concept in common discourse. The F&B sector in India uses PET or polyolefins, neither of which are synthesized using BPA. Yet, there was a recent move to ban PET for food and pharma applications owing to BPA fears. These are misguided actions and should be resisted by the academia and industry by disseminating facts.

CID: Another problem is that many additives used in plastic products, could be harmful chemicals which leach out of the plastics and enter human and environmental systems (bisphenol for instance). How can this be addressed?

VB: The chemistry that goes into making plastics is a misunderstood concept in common discourse. The much demonized Bisphenol-A is used in the synthesis of polycar-

bonate. While use of polycarbonate in water bottles was and is prevalent in the west, in India polycarbonate finds application in display windows and light shields (glass replacement).

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The additives for plastics have gradually moved from synthetic to plant based derivatives. Synthetics are now moving majorly toward compliance with international food and environmental regulations.

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CID: The other issue is that plastic processors are in the MSME and micro sectors who are reported to flout rules – like not using virgin plastics or food grade plastics and additives for food packaging, medical articles etc. This is also a serious issue. How can this be addressed?

VB: I firmly believe that in order to expect a change in the functionality of the system, we as an industry, need to collaborate first to address these concerns and set a benchmark for the future. In my opinion, for a fast growing industry like ours, the first step to success is

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As per current industry trends, growth of engineering plastics will dominate the high end technology - whether it is in manufacturing plants, automotive, defence or aerospace. We will see proliferation of high heat and chemical stable grades in engineering plastics as well as those that offer unique functionalities for niche applications.

self-regulation – we must monitor, control and alter our operations as per the need.

In addition to this, standardization by the government is imperative for the overall sector to comply with the set criterion. It's promising to see that the Indian government is playing its part and gradually moving towards stringent and ethical systemic changes for each sector. Once a transparent system of standards and penalties is in place, I foresee a welcome change in the quality of products that India makes and consumes.

CID: How do you see the growth of engineering plastics in India? What are some of the major applications for such plastics in chemical plant and equipment? Anything new or novel related to the plastics industry you would like to inform?

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As commodity plastics upgrade their performance envelope, they are likely to poach a few markets from engineering plastics while the latter will be eating into the metal replacement arena. This year, India will be flushed with commodity plastics owing to capacity expansion by new entrants to the marketplace.

