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Bulgin Introduces the Standard Vitalis Buccaneer

Reducing the impact of plastic without reducing performance.

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Plastic has become one of the most widely used materials in the world, but its reputation has become increasingly tarnished. Its characteristics have made it invaluable for the high-volume manufacturing of a range of products.
This has led to the word ‘plastic’ being used as a negative term, describing something that is throwaway or disposable.

The increased awareness over the last few years of the role that plastic plays in the environment has further influenced public opinion. The disposal of plastic materials and how they enter the food chain has created a backlash against single-use plastics and forced changes in government policy worldwide.

However, not all plastic materials are the same. Different materials behave in very different ways, and while some are designed to be discarded after use, there are many more that provide long-term reliability. Even the name “plastic” is not very helpful, as it does not distinguish between these different materials.

What are Plastics?

The products that we know as plastics are polymers formed from long strings of molecules. The main components of these long strings are carbon and hydrogen, along with other elements including oxygen and nitrogen. The proportions of these elements and the chemical bonds they make determine the characteristics of the finished product. However, most polymers share certain attributes, including the way in which they can be applied to manufacturing. These materials can be moulded, extruded or pressed into a range of shapes, allowing large volumes to be created quickly. This easy manufacturing, and the fact that the shapes created can be complex, offers advantages over other materials such as wood or metal.

While all plastic materials are different, they generally share other key characteristics. They are often highly resilient, ideal for resisting constant use. They are also light in weight and are not prone to environmental effects. Unlike metal or wood, they do not need to be protected against water, and many are resistant to chemicals found in manufacturing or industry.

However, depending on the exact nature of each type of plastic, they are vulnerable to other effects. Some polymers are prone to the breakdown of their molecular bonds when exposed to the ultra-violet radiation present in sunlight. This damage allows oxygen to interact with the polymer, creating a plastic that appears chalky or discoloured. This may be enough for the plastic to break apart under harsh conditions, one of the ways in which plastic enters the environment.



Making Plastic Better for the Environment

Preventing the release of plastic contamination is important, and fortunately for product designers, there are plenty of material options that provide long-term reliability under even the harshest of conditions. A product that has long-term reliability designed in from the outset will reduce the amount of plastic contamination in the environment. Rather than plastic products being disposable, they become the smart way to design.
The environmental impact of plastic once discarded represents just one challenge. Another comes from the way in which plastic is made. As we have already seen, the polymers within plastic are

composed primarily of carbon and hydrogen. The raw material from which these are formed must also be rich in these elements, and the richest source is crude oil. Thus, a large proportion of plastic uses oil as its basis, and the process by which these polymers are formed emits large volumes of greenhouse gases, including carbon dioxide and nitrous oxide.

The production of plastic – even the types of plastic that will deliver years of reliable service – therefore has a significant environmental impact. It is energy intensive, it uses a non-renewable resource, and it emits unwanted gases.

New Raw Materials

There is an alternative that is gaining much interest. The key components that are needed for plastic production – carbon and hydrogen – are also present in other forms. The first is castor oil. Castor oil is a renewable source, a vegetable oil that comes from the seeds of the castor plant. Not only is it renewable, but it also captures carbon dioxide while growing. Plastic created from castor oil therefore has a far lower impact on the environment, and its carbon comes from the atmosphere.

Another source of the raw materials in plastic can be found in biomass waste. This can include everything from food and kitchen waste to the byproducts of the paper industry. In the past, this would have simply been discarded, but it has many uses. In particular, it is a rich source of all the ingredients needed for plastic manufacture.

It is perfectly possible to create plastic from these alternatives, whether they are renewable sources or waste that otherwise might have been discarded. The result is known as bioplastic, but we must be careful to understand this term. There are some types of bioplastics that are designed specifically to break down quickly. As single-use plastic products are the largest contributor to plastic pollution, the goal is to replace them with items that break down into harmless elements quickly.

However, materials such as these do not lend themselves to the high-reliability products that industry needs. A device designed for the harsh conditions of the factory floor or the farmer's field cannot afford to break down quickly. Therefore, the plastic that it is made from must retain the same stability as its fossil fuel-derived equivalents.

The Vitalis Buccaneer Connector

Bio-nylon is a durable plastic derived from these new sources yet chemically similar to conventional nylon. This includes the polyamide materials that Bulgin uses for the Buccaneer series of circular power, data and signal connectors. Bulgin has used these plastics for decades because they offer the best combination of features for connectors in the industrial world. Strong, resistant to moisture and a wide range of chemicals, and stable when exposed to direct sunlight, the polyamide materials chosen for Buccaneer connectors have proven their reliability for countless customers in a huge range of environments.



Bulgin has created the new Standard Vitalis Buccaneer connector to take advantage of the new durable bioplastics while retaining the reliability and performance of the original. Completely compatible with existing Standard Buccaneer connectors, the Vitalis range features outer shells, locking collars, sealing caps and contact carriers that are manufactured with up to 86% bio-based plastic by weight. The result is not biodegradable. Instead, it is a sustainable choice that retains the long-term reliability of the original.

In all other important ways, the Vitalis Buccaneer connector is functionally equivalent to the Standard series. Bulgin's Buccaneer connectors are tried and trusted solutions for designers across a wide array of industries. Sealed to IP68 and IP69K, the Vitalis family features the same machined contacts that have cemented Buccaneer's reputation for reliability and performance for decades. Current ratings up to 12 Amps provide superior power capabilities, while the 25-pole variant enables data and signal connections, even in harsh conditions.

Conclusion

Bulgin is a major user of plastic materials, and the Vitalis range is just one step in the company's efforts to reduce its footprint. Over the next few years, Bulgin will expand the use of bio-based plastics to the rest of the Buccaneer family. Alongside other initiatives, including its partnership with SeaGrown, Bulgin is committed to providing its customers with meaningful ways to reduce their impact on the environment, without ever compromising performance.

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