# Home-compostable coffee capsules in brilliant colours: Here the eye and also the awareness of nature and the environment drink along

**GRAFE supplies masterbatch for biodegradable plastics from Golden Compound**Opinions are divided on coffee capsules. Some love the portioned enjoyment with its variety of aromas and flavours, others consider the small containers of palate pleasers to be cumbersome and overpriced. But studies show that the market for coffee on demand is growing almost unchecked. Proponents and opponents are united, however, in their criticism of the environmental compatibility of the mini-portions. Recyclability or even home compostability have so far not been among the features of the small packaging, which is nevertheless produced in large quantities.

Based on fibres from sunflower seed shells, maize starch and a rock flour mixture of mineral filler, Golden Compound GmbH, Ladbergen, has developed a bioplastic called "SUN CIRLCE", from which the "HOMEcap is made, which received the "OK compost HOME" certification from TÜV-Austria in 2018 as a home-compostable disposable capsule. In its plain dark brown colour, it met all sustainability requirements, but not always the marketing aspects, where visual appeal is most important. Since 2016, Golden Compound has therefore been working with GRAFE, Blankenhain.

In three years of development work, the colour specialists succeeded in developing masterbatches for colouring the coffee capsule, with which the small portions of enjoyment can be packaged in a visually appealing way without compromising compostability. In the meantime, nine colours have been certified by TÜV Austria. "The development project was very complex and demanded our entire expertise in colouring plastics," reports Stefanie Theuerkauf, Sales Manager for the D-A-CH region at GRAFE. "The masterbatches may only contain certain ingredients, and the pigments can only be used in limited concentrations. In addition, it was a challenging task to overcolour the dark base material."

From the modal range of the masterbatch specialist, the colours maroon, light grey, brilliant blue, blue grey, petrol brilliant, olive brilliant, violet brilliant as well as beige and berry are now available. The certification came into effect on 14 August 2020, and since then the colourful capsules have gradually entered the market. "The partnership with GRAFE also offers a lot of potential for us in the future," says Reinhard Trumme, authorised signatory at Golden Compound, and points to further durable or even home-compostable bioplastic products from his company.

These include applications in the building industry, but also clothes hangers, urns, stacking boxes, coffee-to-go cups and, last but not least, the plant pot "POTTBURRI" which became known to an audience of millions via the TV show "Die Höhle der Löwen" on the TV channel VOX. "Due to sustainability, the market opportunities for such products are enormous," says Theuerkauf. "Thanks to our know-how in colouring plastics, these are increased even more, as colours are an important marketing tool to make products appealing."

The disposable, home-compostable capsules have a flavour barrier, are Nespresso® compatible, heat-sealed and heat-stable. Manufactured by injection moulding on conventional machines, they have a low wall thickness of less than 500 micrometres. They thus build the bridge from economic efficiency to sustainability. Instead of being recycled as household waste, the capsules end up on the compost heap - and that is where they belong. Here, the coffee grounds provide valuable plant nutrients such as potassium, phosphorus and nitrogen. The material decomposes very quickly and completely at temperatures similar to those in garden soil or in a composter. So no CO2-intensive disposal and no energy-intensive heating.

Compared to conventional aluminium capsules, PLA capsules or capsules containing hidden aluminium, SUN CIRCLE capsules offer advantages through home composting: "In contrast to these, not only water remains after decomposition. Our SUN CIRCLE raw material, including the sealing film on the coffee capsule, completely decomposes into water, CO2 and biomass within a year. It thus leaves behind humus and valuable fertiliser and, above all, no permanent microparticles," explains Trumme.

Golden Compound produces two groups of materials: "pro" stands for durable, "green" for home-compostable. For this purpose, the company uses up to 70 per cent fibres from sunflower seed shells as filling and reinforcing material. These are a by-product of the food industry, come from an existing, quality-monitored supply chain and do not compete with food cultivation. "In addition, all materials have been optimised for the injection moulding process and offer good processability, stiffness or impact resistance," assures Annabelle Hoesen from Marketing/Sales at Golden Compound. Further advantages are a possible reduction in cycle time as well as the unique look and feel.

Various Golden Compound products have the "OK compost HOME", "OK compost INDUSTRIAL" or "Ok biobased" certificates. Environmentally conscious consumers should pay particular attention to the "Ok compost HOME" label when buying their coffee capsules, because this confirms that the raw material already decomposes quickly at normal ambient temperatures in the garden soil or in the composter. In contrast, "OK compost INDUSTRIAL" means that temperatures above 50 degrees Celsius are required for decomposition. While 98 percent of all "biocapsules" on the market only have this certificate, the "HOMEcap" has the very rare quality mark "OK compost HOME".

General information

**GRAFE**:

In addition to color and additive masterbatches, GRAFE's product range includes a broad range of functional plastic compounds. One of the largest research and development departments in the industry is working on the latest technologies that equip plastics with intelligent functions. The family business was founded in 1991 by the four Grafe brothers and today employs more than 300 people who develop and produce for the national and international market in the state of the art facilities in Blankenhain (Thuringia) in the middle of Germany. GRAFE attaches great importance to quality management - and with success. The company is successfully certified according to ISO 9001:2015, IATF 16949:2016 and ISO 50001:2018.
For further information, please visit: www.grafe.com

**Golden Compound:**

Golden Compound GmbH was founded in 2014 and has since been developing natural fibre materials with up to 70% sunflower seed shells. In October 2014, production of 3,000 tonnes of S²PC per year and marketing of the materials began at the newly built plant in Ladbergen, North Rhine-Westphalia. The production capacities are being continuously expanded. Currently, the portfolio includes various materials: GOLDEN COMPOUND pro (durable) and GOLDEN COMPOUND green (home-compostable). Together for a better future.

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