

MAXITHEN[®] BIOL

Masterbatches for the colouring of
PLA (polylactic acid)

MAXITHEN® BIOL range

HISTORY

The environmental consciousness of consumers has become ever more important in recent years. Biodegradable polymers were developed to cater for these demands and also to find an alternative to scarce crude oil reserves. **PLA** (polylactic acid), for example, is a thermoplastic polyester manufactured from renewable raw materials.

OUR VISION

As a technology leader in the field of masterbatch manufacture, it was only natural that we should also concern ourselves with the development and production of PLA batches for the colouring and modification of this material.

OUR GOAL

was the development of PLA colour masterbatches which, at a maximum dosage (see datasheet) comply with composting directives and the EN13432 landfill ordinance. Over and above that, these new products should also be compatible with other bio degradable polymers and, hence, offer a broad range of uses.

THE RESULT

Colour concentrates, in pellet form dispersed in biodegradable PLA carriers, that are usable in PLA and other polymers. MAXITHEN® BIOL colour masterbatches are distinguished by their high strength of colour and can be processed well on existing plants.

MAXITHEN® BIOL range

APPLICATION:

MAXITHEN® BIOL masterbatches can be used for the manufacture of films, moulded parts, cans, beakers, bottles and other articles of daily use.

This new product range is particularly recommended for the colouring of short-life packaging films or deep drawn products (e.g. drink or yoghurt beakers, meat trays or fruit and vegetable dishes).

MAXITHEN® BIOL masterbatches are also particularly well suited to the colouring of films for agriculture (mulch and cover sheeting) and aids for commercial gardening (cultivation trays, plant holders, disposable plant pots).

STANDARD PRODUCT RANGE

MAXITHEN® BIOL 1071/50	MAXITHEN® BIOL 5N1601
MAXITHEN® BIOL 226951	MAXITHEN® BIOL 6M2181
MAXITHEN® BIOL 226961	MAXITHEN® BIOL 6M2221
MAXITHEN® BIOL 226991	MAXITHEN® BIOL 6M2331
MAXITHEN® BIOL 3A4531	MAXITHEN® BIOL 824531
MAXITHEN® BIOL 3A4521	MAXITHEN® BIOL 824541
MAXITHEN® BIOL 4A8341	MAXITHEN® BIOL 824551
MAXITHEN® BIOL 4A8331	MAXITHEN® BIOL 921031
MAXITHEN® BIOL 5N1341	MAXITHEN® BIOL 921091

Further colour matches on request

MAXITHEN® BIOL masterbatches are food-safe and comply with the regulations of the European Union as stated in our declaration of conformity.

MAXITHEN® BIOL range

MAXITHEN® BIOL additives

We currently offer the following additives for processing in PLA:

ANTIBLOCK MASTERBATCH	for PLA applications without impairing transparency.
NUCLEATING MASTERBATCH	for increasing the transparency of PLA articles. Outstanding transparency with particularly high thermal and chemical resistance, resulting in the best possible organoleptic properties.
CELL FORMING MASTERBATCH	for the homogeneous distribution of the propellant gas in PLA foams. A fine, closed-cell foam structure with low foam weight is thus obtained.
OPTICAL BRIGHTENER	masterbatch on PLA basis for optical brightening.

Further additives are under development - customer's requests are welcome.

MAXITHEN® BIOL range

Colorant concentrations for the colouring of PLA polymers

Colour concentrates in pellet form on the basis of inorganic and organic pigments dispersed in a degradable synthetic matrix. For use in thick-walled and thin-walled articles.

FORM OF SUPPLY: Masterbatch in pellet form, packed in UV stabilised 20/25 kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For stabilising and/or colouring the packaging materials, a combined MAXITHEN® UV/AO masterbatch has been used to protect both, the packaging as well as the content.

APPLICATION: The products listed on this data sheet are suitable for processing on screw injection moulding machines, blown container machines and for the extrusion of films.

MOISTURE: surface moisture max. 0.2 %

DRYING: MAXITHEN® BIOL products can be dried if necessary in closed drying systems with the polymer, or also only the masterbatch alone at 60°-90 °C for 2 hours. The instructions of the polymer manufacturer are to be considered anyhow.

BIODEGRADABILITY: In the given recommended dosage range, the products comply with EN 13432:2000 and AC:2005A.1.2 (Requirements for the recycling of packaging through composting and biological degradation).

LIGHT FASTNESS: Based on DIN EN ISO 877. Assessment takes place with the aid of an 8-stage Blue Wool Scale (EN ISO 105-B01). 8 = best value, 1 = worst value.

TEMPERATURE RESISTANCE: Tested in PLA 2002 D with a dosage of 1 % of the respective colour concentrate on a screw injection moulding machine with a dwell time of 5 minutes. The test was made according to EN12877/2. The temperature of the mass was thereby raised from 200 °C to 300 °C in 10 ° steps. The temperature is specified at which no greater discolouration is determined than the colour distance Delta E from* = 3 according to DIN 6174.

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FOOD SAFETY: The products declared as suitable in our table contain colorants which, in relation to their purity requirements, comply with the regulations of Germany and Austria as well as the European Directive AP (89) 1.

There are no objections to the use of the products declared as suitable for the colouring of plastics for utensils for food packaging provided that the colorant does not migrate into the food, even in traces, when it is processed properly and the utensils are used as intended (non-migration principle).

Since the manufacturer of pigment preparations has no influence on the further processing of his products, the processor himself is obliged to ensure that the respectively applicable regulations are complied with in the final article. For more exact information on conformity with applicable ordinances, please refer to our declaration of conformity as separate information.

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Product MAXITHEN®		Conformity EN13432:2000 A.1.2	LE	GC recommended max. dose [%]	Thermal stability: [°C]
BIOL 1071/50	White	YES	+	20,00	260
BIOL 226951	Yellow	YES	+	20,00	240
BIOL 226961	Yellow	YES	+	10,00	240
BIOL 226991	Ivory	YES	+	20,00	260
BIOL 3A4521	Orange	YES	+	8,00	200
BIOL 3A4531	Orange	YES	+	5,60	200
BIOL 4A8341	Red	YES	+	10,00	220
BIOL 4A8331	Red	YES	+	10,00	200
BIOL 5N1341	Blue	YES	+	5,00	200
BIOL 5N1601	Blue	YES	+	5,00	240
BIOL 6M2181	Green	YES	+	5,00	260
BIOL 6M2221	Green	YES	+	5,00	260
BIOL 6M2331	Green	YES	+	5,00	200
BIOL 824531	Beige	YES	+	8,80	260
BIOL 824541	Brown	YES	+	5,00	260
BIOL 824551	Brown	YES	+	5,00	240
BIOL 921031	Grey	YES	+	20,00	260
BIOL 921091	Black	YES	+	20,00	260

KEY:

LE = food safety

DOSAGE:

recommended for thick-walled articles 1 %;
recommended for films and thin-walled articles 5 %

LIGHT FASTNESS:

on request

TEMPERATURE STABILITY:

Temperature stability - specified in °C

ALL PRODUCTS ARE:

legally permitted for food use according to the regulations
in Germany and Austria.
Free of pigments containing heavy metals.
Free of pigments containing diarylid.

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STORAGE: A storage period of a maximum of 12 months should not be exceeded. The product must be stored in a cool dry place and, above all, protected against strong light. To prevent the absorption of moisture from the surrounding air, opened containers must be closed carefully after the removal of contents. The goods should be predried if necessary.

All details are of an informative character and are intended as support and advice for our customers. This information originates from laboratory tests carried out under ideal, accurately defined conditions. All specified values are system specific and the tests must therefore be carried out on the basis of the polymers and quantities used by customers. Additional influences must also be taken into account for practical use. Guarantees for the respective end products cannot be derived from our data sheets.

BUSINESS UNITS OF GABRIEL-CHEMIE GROUP:



Building & Agriculture



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