

Genitron® EP-range

GENITRON is a registered trademark of Bayer AG, Germany. It may not be used in Japan and North and South America. In these areas the product is available under the TM FICEL.

Genitron® EP is a range of quality blowing agent formulations for the injection moulding and extrusion of thermoplastics. The decomposition products do not cause the build up of residues on the screw, the die and other metal parts of the processing equipment.

Chemical composition	azodicarbonic acid diamide preparations
CAS Reg. No.	123-77-3 (ADC), 80-51-3 (OBSH)
Physical form	yellow powders
Health and safety information	Relevant safety data and references as well as possibly necessary warning labels can be found in the safety data sheets.

TECHNISCHE INFORMATION

PLASTIC ADDITIVES



Product Range and Typical Properties

Product	Description	ADC Content (%)	Typical Application Temp. (°C)	Gas Yield (ml/g)	Recommended Polymers
Genitron® EPA	Non-plating ADC preparation	62.5 ± 2.5	200 - 230	200	Polyolefins, styrenics and polymers with a melt processing temperature above 210 °C
Genitron® EPB	Activated non-plating ADC preparation	55.5 ± 2.5	170 - 225	220	Polyolefins, styrenics and polymers with a melt processing temperature above 200 °C
Genitron® EPC	Highly activated non-plating ADC preparation	66.0 ± 2.5	160 -190	190	Polyolefins, styrenics and polymers with a melt processing temperature of 170 °C
Genitron® EPE	Very highly activated non-plating ADC/OBSH preparation	53.0 ± 2.0	150 -190	150	Polyolefins, styrenics, rigid PVC and polymers with a melt processing temperature of 160 °C

Storage

During storage and handling, Genitron EP products should be kept cool and the upper temperature limit (not the long-term temperature) of approx. 50 °C should not be exceeded; i.e. Genitron EP products should not be stored near radiators; other heat sources such as sunlight or lighted cigarettes should be avoided and there must be no sparks or naked flames in the vicinity.

Genitron EP products are best stored in the original container in a separate, cool room. Quantities of Genitron EP products other than those required for immediate processing should not be stored within manufacturing areas. Any national requirements pertaining to the segregation of packaged dangerous goods must be observed.

When stored in a cool and dry place in sealed original containers, Genitron EPA has a shelf life of twenty four months and Genitron EPB, Genitron EPC and Genitron EPE have a shelf life of nine months.

PLASTIC ADDITIVES



Solubility

ADC is soluble in dimethyl formamide, poorly soluble in dimethyl sulphoxide, practically insoluble in all other solvents and plasticisers.

Packaging

Product	Standard box size	Standard pallet size
Genitron® EPA	20 kg	360 kg
Genitron® EPB	20 kg	360 kg
Genitron® EPC	25 kg	450 kg
Genitron® EPE	25 kg	450 kg

These raw material properties are typical properties and, unless specifically indicated otherwise, are not to be considered as delivery specification.

Additional Information

Product range

The Genitron EP range of chemical blowing agents has been specially developed for the injection moulding and extrusion of foamed thermoplastics. Each product decomposes to release a combination of gases which enables the processor to manufacture high quality cellular products. The decomposition residues do not cause plate-out problems and are indeed a contributory factor in enhancing nucleation.

The Genitron EP products are unique formulations of modified azodicarbonic acid diamide and can be used at processing temperatures of 150 to 230 °C.

This comprehensive range of high quality blowing agents was developed, and has been proved, to meet the needs of customers in terms of performance and cost-effectiveness in injection moulding and extrusion. Furthermore, it is essential that a complete range is provided as no single chemical blowing agent is suitable for all thermoplastic applications.

The Genitron EP blowing agents are also available in pelletised masterbatch form to improve their handling characteristics and to meet the processing requirements of the users. Further details of these products are available upon request (Technical Information KA-PMA-0017e, Thermoplastic Masterbatches).

General properties

- Elimination of plate-out

The use of azodicarbonic acid diamide results in the build up of certain solid decomposition residues on the screw, the die and other metal parts of the processing equipment.

The Genitron EP products have been designed to eliminate plate-out. This enables the processor to run the machine for very long periods of time without cleaning off the solid decomposition residues.

PLASTIC ADDITIVES



- Avoidance of mould corrosion

Unlike some endothermic blowing agents, the Genitron EP products do not generate steam on decomposition. This can be advantageous in those situations where steam can cause mould corrosion problems.

The Genitron EP range of blowing agents do not generally cause mould corrosion. The only exceptions may be during the production of ABS foams and the use of copper/beryllium tooling.

- High quality foams

The Genitron EP blowing agents are self-nucleating to produce foams with uniform cell structures and smooth surfaces. This is particularly important for consumer and domestic applications where a high quality finish is demanded.

- Low density foams

The Genitron EP products can be used to reduce the density of foams by up to 30 % depending on the level of blowing agent addition, processing conditions, polymer and thickness of the moulding. This can significantly reduce the unit costs of production and increase processing flexibility.

- Proven performance

The superior quality and performance of the Genitron EP products has been proven by many years of commercial use in a wide variety of very demanding injection moulding and extrusion applications. This experience has also demonstrated the cost-effectiveness of the products and the benefits of being able to choose a specialist product from the range to meet individual requirements.

Applications

The Genitron EP products are widely used in the injection moulding and extrusion of cellular

- polyolefins
- styrenics
- PVC
- engineering thermoplastics

Genitron EP blowing agents are therefore used in a wide variety of applications which include:

- wood and metal replacement, e.g. electrical equipment housings and automotive components
- integral skin and thin walled mouldings, e.g. domestic items
- cross-linked injection moulding, e.g. EVM tyres and shoe soles
- cellular cable insulation, e.g. telephone transmission and coaxial cables
- extruded profiles, e.g. pipes and building materials
- avoidance of sink marks in injection moulded items

The Genitron EP blowing agents can be used in a wide variety of polymers at processing temperatures of 150 - 230 °C depending on the product.

Addition levels of these products will vary according to the density of the foam required and are typically:

- 0.4 - 1.0 % for foam applications
- 0.1 - 0.2 % for anti-sink applications.

When pelletised polymer is being used, a small quantity of an adhesion promoter (e.g. paraffinic oil) should be coated onto the pellets before adding the Genitron EP powder and tumble blending thoroughly.

PLASTIC ADDITIVES



Alternatively, the Genitron EP powder can be incorporated into the polymer using conventional melt compounding equipment to produce a pelletised masterbatch which can then be fed into the processing equipment. In this situation, however, it is essential that close control over the processing and stock temperature is maintained to avoid premature decomposition.

Handling

Any national requirements pertaining to the storage and segregation of packaged dangerous goods must be observed.

The product and product dust can, like powders in general, cause dust explosions. Conveyors, filling and weighing equipment must be earthed to prevent Genitron EP products becoming electrostatically charged. Genitron EP product dusts must not be allowed to settle in the workplace. When used in closed systems all equipment should be provided with adequate, unrestricted venting to ensure that internal pressure cannot build up in the event of accidental decomposition.

The gases formed when Genitron EP products decompose in the intended manner in plastic

compounds should be removed from the workplace by ventilation.

If handling Genitron EP products, direct contact with other blowing agent types and reactive chemicals, especially acids, alkalis and heavy metal salts, must be prevented; on contact with acids or alkalis, there is a risk of violent decomposition. Empty containers with residues of Genitron EP products must never be used for other chemicals. Substance residues should be destroyed by controlled incineration in accordance with official regulations.

Should a Genitron EP product begin to decompose due to unforeseen circumstances, perceptible due to the appearance of dense smoke, it must be cooled down immediately to halt the decomposition reaction. Cooling is best achieved by spraying or sprinkling with plenty of water.

Inhalation of azodicarbonic acid diamide may cause sensitisation (asthmatic symptoms). The inhalation of Genitron EP product dusts should be avoided, i.e. by wearing a face mask. Further information can be found in the safety data sheet.

Registered Trademarks of Lanxess Deutschland GmbH:

Genitron

The above formulation is intended solely as a guide for our business partners and others interested in our products. As the conditions of use and application of the suggested formulation are beyond our control, it is imperative that it be tested to determine, to your satisfaction, whether it is suitable for your intended use(s) and application(s). This application-specific analysis at least must include testing to determine suitability from a technical, as well as health, safety and environmental standpoints. Further, although the ingredients, quantities thereof and properties of compounds or finished goods mentioned herein reflect our recommendation at the time of publication, this guide may not be subject to continuous review and/or updating, and you agree that use is undertaken at your sole risk. All information is given without warranty or guarantee, and it is expressly understood and agreed that you assume, and hereby expressly release us from, all liability, in tort, contract or otherwise, incurred in connection with the use of this guide.

This information and our technical advice - whether verbal, in writing or by the way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

Lanxess, D-51369 Leverkusen
Functional Chemicals High Performance Additives Plastic Additives

PLASTIC ADDITIVES

