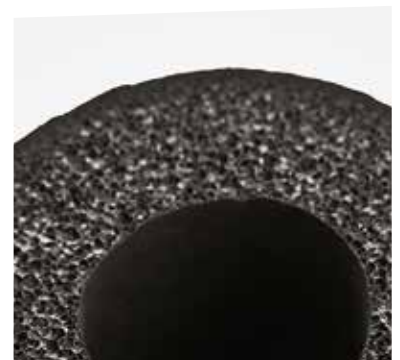


LUVOBATCH®

**Blowing Agent
Masterbatches**

for lighter plastics



Lehmann & Voss & Co.



LUVOBATCH® blowing agents get more out of your plastics

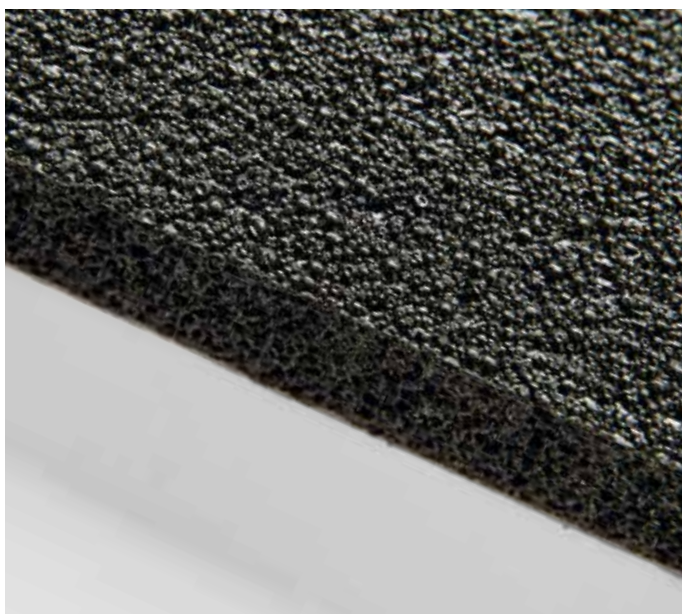
Chemical blowing agents are reactive additives that release gases during the processing of thermoplastics. Thus, they enable the production of foamed plastic for various applications. Gases develop by means of a thermally activated decomposition reaction that occurs during the processing of the masterbatch, generating a stable and defined plastic foam. With chemical blowing agents, a general distinction is made between endothermal and exothermal systems, each of which have different characteristics. Our experts will conduct a thorough consultation to determine which solution is the right one for your application.

Typical substances in chemical blowing agents include:

Endothermal:	Carbonates, mixtures with carbonates
Exothermal:	ADCA, OBSH, TSH

Our LUVOBATCH® products come in different forms:

- **Powder:** low dosing, handling disadvantages
- **Masterbatch (normal and microgranulate):** dust-free, precise dosing, good dispersion



Blowing agents are primarily used for purposes of density reduction, which enables weight reduction in the final product and lower costs. Additional and improved product qualities can be a further advantage in using chemical blowing agents.

Examples include:

- improved heat and noise insulation
- better dielectric properties
- improved impact-absorbing properties
- prevention of sink marks in the injection mold
- decorative effects.

The products named in this brochure reflect only a fraction of our portfolio.
We specialize in products that meet your requirements.

Endothermal LUVOBATCH® blowing agents for controlled reaction

When exposed to heat and shear these blowing agents decompose and release non-toxic gases. In many cases these gases are carbon dioxide and water vapor – the most common active agents are carbonates and carboxylic acids. Since externally supplied heat is consumed during the reaction, these products are called endothermal blowing agents. The advantage with these products is that gas formation stops any time when the energy supply is interrupted and can be restarted in a controlled manner.

- Gas yield approx. 100 – 130 ml/g
- Higher dosing quantities compared to exothermal blowing agents
- May require greater chromium content in the tool (with high citrate component)
- Possible blooming effects
- Controlled foaming process
- Very fine cell structure
- Shorter cycle times
- Reduced streaking
- Prevention of post-expansion
- **Approved for food packaging**

Endothermal blowing agents

LUVOBATCH®		Form	Approx. blowing agent content [%]	Decomposition temperature [°C]	Gas yield [ml/g]	Recommended processing temperature	Recommended dosage	Examples of use
UC BA 1006	Granulate	20	170	30	> 180	0.1 – 1.5% 1.5 – 4.0% 0.2 – 3.0%	Sink marks TSG Extrusion	
PE BA 9060	Granulate	70	145	110	> 220	0.1 – 0.5% 1.0 – 3.0% 1.0 – 3.0%	Sink marks TSG Extrusion	
PE BA 9537	Micro-granulate	20	140	20	> 180	0.2 – 3.0% 0.2 – 3.0% 0.2 – 1.0%	Plate, pipe, profile, and film extrusion, Blow molds and cable sheathing Nucleating agent for physical foaming	
PE BA 9539	Granulate	66	150	70	> 180	0.2 – 2.5% 0.2 – 2.5% 1.5 – 3.0% 0.1 – 2.0% 0.5 – 3.0%	Plate, pipe, profile, and film extrusion, Blow molds and cable sheathing TSG, internal gas pressure, weight reduction	
EV BA 9546	Granulate	20	140	20	> 170	0.5 – 2.0% 0.5 – 2.0% 0.1 – 0.5%	Extrusion Injection molding Nucleation	

Exothermal LUVOBATCH® blowing agents for high pressure

Upon initiation by irradiation, heat or other forms of energy, exothermal blowing agents release during their composition heat and gases such as nitrogen, carbon dioxide, or ammonia. Here, the active agents are primarily azodicarbonamide and sulfohydrazide. Exothermal blowing agents are widely used in the industry because of their high effectivity and good foaming results.

- Gas yield approx. 220 ml/g for azodicarbonamide
- Low dosing quantities (see comparison to endothermal)
- Even gas distribution
- Not corrosive
- No blooming
- **NOT approved for food packaging**

Exothermal blowing agents

LUVOBATCH®		Form	Approx. blowing agent content [%]	Decomposition temperature [°C]	Gas yield [ml/g]	Recommended processing temperature	Recommended dosage	Examples of use
EV BA 5391	Micro-granulate	45	160	120	> 180	0.2 – 0.6 phr	Extrusion of hard PVC in pipe, plate and profile	
EV BA 5322	Micro-granulate	50	155	120	> 180	0.2 – 0.6 phr	Extrusion of hard PVC, especially foam core pipe	
PV BA 9791	Compac-tate	70	160	165	> 180	0.2 – 0.8 phr	Extrusion of hard PVC, especially foam core pipe	
EV BA 5056	Granulate	39	150	90	> 170	0.4 – 0.7% 1.0 – 2.0% 1.5 – 3.0%	Foam core pipes Free-foam plates Celuka profiles	
PW BA 9507	Powder	80	145	180	> 160	0.5 – 21.5%	Extrusion	

Combinations and nucleated blowing agents for fine structures

Mixtures of exothermal and endothermal blowing agents

Combining the advantages of both action principles, we also offer mixtures of endothermal and exothermal blowing agents. These masterbatches are optimally customized to your application and your needs. An additional effect is the finer foam structure that arises through the interaction of different blowing agents.

Combinations

LUVOBATCH®		Form	Approx. blowing agent content [%]	Decomposition temperature [°C]	Gas yield [ml/g]	Recommended processing temperature	Recommended dosage	Examples of use
UC BA 1065	Granulate	37	180	75	> 180	< 0.5% 1.0 – 2.0% 1.0 – 2.0%	Sink marks TSG Extrusion	
EV BA 9341	Granulate / Micro-granulate	65	145	110	> 160	0.1 – 0.2% 1.0 – 2.0% 0.5 – 3.0%	Sink marks TSG Extrusion	
PE BA 9551 mikro	Micro-granulate	40	145	75	> 170	0.5 – 0.8 phr 1.0 – 2.0 phr 1.5 – 3.0 phr	Foam core pipes Free-foam plates Celuka profiles	

Chemical blowing agents as nucleation for physical and chemical foaming

The nucleating properties of chemical blowing agents enables the physical and chemical foaming to achieve a smoother and finer foam structure, thus optimizing the properties of their components. Nucleation provides the optimal combination of both technologies when particularly smooth foams with extra fine cells are required.

Nucleation

LUVOBATCH®		Form	Approx. blowing agent content [%]	Decomposition temperature [°C]	Gas yield [ml/g]	Recommended processing temperature	Recommended dosage	Examples of use
PE BA 1096	Granulate	20	155	25	> 180	0.1 – 1.5% 1.5 – 4.0% 0.1 – 1%	Sink marks TSG Extrusion Nucleation	
PW NUK 1143	Powder	100	130	150	> 160	0.3 – 1.0% 0.5 – 2.0%	Extrusion Nucleation	

Contact us:

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