

Colour and Additive Preparations

for Extruded Polyolefin Foams

COLOUR AND ADDITIVE PREPARATION FOR EXTRUDED POLYOLEFIN FOAMS

 <p>GABRIEL-CHEMIE GROUP</p>	<p>ADDITIVES for POLYOLEFIN FOAM</p>
<p>HP 73940 FR</p>	<p>Flame retardant masterbatch for LDPE-films, -profiles and -foams.</p>
<p>HP 72521 FR</p>	<p>Flame retardant masterbatch for polyethylene and polypropylene films, profiles and foams, with increased thermal stability.</p>
<p>HP 791150 GL</p>	<p>Lubricant masterbatch for polyolefin foam, when blowing gas is hydrocarbon, to minimize/eliminate the tendency to shrink.</p>
<p>HP 790390 GL</p>	<p>Lubricant masterbatch for polyolefin foam, when blowing gas is partly halogenated, to minimize/eliminate the tendency to shrink.</p>
<p>HP 73310 GLNU</p>	<p>Lubricant/nucleating masterbatch for polyolefin foam, when blowing gas is hydrocarbon, to minimize/eliminate the tendency to shrink.</p>
<p>HP 78690/40 NU</p>	<p>Inorganic nucleating masterbatch for polyolefin foam to obtain a fine cell structure.</p>
<p>HP 793690 NU</p>	<p>Inorganic nucleating masterbatch for polyolefin foam with higher concentration of active substance.</p>
<p>HP 78810/40 TR</p>	<p>Endothermic blowing agent masterbatch to achieve very fine cell structure for the production of foamed polyolefin articles.</p>
<p>HP 78810/20 TR</p>	<p>Endothermic blowing agent masterbatch to achieve very fine cell structure in polyolefin foams, with reduced content of active substance for fine dosage.</p>
<p>HP 790230 ZR</p>	<p>Additive masterbatch for regulating the cell structure and reduction of thermal conductivity (for polyolefin foam).</p>

COLOUR AND ADDITIVE PREPARATION FOR EXTRUDED POLYOLEFIN FOAMS

Physically driven Polyolefin Foams

Gabriel-Chemie Ges.m.b.H. is one of the leading European producers of a complete range of colour and additive masterbatches for the manufacture of Polyolefin foams. All our products were developed and permanently optimized in direct contact with foam producers in extended trials on industrial scale foam production lines.

Following the demand of our customers, we offer masterbatches containing only one additive as well as such masterbatches, which contain combinations of additives in a well balanced ratio.

For a better understanding of our product range, we provide the following information:

1. What is physically driven Polyolefin foam?

Two methods of polymer foaming exist:

- A) Chemical foaming, arising in the polymer melt from thermal decomposition of gas generating chemicals. Usually foam weights of 500 to 600 kgs/m³ are achieved. Lower weight is possible by using specialized processes (cross linking) only.

- B) Physical foaming, where a blowing gas – usually low hydrocarbons (C₄, C₅) – is dosed directly into the polymer melt. Physical foaming offers advantages in process costs and – control as well, comparing to the chemical foaming, and allows very low foam weights (20-30 kg/m³) in most cases.

2. Which additives are necessary for foaming of Polyolefins?

- a) Nucleating agents (organic and/or inorganic)
- b) Anticollapsing agents
- c) Flame retardant, if required
- d) Additives to reduce temperature conductivity, if required
- e) Colour, if required

May we explain each additive as follows:

ad a)

Nucleating agents, inorganic

Basically, nucleating agents allow a homogenous dispersion of the blowing gas in the polymer melt. They consist of very tiny mineralic particles, which act following the “hot spot-principle”. That means, that the particles collect the heat in the extruder faster than the surrounding polymer melt and act as contact links for the blowing gas, brought in at the next section of the extruder (nuclei).

The finer the nucleating agents are and the more homogenous they are in the melt, the better the

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Nucleating agents, organic

Another principle is found at organic nucleating agents. They decompose during extrusion process, generating finest CO₂-bubbles, which are linking and distributing into the melt the blowing gas, dosed in at the next extruder section.

Tendentiously, organic nucleating agents lead to finer celled foams than inorganic agents, but sensitivity of the process is higher than with inorganics.

ad b) Anticollapsing agents

Polyolefins, mainly LDPE, give soft foams. Right after originating the foam the so called “gas exchange process” starts on the foam, which means, that the blowing gas inside the foam begins to diffuse out of the cells and is replaced by atmospheric gas. This is a naturally occurring process and takes up to some weeks, depending on environmental temperature and pressure. If the foam is not equipped enough with anticollapse agent, it shrinks irreversibly, due to the phenomenon that blowing gas disappears faster than it can be replaced by atmospheric gas. To avoid this phenomenon, anticollapse agent is necessary to be added as masterbatch.

ad c) Flame retardant

Depending on the final application, the polymer foam has to contain flame retardant. Specific regulations about flame resistance of foams exist in most countries.

Decisive characteristics of flame retardants besides their flame resistance are their “thermal stability” and “economy”.

Usually, flame retardants are instable compounds. It is essential to find the right compromise between flame retardancy and thermal stability. We carefully consider this aspect in our products.

Depending on the sort of Polyolefin (Polyethylene or Polypropylene) and to the foam produced out of it, we offer individually designed masterbatches. All of them perform in high thermal stability which gives maximum protection against corrosion of the production line and high recycleability of foam remainings in the process.

ad d) Additives to reduce heat conductivity

The ability of thermal isolation (λ -value) of Polyethylene foam can be increased considerably by adding very particular metal pigments. They influence the cell structure of the foam and hinder the heat radiation to pass through the polymer matrix.

ad e) Colour

It is important to use such colours, which do not interact – disadvantageously – with the additives, necessary for the foam process. They have to be as thermal resistant as to withstand the conditions during production and recycling, and they must have such small particle size, that no influence or

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3. The Maxithen – product range

NUCLEATING AGENTS

- **Maxithen HP 78690/40 NU**
Inorganic nucleating agent, 40% active substance, in Polyethylene carrier.
- **Maxithen HP 793690 NU**
Inorganic nucleating agent, 50% active substance, in Polyethylene carrier.
- **Maxithen HP 78810/40 TR**
Organic nucleating agent, 40% active substance, in Polyethylene carrier.
- **Maxithen HP 78810/20 TR**
Organic nucleating agent, 20% active substance, in Polyethylene carrier, for fine dosage for thin foam films.

ANTICOLLAPSING AGENTS

- **Maxithen HP 791150 GL**
Based on fatty acid ester, in Polyethylene carrier. Main application, when blowing gas is Hydrocarbon.
- **Maxithen HP 790390 GL**
For such cases, when blowing gas is (partly) halogenated Hydrocarbon.

COMBINATION OF NUCLEATING AGENT AND ANTICOLLAPSING AGENT

- **Maxithen HP 73310 GLNU**
Well balanced ratio of inorganic nucleating agent and anticollapsing agent, in Polyethylene carrier.

FLAME RETARDANTS

- **Maxithen HP 73940 FR**
Halogenated compound with synergist, in Polyethylene carrier.
Thermal stable until 240°C.
- **Maxithen HP 72521 FR**
Halogenated compound with synergist, in Polyethylene carrier. Thermal stable until approx. 260°C, for Polyethylene – and Polypropylene foam.

ADDITIVES FOR REDUCTION OF THERMAL CONDUCTIVITY

- **Maxithen HP 790230 ZR**
Standard – cell regulator for fine cell structure, contains special metal particles in Polyethylene carrier, for $\lambda \leq 0,04$ (DIN).

COLOUR BATCHES

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General Information

It is our aim to widely assist our customers in solving their specific problems, occurring in the extrusion of Polyolefin foams.

In cases of change of technology, questions about production process and foam properties we are able to give reliable support.

We recommend our customers to contact us individually for formulations, since they depend highly on many different process parameters (type and size of the line, type of final product, basic properties of the polymer resin etc.). Hence it is not possible to give general formulations on this place.

Please contact optionally the following persons, directly under these phone numbers:

+43(0)2252/63630-0, Fax +43(0)2252/63660

Mr. Jürgen Link - Head of Technical Development

Mr. Gerhard Steiger - Product Manager Polymer Foam Additives

or send your e-mail to office@gabriel-chemie.com

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MAXITHEN® HP 73940 FR

Flame Retardant Masterbatch for Polyethylene

- FORM OF SUPPLY:** Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
- COLOUR:** Whitish-beige
- ACTIVE AGENT:** Halogenated flame retardant in combination with a synergist. The preparation can be used under conventional processing conditions at temperatures up to 220°C.
- CARRIER MATERIAL:** Low-density Polyethylene
- APPLICATION:** MAXITHEN® HP 73940 FR is designed as a flame retardant for polyethylene, especially for film, profiles, injection moulding and foamed articles.
- INFLUENCES:** The flammability of polymers is considerably influenced not only by the polymer type itself, but also to a large extent by the wall thickness, the pigmentation, by the position of the heat source and exposure time, the physical construction of the final article as well as by the homogeneous distribution of the flame retardant in the final article.
- DOSAGE RATE:** For film between 5% and 20%, depending on the wall thickness and on the demanded flame retardancy. In order to achieve flammability rating B2 according to DIN 4102 6% are mostly sufficient. Rating B1 requires approx. 15%.
For extrusion and injection moulding of thick walled articles (> 1,5 mm) we recommend approx. 20% to achieve UL 94 V2 or DIN 4102 B2.
For insulation PE-foam 3% to 10% are usually used, depending on the requested flame retardant classification, the final article and the applied blowing gas. In special cases the necessary dosage rate may be higher.

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MAXITHEN® HP 73940 FR

Flame Retardant Masterbatch for Polyethylene

ADDITIONAL INFORMATION

In case of higher dosage rate, the mechanical properties of the final article may be affected. If the article is coloured, a whitening effect on the colouration will be observed. Therefore corresponding tests are recommended. Depending on the type of stabiliser a dramatic reduction of light stability must be expected, if light stabilisers are added. For selecting suitable UV-stabilisers we recommend to contact our technical service department. Interaction with other additives like lubricants or antistatic agents could also occur.

PRECAUTIONS:

In case of acidic gas formation or commencing discolouration, the machine must be emptied and purged. Ensure good ventilation - vapours should not be inhaled!!

STORAGE CONDITIONS:

Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use. MAXITHEN® HP 73940 FR can show a tendency to form lumps (product inherent property). We recommend not to staple pallets on top of each other. Destroy lumps before using MAXITHEN® HP 73940 FR. If necessary protect feeding units (funnel) from blockage by using grid inserts.

All information in this MAXITHEN® data sheet has been obtained from laboratory tests under ideal and closely controlled conditions. The information should act as a guide only and should not be construed as guaranteeing specific properties or suitability for a particular application. Therefore, trials by customers using their polymers and their conditions are highly recommended.

Gumpoldskirchen, December 2002

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MAXITHEN® HP 72521 FR

Universal Flame Retardant Masterbatch

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

COLOUR: Whitish

ACTIVE AGENT: Brominated flame retardant without Decabrominediphenyloxyde. The preparation can be used at conventional processing conditions up to 280°C.

CARRIER - MATERIAL: Universal thermoplast

APPLICATION: MAXITHEN® HP 72521 FR is designed as flame retardant for polyolefins for use in e.g. tapes, coating, pipes and injected moulded articles.

GENERAL NOTES: The flammability of polymers is considerably influenced not only by the polymer type itself, but also to a large extent by the wall-thickness, the pigmentation, the physical construction of the final article, by the position of the heat source and exposure time to it. Furthermore by the type and amount of energy delivered as well as by the homogenous distribution of the flame retardant in the final article.

DOSAGE RATE: The dosage rate is usually between 5 and 25 %, in some cases up to 30%

Application	Recommended dosage rate
Polyethylene coating	5-15%
Polyethylene Polypropylene tapes	5-10%
Polyethylene film	5-15%
Polyolefin thick-walled products (wall-thickness above 1mm)	10-30%

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MAXITHEN® HP 72521 FR

Universal Flame Retardant Masterbatch

NOTE: Flame retardants are generally thermally unstable and should be protected as far as possible against excessive heat and long residence time in the extruder. In our experience, with proper handling, there will not be any problems.

Serious corrosion of the machinery will occur if the decomposition temperature is exceeded.

PRECAUTIONS: In case of acidic gas formation, the machine must be emptied and purged. Ensure good ventilation - vapours should not be inhaled.

FURTHER INFORMATION: In case of higher dosage rates the mechanical properties of the final article may be affected.

If the article is coloured a whitening effect on the colouration will be observed. Under light exposure pale colour shades may show colour variations. We recommend corresponding trials on the final article when using high dosages. If light stabilisers are added, a dramatic reduction of light stability must be expected depending on the type of stabiliser. For selecting suitable UV-stabilisers we recommend to contact our Technical Service Department. Interaction with other additives like lubricants or antistatic agents can also have an effect.

STORAGE CONDITIONS: Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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MAXITHEN[®] HP 791150 GL

Lubricant Masterbatch For PE-Foam

FORM OF SUPPLY:	Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN [®] colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
COLOUR:	Natural
ACTIVE AGENT:	Highly effective lubricant for polyethylene foam
CARRIER - MATERIAL:	Polyethylene blend
APPLICATION:	<p>MAXITHEN[®] HP 791150 GL is primarily used as a lubricant and modifier for polyethylene foam, especially when the blowing gas is butane. By improving the gas exchange a collapse of the foam can be avoided.</p> <p>Addition of MAXITHEN[®] HP 78810/40 TR achieves the necessary regulation of the cell structure, often in combination with MAXITHEN[®] HP 790230 ZR.</p> <p>The shrinkage behaviour is positively influenced as well. A combination with MAXITHEN[®] HP 790020 GL can occasionally further improve the shrinkage behaviour.</p>
DOSAGE RATE:	The typical dosage rate is between 1% and 3%, in special cases even above.
STORAGE CONDITIONS:	Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

All information in this MAXITHEN[®] data sheet has been obtained from laboratory tests under ideal and closely controlled conditions. The information should act as a guide only and should not be construed as guaranteeing specific properties or suitability for a particular application. Therefore, trials by customers using their polymers and their conditions are highly recommended.

Replaces data sheet from December 1997
Gumpoldskirchen, January 2002

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MAXITHEN® HP 790390 GL

Lubricant Masterbatch for PE Foam

- FORM OF SUPPLY:** Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
- COLOUR:** Natural
- ACTIVE AGENT:** Highly effective lubricant for polyethylene foam
- CARRIER - MATERIAL:** Polyethylene blend
- APPLICATION:** MAXITHEN® HP 790390 GL is used as a lubricant and modifier for polyethylene foams, especially when HCFC is applied as the blowing gas. By improving the gas exchange a collapse of the foam can be avoided. The necessary regulation of the cell structure is preferably achieved by adding MAXITHEN® HP 78810/40 TR, often in combination with MAXITHEN® HP 790230 ZR. The tendency to shrink is positively influenced as well. Further improvements in this respect can be achieved by combining MAXITHEN® HP 790390 GL with MAXITHEN® HP 790020 GL.
- DOSAGE:** The typical dosage is between 1 and 4%, in special cases even above.
- STORAGE CONDITIONS:** Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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MAXITHEN® HP 73310 GLNU

Lubricant/Nucleating-Masterbatch for PE Foam

- FORM OF SUPPLY:** Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising of the packing material, a combined MAXITHEN® color/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
- ACTIVE AGENT:** Combination of a lubricant with an inorganic nucleating agent
- COLOUR:** Beige - grey
- CARRIER MATERIAL:** Polyethylene
- APPLICATION:** This product is primarily applied in polyethylene-foam, which is foamed with butane.
Due to its composition HP 73310 GLNU prevents shrinkage and collapse and achieves a nucleating effect.
If the cell structure is not fine enough, we recommend a combination with MAXITHEN® HP 78810/40 TR (foam pipe) or MAXITHEN® HP 78690/40 NU (foam films).
- DOSAGE:** The dosage rate is usually between 5-7% for PE-foam pipes and 3-5% for film.
- STORAGE CONDITIONS:** Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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MAXITHEN® HP 78690/40 NU

Nucleating Masterbatch

- FORM OF SUPPLY:** Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
- COLOUR:** Whitish to light grey
- ACTIVE AGENT:** Preparation based on an inorganic filler with very fine particle size in combination with antioxidants in order to avoid degradation of the polymer.
- CARRIER MATERIAL:** Polyethylene
- APPLICATION:** The finely dispersed filler contained is distributed homogeneously in the melt and because of its better heat conduction compared to the polymer melt, forms „ hot spots“ to which the blowing gas preferably clings. In many cases it is favourable to combine MAXITHEN® HP 78690/40 NU with endothermic blowing agents (e.g. MAXITHEN® HP 78810/40 TR).
- DOSAGE RATE:** The typical dosage is between 1% and 3%, depending on the final article, the blowing gas and the desired cell structure.
- STORAGE CONDITIONS:** Storage time of 6 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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PRODUCT INFORMATION

MAXITHEN HP 793690 NU

Nucleating Masterbatch for PE foam

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 colouring and stabilising the packing material, a combined Maxithen colour / stabiliser masterbatch has been used to protect both, the packing material as well as the content.
COLOUR:	whitish up to pale grey
ACTIVE AGENT:	Preparation based on an inorganic, fine-particle filler
CARRIER MATERIAL:	Polyethylene
APPLICATION:	The contained fine-particle filler disperses homogeneously in the melt. Caused by better heat transfer of the filler compared to the polymer melt, one achieves hot spots on which the blowing gas builds up preferably. In many cases it is favourable to combine MAXITHEN HP 793690 NU with endothermic blowing agents (e.g. MAXITHEN HP 78810/40 TR).
DOSAGE RATE:	Typical dosage rate is between 1 % and 3 % - depending on final article, blowing gas and desired cell structure.
STORAGE CONDITIONS:	Storage time of 12 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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MAXITHEN® HP 78810/40 TR

Blowing Agent Masterbatch

- FORM OF SUPPLY:** Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content
- COLOUR:** Milky-white
- ACTIVE AGENT:** Endothermic blowing agent.
- CARRIER MATERIAL:** Polyethylene
- APPLICATION:** MAXITHEN® HP 78810/40 TR functions as a universal blowing agent for extrusion and injection moulding. This product is especially recommended to achieve a uniform and very fine cell structure.
- EXAMPLES:** In order to achieve a uniform, fine cell structure with physical foaming, the use of suitable auxiliary products is necessary.
MAXITHEN® HP 78810/40 TR contains an endothermic blowing agent and functions as an active nucleating compound, forming tiny gas bubbles during decomposition, leaving inorganic residue within the polymer that act as „ hot spots“ .
In PE foam a fine cell structure and an appropriate density is condition for low heat conductivity. Both parameters are to be achieved with MAXI-THEN® HP 78810/40 TR, especially in combination with MAXITHEN® HP 790230 ZR.
- DOSAGE RATE:** For PE foam typical dosage is between 1 and 2%, depending on blowing gas and processing conditions.
For XPS (extruded Polystyrene foam) the max. dosage is 1%.
MAXITHEN® HP 78810/40 TR can also be used to produce an integral foam structure. Typical dosage is above 1%.

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MAXITHEN® HP 78810/20 TR

Blowing Agent Masterbatch

FORM OF SUPPLY:	Masterbatch in pellet form, packed in UV stabilised 20/25kg PE bags, on pallets, covered with a UV stabilised hood (standard packing). For colouring and stabilising the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.
COLOUR:	White to pale yellow
ACTIVE AGENT:	Endothermic chemical blowing agent for the production of foam with fine cell structure.
CARRIER MATERIAL:	Low density PE
PHYSIOLOGICAL STATUS:	According to the BGA (Federal Health Agency, Germany) MAXITHEN® HP 78810/20 TR can be applied in dosages up to 7,5 % in PP or PE.
AREAS OF APPLICATION:	Preferably for application in film, tape and sheet: <ul style="list-style-type: none">• Wrapping film• Heat and sound insulation film• Decorative film or tape• Covering film• Foam sheet for vacuum formed packaging• Has the effect of a nucleating substance for foaming LDPE or PS with suitable blowing gas• Injection moulding of thick-walled parts• Blow moulding
APPLICATION:	A high melt temperature of approx. 210-230°C is important to achieve good foaming and homogeneous distribution. At the cylinder an increasing temperature profile should be set from the feed zone to the metering section. The foaming process (210-230°C) should already occur in the output zone,

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MAXITHEN® HP 78810/20 TR

Blowing Agent Masterbatch

STORAGE CONDITIONS:

Storage time of 6 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

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Gumpoldskirchen, March 1998

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MAXITHEN® HP 790230 ZR

Masterbatch for Tuning the Cell Structure

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 colouring and stabilising of the packing material, a combined MAXITHEN® colour/stabiliser masterbatch has been used to protect both, the packing material as well as the content.

COLOUR: Silver-grey

ACTIVE AGENT: Effect-pigment

CARRIER-MATERIAL: Polyethylene

APPLICATION: Depending on the final application, physically blown foams have to meet high requirements in terms of thermal conductivity. Many factors influence thermal conductivity, e.g. convection, heat radiation, thermal conductivity of the polymer and the blowing gas. MAXITHEN® HP 790230 ZR allows in PE-foams, in combination with MAXITHEN® HP 78810/40 TR, to obtain a very fine, even cell structure which influences parameters like gas-exchange and heat radiation. This may lead to lower thermal conductivity.

DOSAGE: Usually 1-2 %, in some cases up to 3 %

STORAGE CONDITIONS: Storage time of 6 months should not be exceeded. Particular attention should also be paid to a cool and dry storage and protection from sunlight. In order to prevent moisture absorption from the air, opened bags should be kept tightly closed. If necessary, goods should be dried before use.

BUSINESS UNITS OF GABRIEL-CHEMIE GROUP:



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Medical



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