

Goldschmidt Polyurethane Additives

TEGOSTAB® BF 2370

Polysiloxane polyoxyalkylene block copolymer to be used as a foam stabilizer in the manufacturing process of flexible polyurethane slabstock and molded foams.

| Physical Properties | |
|------------------------------------|------------------------|
| Viscosity (25 °C) | 1,150 ± 150 mPas |
| Specific gravity (25 °C) | 1.05 g/cm ³ |
| pH-value (4 % hydrous solution) | 10.3 |
| Cloud point (4 % hydrous solution) | 37 °C |

Instructions for Storage

For TEGOSTAB® B 2370 we guarantee a shelf life of at least 6 months upon delivery under the condition, that it is stored in factory-packed containers and protected against extreme weather conditions, particularly against heat and moisture. The solidification point of TEGOSTAB® B 2370 is below -20 °C. Storage at low temperatures is therefore principally no difficulty, it is, however, recommended to warm up undercooled material until close to ambient room temperature before use.

Application

TEGOSTAB® BF 2370 is a foam stabilizer of medium activity. Processing latitude and activity of this product are well balanced, so that it can be applied for both, the manufacture of flexible slabstock and molded polyurethane foams.

It fully meets the enhanced requirements of formulations for molded foams concerning a broad processing latitude and open cell structure and it provides the stabilizing activity necessary for the manufacturing of slabstock foams at a reasonable and economic applied concentration.

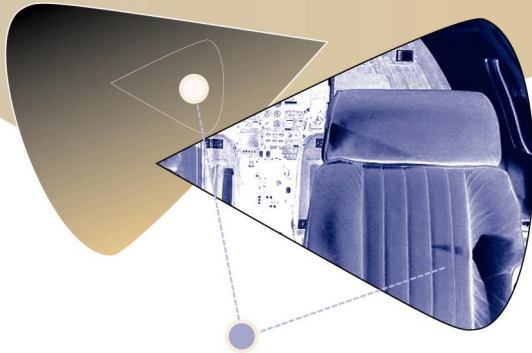
Stabilizing Molded Foam with TEGOSTAB® BF 2370

For two reasons formulations for molded foam are somewhat difficult to process with regard to stabilization. These are the enhanced reactivity which is due to the application of special polyols and raised starting temperature in the mold and the shape of the part to be produced. These parts often contain areas which are easy to stabilize because the foam can rise almost undisturbed, but also areas with a complex shape where the foam needs higher stabilizing support. In order to avoid foam defects caused by over- or unterstabilization, a foam stabilizer with a broad processing latitude – like TEGOSTAB® BF 2370 must be used.

The following example gives an idea about performance and application of TEGOSTAB® BF 2370. This standard formulation may also be used as a starting point for own developments.

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| | |
|--------|--|
| 100.00 | Polyol, OH-number 55, active type due to ethoxy groups in the molecule and about 50 % of primary OH-groups |
| 3.80 | water |
| 1.00 | TEGOSTAB® BF 2370 |
| 0.15 | TEGOAMIN® PMD |
| 0.11 | KOSMOS® 29 |
| 44.50 | TDI 80 |

| Physical Data of the Resulting Foams | |
|---|---------------------------------|
| Compression set acc. to DIN 53572 at 65 % compression at 70 °C/22 h | 4.0 % |
| Elongation | 150.0 % |
| ILD/25 % | 18.1 kg/ 314 cm ² |
| Ball rebound | 52.0 % |

Stabilizing Slabstock Foam with TEGOSTAB® BF 2370

The application of foam stabilizers with a broad processing latitude is advantageous in the slabstock foam process for many reasons. Reliable control of the process and the production of open celled foams become possible for a wide range of different reactivity. This brings a maximum degree of flexibility for the production, for example:

- application of different polyol types, be it for cost reasons or for achieving a specific combination of properties,
- variation of the catalysis in order to adjust the rising and curing time to the specific equipment,
- adaptation of formulations to the special requirements of rectangular block processes.

In all of these cases TEGOSTAB® BF 2370 ensures a safe processing.

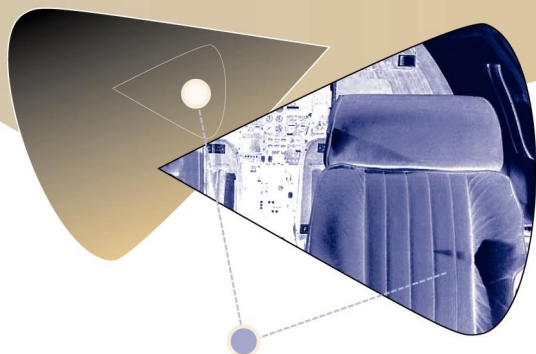
Regarding the positive influence on the physical properties of the produced foams, generally, the same interactions are valid as described before for molded foams.

An additional feature in the slabstock foam production is the distribution of the foam properties – in particular density and hardness – over the block cross section. It has been proven in the manufacturing process that a more uniform distribution is achieved by using a foam stabilizer with a broad processing latitude.

The performance and the versatility of TEGOSTAB® BF 2370 are illustrated in the following examples of formulations.

It is obvious that the rise time can be varied in a very wide range by modifying the amine catalysis accordingly. This is possible for formulations with very different compositions.

| | | | |
|------------------------------|-------------|-----------|--------------|
| Polyol, OH-number 47 | 100 | 100 | 100 |
| TDI 80 | 38.1 | 48.3 | 63.5 |
| Water | 3.0 | 4.0 | 5.5 |
| TEGOSTAB® BF 2370 | 0.8 | 1.0 | 1.9 |
| KOSMOS® 29 | 0.20 | 0.20 | 0.35 |
| TEGOAMIN® B 75 | 0.10 - 0.15 | 0.1 - 0.2 | 0.075 - 0.10 |
| Methylene chloride | - | - | 15 |
| Rise time (sec.) | 106 - 84 | 93 - 88 | 87 - 73 |
| Density (kg/m ³) | 31.5 | 24.0 | 13.8 |



Tin catalysis is often used as an instrument for making the production process sufficiently safe. Such modifications of the concentration should, however, be of negligible influence on density and porosity of the foam, like it is defined by the so-called stannous octoate latitude. The performance of TEGOSTAB® BF 2370 in this respect is illustrated by the following example:

| | |
|-----------------------|-----------|
| Polyol (OH-number 45) | 100.0 |
| Water | 4.05 |
| TEGOSTAB® BF 2370 | 1.00 |
| TEGOAMIN® DMEA | 0.15 |
| NEM | 0.05 |
| KOSMOS® 29 | x |
| TDI 80 | Index 110 |

Faultless foams without any splits were obtained in a range of $x = 0.17$ to 0.24 at no significant change of density and open celled structure. This means that the stannous octoate latitude achieved with TEGOSTAB® BF 2370 is about twice the value of a stabilizer in the class with higher activity, where at similar foaming conditions the range of variations was $x = 0.16$ to 0.19 .

The figures given in all of the above formulations refer to parts by weight.

Packing

210 kg iron drums
1 000 kg plastic containers

For Information

- on classification and labeling in accordance with shipping instructions and the Toxic Substances Control Act
- on protective measures during storage and handling
- on measures in case of accidents and fire
- on toxicology and ecological toxicity

please refer to our safety data sheets.

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