

## TEGOSTAB® BF 2470

TEGOSTAB® BF 2470 is a polysiloxane polyoxyalkylene block copolymer that can be used as a foam stabilizer for the production of flexible polyurethane slabstock and hot-cure molded foams.

### Physical Properties

Viscosity (25 °C)	1 100 – 1 600 mPas
Specific gravity (25 °C)	1.01 – 1.03 g/cm <sup>3</sup>
Cloud point (4 % hydrous solution)	37 – 46 °C
pH (4 % hydrous solution)	6.4 – 8.4

### Instructions for Storage

The storage stability of TEGOSTAB® BF 2470 is guaranteed to be a minimum of 12 months from date of delivery, provided the product is stored in factory-sealed containers and protected from extreme weather conditions, particularly heat and humidity.

The solidification point of TEGOSTAB® BF 2470 is below -20 °C. Hence, storage at low temperatures is typically not a problem. It is however, recommended that prior to use, cold product should be adjusted approximately to room temperature.

### Application

TEGOSTAB® BF 2470 is a highly active foam stabilizer whose performance in terms of activity and processing safety provides benefits for the optimization of formulations used in the production of flexible polyurethane slabstock and molded foams.

TEGOSTAB® BF 2470 fully meets the difficult requirements of molded foam formulations in terms of processing tolerance and open cell structure. At the same time, cost-effective levels of TEGOSTAB® BF 2470 can be used in slabstock formulations to achieve the necessary stabilizing activity while still maintaining broad control of foam porosity.

### Stabilization of Slabstock Foam with TEGOSTAB® BF 2470

The use of a foam stabilizer with a broad performance characteristic provides several advantages for the slabstock foam production process. Safe process control and the production of open-cell foam is possible across a wide range of different reactivities.

A very high degree of production flexibility can be achieved, such as:

- use of different polyol types to optimize formulation cost or to achieve a special combination of foam properties,
- variation of catalysis to adapt the rise time and cure time to the conditions of the plant.
- adjustment of formulations to the special conditions of rectangular slab processes.

In all of these cases, TEGOSTAB® BF 2470 provides for safe processing.

In Planiblock processes, the use of TEGOSTAB® BF 2470 provides a particularly smooth surface that is essential for the reduction of trim losses.

The excellent nucleation support provided by TEGOSTAB® BF 2470 results in the production of very fine celled low density soft foams when used in commercial liquid CO<sub>2</sub> processes.

TEGOSTAB® BF 2470 also performs well in the manufacture of sponge foams, helping to achieve a very irregular cell structure with defoaming additives for improved water absorption.

In slabstock foams, the distribution of the foam properties – particularly density and hardness – across the slab cross section is of special importance. Foam stabilizers that have a broad processing characteristic like TEGOSTAB® BF 2470 have shown to be effective at minimizing this distribution of foam properties.

The following formulation examples demonstrate the effectiveness and broad applicability of TEGOSTAB® BF 2470 in further detail.

A desired rise profile can be achieved by systematically changing the amine catalysis over a very wide range and in completely different formulation designs.

Polyol	100 (OHN 42)	100 (OHN 47)	100 (OHN 47)	100 (OHN 47)
TDI 80	24.0	38.1	48.3	63.5
Water	1.5	3.0	4.0	5.5
TEGOSTAB® BF 2470	0.6	0.8	0.9	1.7
KOSMOS® 29	0.10	0.20	0.20	0.35
TEGOAMIN® B 75	0.85*	0.1 – 0.15	0.10 – 0.20	0.075 – 0.10
Methylene chloride	-	-	-	15
Rise time (sec)	200 – 180	106 – 84	93 – 88	87 – 73
Density (kg/m <sup>3</sup> )	55.0	31.5	24.0	13.8

\*TEGOAMIN® DMEA

Frequently, tin catalysis is used as a tool to improve the reliability of foam production. The broader the changes in tin catalyst concentration without dramatically influencing foam porosity and density, the broader the stannous octoate tolerance provided by the surfactant. The performance of TEGOSTAB® BF 2470 in this regard can be illustrated by the following formulation example.

Polyol (OHN 47)	100.0
Water	4.0
TEGOSTAB® BF 2470	1.00
TEGOAMIN® DMEA	0.15
KOSMOS® 29	x
TDI 80	Index 115

Perfect crack-free foams without any appreciable change in density and open-cell structure were obtained in a range of  $x = 0.13 - 0.32$ . The stannous octoate tolerance obtained with TEGOSTAB® BF 2470 is found to be appreciably greater than with TEGOSTAB® BF 2370, for which a variation range of  $x = 0.17 - 0.24$  was found under the same foaming conditions.

This implies that TEGOSTAB® BF 2470 has broad applicability over a much wider range of foam densities, including practically all commercially available foam qualities.

### **Stabilization of Hot-Cure Molded Foam with TEGOSTAB® BF 2470**

With regard to stabilization, molded foam formulations are generally problematic for two reasons: first, the increased reactivity due to the use of special polyols and the typically high temperatures in the mold at the start of the reaction, and second, the contours of the mold and the desired reaction profile to fill the mold without voids. The molding process often consists of readily stabilized zones in which the foam can rise relatively unhindered, and also partial zones with complex shapes in which the expanding foam is sheared and must be stabilized to a greater extent. To prevent foam defects from forming due to too much or too little stabilization, a foam stabilizer with a broad processing range, such as that provided by TEGOSTAB® BF 2470, must be used.

### **Packaging**

210 kg iron drums  
1 000 kg plastic container

### **Information concerning**

- classification and labelling according to regulations for transport of chemicals
- protective measures for storage and handling
- measures in case of accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

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