SOLVAY

asking more from chemistry®

SOLKANE®

# IXOL® B251

## Reactive Flame-Retardant for Rigid Polyurethanes

## IXOL® B251
## The High Performance Flame Retardant

Thermal insulation is part of the state-of-the art way of construction, be it for individual houses, commercial complexes, industrial structures or public buildings.

In this area rigid polyurethane foams (PUR) are established as the most efficient thermal insulation material that is manufactured on industrial scale. The outstanding characteristics of this cellular material are becoming nowadays a major item because of the necessity to protect our environment, in particular by reducing the emissions of greenhouse gases through a lower energy consumption (reduction of carbon dioxide emissions).

For obvious safety reasons, rigid polyurethane foams must comply with various standardized tests defined by national or international institutions. IXOL® B251 gives the possibility to produce rigid polyurethane foams which can achieve the requirements of many European and American tests (ASTM E-84). Rigid polyurethane foams formulated with IXOL® B251 can in particular pass the following tests.

| Performance | Europe EN 13501-1 SBI Test EN 13823 | Germany DIN 4102/ ISO 11925-2 | France NFP 92-501 | UK BS 476 - 6 & 7 |
|---|---|---|---|---|
| Flammability Performance | A | A1 | M0 | |
| | | A2 | | 0 |
| | B | B1 | M1 | |
| | C | | | 1 |
| | D | B2 | M2 | |
| | E | | M3 | 2 |
| | F | B3 | | 3 |

IXOL® B251 is also suitable for the development of formulations having high fire performance according to the new European standard based on the Single Burning Item (SBI) test. As example, formulations containing the polyol IXOL® B251 can lead to the manufacture of sandwich panels with a class B according to the European classification. This is the highest level that can be achieved by polyurethane foams.

The polyol IXOL® B251 does not affect the thermal insulation characteristics of the foam or its mechanical properties. It can therefore be used in various concentrations in combination with standard polyether or polyester polyols. IXOL® B251 is also suitable for manufacturing of modified isocyanurate polyurethane foams (PUIR: also known as low index polyisocyanurate foams).

## IXOL® B251
## A High Standard in Fire Safety

IXOL® B251 is a brominated aliphatic polyether triol, particularly well suited for the production of rigid polyurethane foams. It has a moderate viscosity and a good compatibility with the main conventional polyols (polyether or polyesters). Besides, IXOL® B251 gives a permanent flame retardant effect since the active component (bromine) is chemically bound to the final polymer.

The polyol IXOL® B251 can be used with the new generation of blowing agents. In particular, the combination of IXOL® B251 with our third generation blowing agent SOLKANE® 365/227 can lead to foams offering an outstanding fire behavior and excellent insulation properties. In addition, the polyol IXOL® B251 can be used in foams blown with flammable blowing agents such as pentane derivatives. In that case, the high performance of that polyol can improve the fire behavior of the foam in spite of the high flammability of pentane isomers.

## General Characteristics*

| | | |
|---|---|---|
| **Density at 25 °C** | g/cm$^3$ | 1.580 |
| **Viscosity at 25 °C** | mPa · s | 7.000 |
| **Hydroxyl number** | mg KOH/g | 330 |
| **Acidity** | mg KOH/g | < 0.3 |
| **Water content** | wt-% | < 0.2 |
| **Bromine** | wt-% | ≈ 31.5 |
| **Chlorine** | wt-% | ≈ 6.9 |
| **Appearance** | | dark-brown liquid |

*These values are given as an indication and do not represent sales guarantees. Sales guarantees are available on request.

## IXOL® B251 Broad Areas of Applications

The polyol IXOL® B251 is compatible with all usual polyols and with non reactive flame retardants such as phosphoric acid esters. It presents moreover useful synergism with these compounds.

The use of IXOL® B251 offers therefore considerable flexibility in formulation.

Nevertheless, system houses are advised to check that their formulations do not alter with time whenever a long term stability of the polyol blend is required.

Furthermore, formulations containing the polyol IXOL® B251 can be used in the most varied processing techniques such as e.g.:

- Injection moulding in “sandwich” plates for the manufacture of cladding panels or elements for cooling chambers and cold stores
- Continuous production of panels (laminates) according to the so-called “double conveyor” technique
- Manufacture of blocks which can be shaped or cut into plates
- In-situ projection or cast molding for roof tightening and insulation, vertical or under-face insulation

For one-component foams and high index polyisocyanurate foams, we also offer IXOL® M125, a diol with a lower hydroxyl number and a lower viscosity. A specific documentation on this other IXOL® type is available on request.

## IXOL® B251 Packaging and Storage

IXOL® B251 is delivered in:

- Drums of 300 kg net
- Intermediate bulk containers (IBC) of 1.5 t net
- IXOL® B251 is also delivered in road tankers, 20 mt (only Europe).

IXOL® B251 polyol is non corrosive under normal storage conditions. Since it is hygroscopic it should be kept in a closed container.

No particular precautions are required for the transport and storage of this polyol. Normal steel containers may be used. It is advised, however, not to use tin-plated steel containers.

The shelf life of IXOL® B251 is two years from packaging date in original unopened drum or IBC, provided the storage temperature will not exceed 25 °C.

Heating IXOL® B251 polyol above 50 °C must be avoided because this may promote its acidification.

IXOL® B251 can be considered as a moderately harmful product.

Therefore, its use does not present any risk as long as normal handling precautions are observed.

It is advised to avoid contact of the IXOL® B251 polyol with the skin and the eyes, and especially to avoid ingestion. It is always recommended to wear pro with hot water and soap. For the eyes, rinse abundantly with warm water and call a doctor. For further information refer to our Material Safety Data Sheet.

SOLVAY
asking more from chemistry®

**Solvay Fluor GmbH**
Postfach 220
30002 Hannover
Germany
Phone +49 511 857-2444
Fax +49 511 817338
foaming.agents@solvay.com

**Solvay (Shanghai) Co. Ltd.**
Zhang Jiang Hi-Tech Park
Building 7, No.899,
Zu Chong Zhi Rd
Shanghai 201203,
P.R. China
Phone +86 21 50805080
Fax +86 21 50807501

**Solvay Fluorides LLC**
3333 Richmond Avenue
Houston, Texas 77098
USA
Phone +1 713 525-6000
Fax +1 713 525-7805

36/252/10.13/007/100

**www.solvay.com**
**www.solkane.com**