



Schill + Seilacher

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Technical Data Sheet

STRUKSILON 8120

Silicone Stabiliser for Flexible PU – Slabstock Foam

Application Fields

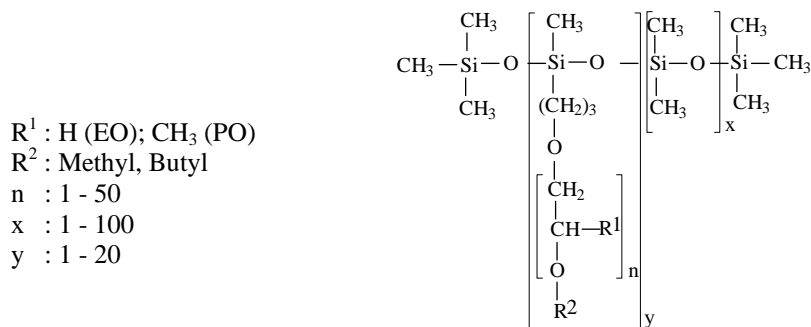
STRUKSILON 8120 was developed as universal silicone stabiliser of high potency for the production of conventional as well as flame retardant flexible polyurethane slabstock foam based on polyether polyols.

STRUKSILON 8120 is applicable in systems for nearly all known flexible PU slabstock foam applications and technologies like production of seats, chairs, mattresses etc. in the furniture and automotive industry and for all kinds of damping devices.

Chemical and Physical Properties

According to its chemical structure STRUKSILON 8120 is a polyether modified polydimethyl siloxane resistant to hydrolysis.

General chemical structure:



The data given are typical values which are not intended for use in preparing specifications. For test methods refer to the corresponding supplement.

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STRUKSILON 8120 is a clear, colourless to slightly yellow liquid of middle viscosity, has strong stabilising properties and is miscible with water at room temperature.

| | | |
|---------------------------------------|----------------------|-------|
| Viscosity at 25°C | [mPas] | 900 |
| Turbidity Point [1% aqueous solution] | [°C] | 34 |
| Density at 25°C | [kg/m ³] | 1023 |
| Flash Point (DIN/ISO 2562) | [°C] | > 100 |
| Refractive Index at 25°C | - | 1.449 |

Technical Properties

STRUKSILON 8120 is a silicone stabiliser of high potency. The special structure of STRUKSILON 8120 guaranties a wide processing latitude and allows the use in flame retardant as well as non-flame retardant foams.

Due to the high potency STRUKSILON 8120 is recommended for the production of flexible PU slabstock foams with a density range of approximately 12 – 30 kg/m³.

It induces a balanced relation between a high quantity of open cells and good air flow as well as a uniform cell and density distribution combined with good physical and mechanical properties in produced flexible block foams.

STRUKSILON 8120 shows an excellent emulsifying efficiency and compatibility when using polyetherpolyols. Furthermore, STRUKSILON 8120 possesses wide processing latitude according to the used amount and different raw materials.

STRUKSILON 8120 can be used in combination with all usual co-blowing agents like methylenechloride or acetone.

Performance Test Results

Test objective:

The test was carried out as a comparison test of STRUKSILON 8120 and two competitor materials as well as a medium potent flexible foam stabilizer.

Competitor material A is a high potent conventional stabiliser while competitor material B is widely used as a high potent universal stabiliser.

The major task was to compare the influence of the stabiliser and the concentration of the stabiliser on potency, flammability and the air flow properties of the foams.

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Test formulation:

| <u>Component</u> | <u>Description</u> | <u>Amount</u> |
|---------------------------------|---|--|
| Polyol | OH-number = 56 mg KOH/g | 100.00 |
| Tin | tin octoate | 0.28 |
| BD 70 | bisdimethylaminoethylether in DPG | 0.03 |
| Triethylenediamine | 33.3 % triethylenediamine in DPG | 0.20 |
| Water | H ₂ O | 5.00 |
| Blowing agent | methylene chloride (CH ₂ Cl ₂) | 15.00 |
| Silicone | silicone stabilisers tested | Varied |
| TDI 80 | toluylen-2,4-diisocyanate (index 115) | 66.69 |
| Mixing time: | | 8 s |
| Mixing speed: | | 3265 rpm |
| Obtained flexible foam density: | | 0.93 lb/ft ³ - 1.06 lb/ft ³ (15 - 17 kg/m ³) |

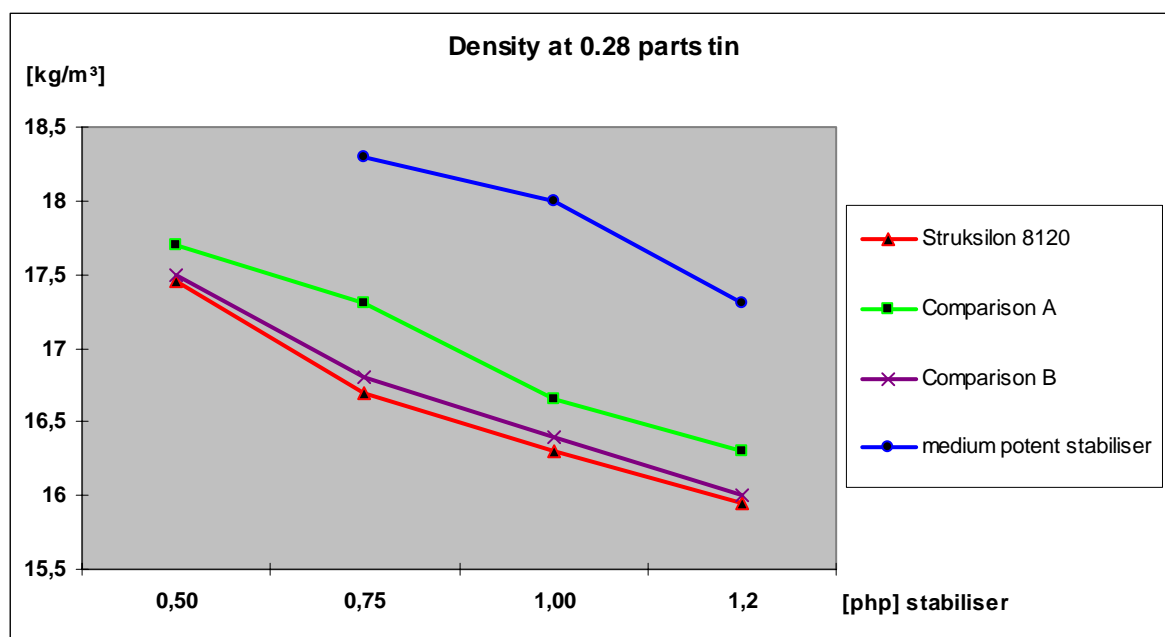
The tests were carried out using standard lab equipment. The components were mixed thoroughly. Prior to the isocyanate addition the tin octoate was added and mixed for 10 to 20 seconds with the polyol mixture.

After the isocyanate addition the material was poured in a 12 inch x 12 inch (30 cm x 30 cm) cardboard box.

The foam was cut 24 hours after the foaming and the physical properties were measured.

Potency:

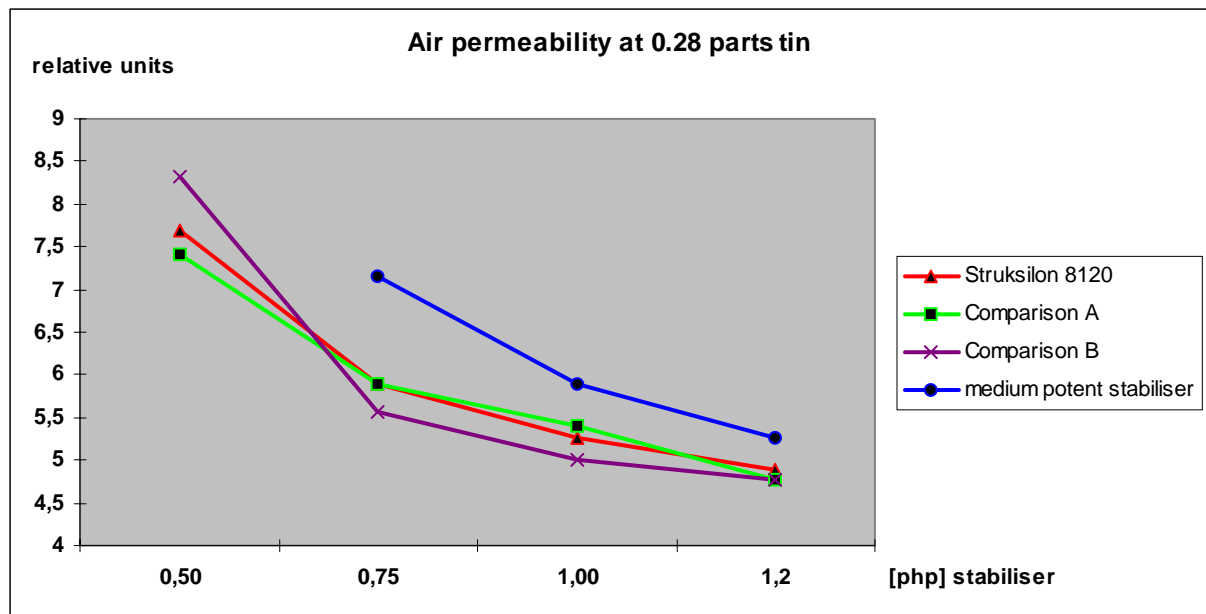
The potency was determined by the measurement of the average density of the foam samples. The measurement of “sink back” of the foams showed comparable results.



As shown, STRUKSILON 8120 exhibits the highest activity of the tested materials, outperforming the high potent conventional as well as the high potent universal competitor material. The use of a medium potent silicone stabiliser causes considerably higher densities and a limited processing window at lower density foams.

Air permeability:

The air permeability was determined by the measurement of the air flow. The air flow was measured according to an internal standard test method and is thus expressed in relative units.



The air permeability test clearly shows that STRUKSILON 8120 offers a wide processing window. Even at high stabiliser concentration levels STRUKSILON 8120 outperforms the universal silicone stabiliser Comparison B and is comparable to the conventional comparison stabiliser A. The medium potent silicone stabiliser offers an excellent air permeability.

Flame retardant properties:

As STRUKSILON 8120 is an universal silicone stabiliser it can be combined with all common flame retardants for flexible foams. When STRUKSILON 8120 was used in an industrial formulation the CAL 117 flammability test was passed.

Also in other regular industrial formulations the current flammability test will be passed.

Other physical properties:

The major physical properties of the foam samples, like tensile strength, compression set as well as tear strength are all comparable to the properties reached with other high potent silicone stabilisers.

STRUKSILON 8120 offers excellent processing as well as physical properties at a foam density range from app. 0.75 lb/ft³ (12 kg/m³) to 2.0 lb/ft³ (32 kg/m³).

Result:

STRUKSILON 8120 is a very potent universal silicone stabiliser that offers a very wide production window in respect to the density of the produced foam, the open cell content as well as the range of tin-level variation. It can be used with additional blowing agents like acetone or methylenechloride. The main flammability tests can be passed.

Recommended Dosage

Usually, STRUKSILON 8120 is applied in quantities of 0.6 to 1.5 php (parts on 100 parts polyol). We recommend to adjust the optimum dosage according to the corresponding formula, type and amount of activators, catalysts, blowing agents and the activity of raw materials.

However, a concentration of 2.5 php should not be exceeded.

Product Safety and Handling

STRUKSILON 8120 is not a hazardous material for the purposes of hazardous materials regulations.

Further information regarding safety, toxicology, special properties of the product, transport and storage are given in the safety data sheet.

Packaging, Storage and Transport

| | |
|-------------------|--|
| Storage stability | 12 months in closed original containers if transported and stored at temperature between 1 and 30°C. |
| Packaging | 200 kg drums 1000 kg containers (IBC) |

The suggestions for application and usage of our products as well as possible proposed formulations are meant to advise only to the best of our knowledge. This information is without obligation and does not release customers from their own testings to ensure suitability for intended processes and use. Liability is only accepted in case of intention or gross negligence. Liability for any defects caused by minor negligence are not accepted. Each producer is responsible and liable to observe legislation and patent rights of third parties.

This new leaflet replaces all previously printed documentation.

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