

# POLYURETHANE ADDITIVES FOR FLEXIBLE POLYETHER FOAM

---

SILICONE SURFACTANTS  
CATALYSTS  
PERFORMANCE ADDITIVES  
COLOR PASTES

---

INDIA



# EVONIK –

## Enhancing comfort in polyurethane foams

To meet specific customer demands and increasingly stringent market requirements, you need a reliable partner that provides you with customized solutions.

Over the decades, we've provided additives that deliver maximum efficiency and outstanding workability in formulations, but also solutions that answer the most specific needs.



# OUR POLYURETHANE ADDITIVES

## SUPPORT YOU IN:



Stabilizing foam structure



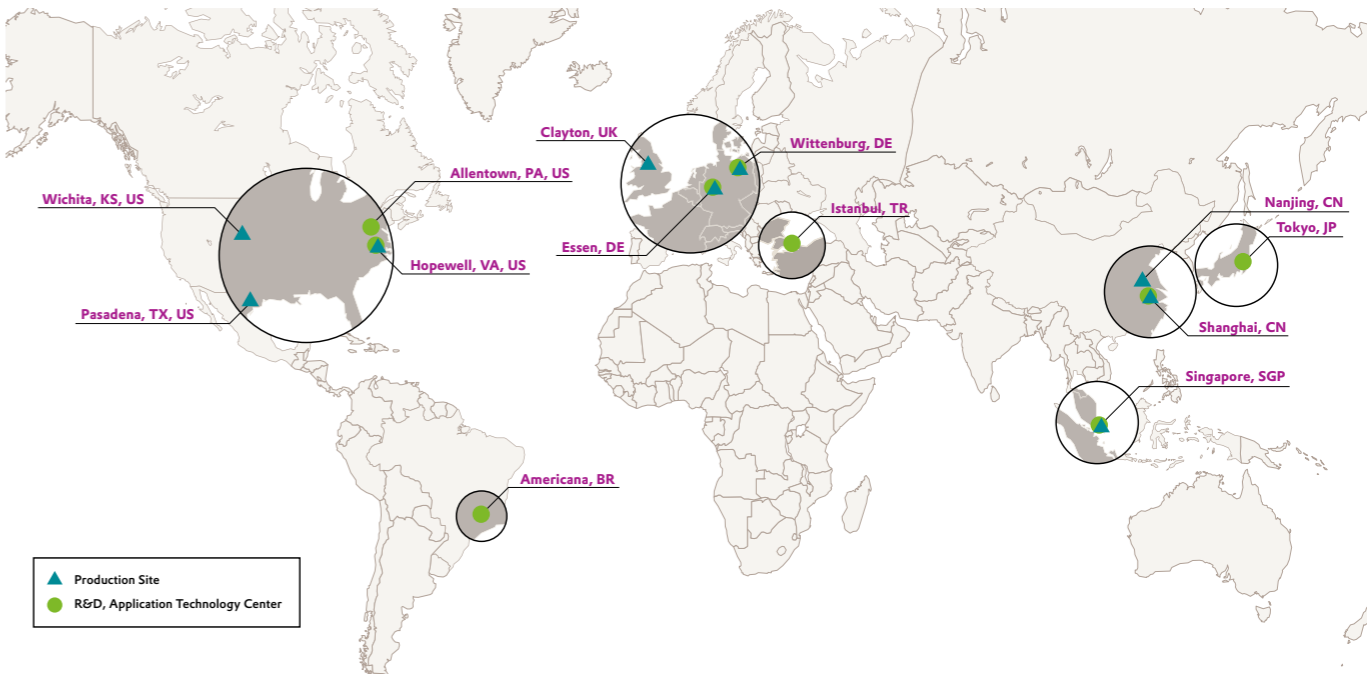
Improving foam recovery after compression

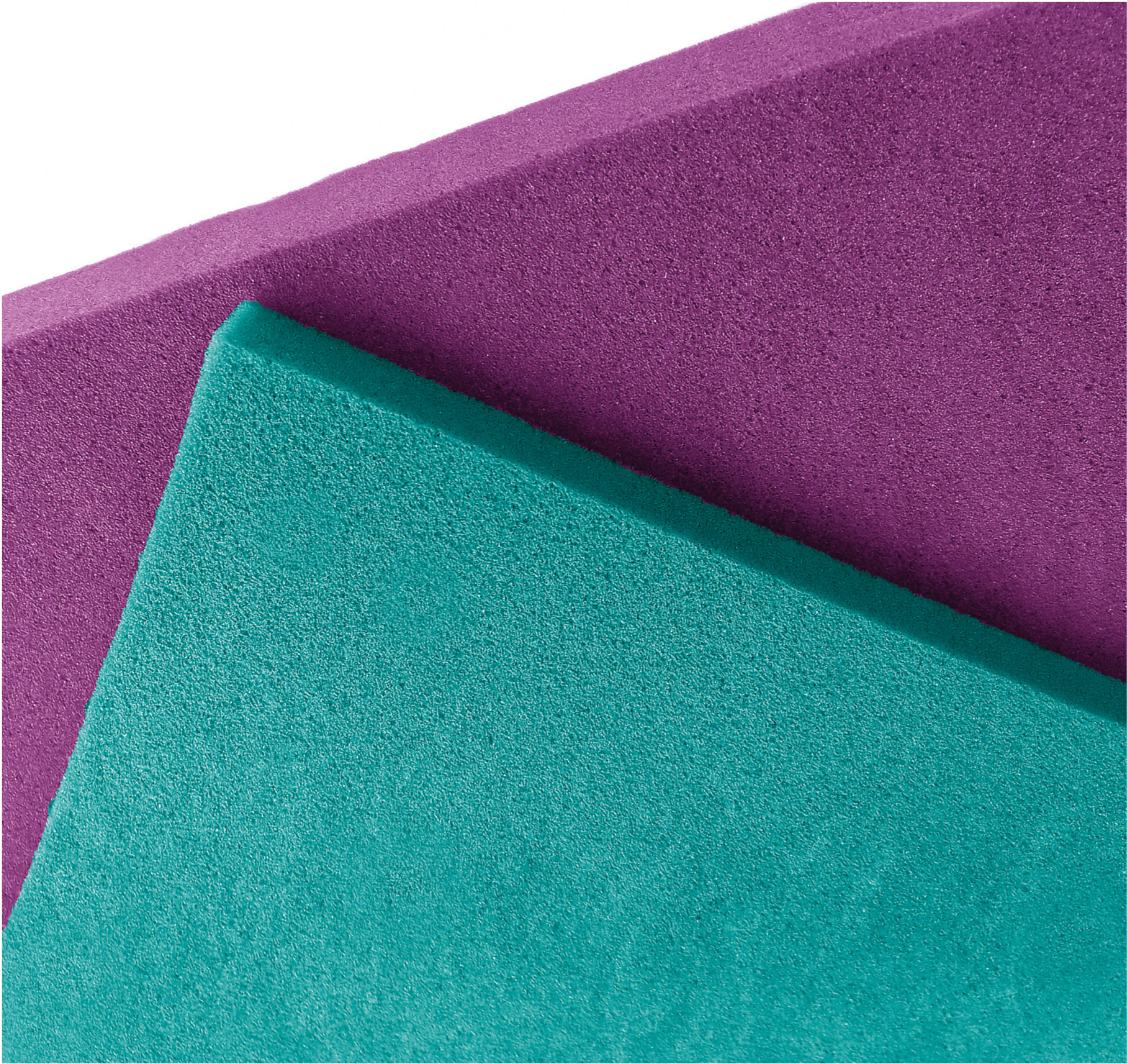


Boosting foam yield



Reducing VOC emissions in foam





.....

# CONTENTS

.....

<b>SILICONE SURFACTANTS</b>	
For conventional polyether block foam	7
For universal foam	8
For flame retardant foam	9
For MDI/TDI viscoelastic foam	10
For high resilience slabstock foam	13
<b>CATALYSTS</b>	
Traditional catalysts	15
Emission-optimized catalysts	16
<b>PERFORMANCE ADDITIVES</b>	18
<b>COLOR PASTES</b>	22
<b>OUR COMMITMENT &amp; SAFETY</b>	25
<b>PRODUCT INDEX</b>	26

**OUR EXTENSIVE RANGE OF ADDITIVES ARE COVERED BY 5 BRANDS:**

- |  |   |
|--|---|
| <b>TEGOSTAB®</b><br>Foam stabilizers/surfactants | <b>DABCO®</b><br>Amine catalysts and performance additives  |
| <b>KOSMOS®</b><br>Metal catalysts                | <b>ORTEGOL®</b><br>Special additives like crosslinkers, softeners, compression set enhancers, etc |
| <b>TEGOCOLOR®</b><br>Color pastes                |   |

**FAST ONLINE SERVICES TO SUPPORT YOU WHEN YOU NEED IT MOST**



EXPLORE PU takes our online service offering to the next level; a more personalized experience, with fast access to support from our polyurethane experts, wherever you are in the world.

# SILICONE SURFACTANTS

Our TEGOSTAB® range offers VOC-optimized surfactants that have a cyclic siloxane (D4, D5 and D6) content of <0.1% weight in total.

Certain product grades are further improved to minimize cyclic siloxane level down to <0.03% weight, supporting formulators to meet stringent IKEA IOS Mat 0010 V15 emission targets, whilst still producing high quality foam.



## SILICONE SURFACTANTS

### For conventional polyether block foam

Our large variety of silicone surfactants are efficient stabilizers, even for special applications that enable the production of fine and regular cell structures over a wide range of densities.

TEGOSTAB®	KEY FEATURES	STABILIZER POTENCY	DENSITY RANGE	NUCLEATION EFFICIENCY	PROCESSING LATITUDE	ULTRA-LOW CYCLICS <sup>(1)</sup>
B 8123	Highest potency for ultra-low densities	....	EL – M	...	..	✓
B 8195 <span>NEW</span>	Broad processing latitude for medium density foams, smooth surface, and improved compression set performance	..	L – M	...	...	✓
B 8138	Broad processing with fine cell structure	..	L – M	...	...	✓
B 8228	High potency for medium density foams, good density distribution and high resilience	...	L – M	..	..	✓
BF 2370	Outstanding processing latitude, very open foam with fine cell structure and excellent hand-feel, for foams used in bras and filter foams	..	M – H	....	....	
B 8295 <span>NEW</span>	Ultra-low cyclic surfactant with broad processing latitude with fine cell structure	..	M – H	...	...	✓
B 8002	Extremely broad processing latitude for high density. Suitable for high density TDI VE foams/in-soles	.	H	..	....	
B 8005 <span>NEW</span>	Ultra-low cyclics surfactant with broad processing latitude for high density and TDI VE	.	H	...	...	✓
B 8297 <span>NEW</span>	Ultra-low cyclic surfactant with medium to high potency and broad processing latitude with fine cell structure	...	L – H	...	...	✓

<sup>(1)</sup> D4, D5 and D6 content <0.03% weight (in total)

- EL = Extremely Low  
L = Low  
M = Medium  
H = High
- = Low performance or narrow processing latitude  
.. = Medium performance or medium processing latitude  
... = High performance or wide processing latitude  
.... = Very high performance or very wide processing latitude

# SILICONE SURFACTANTS

## For universal foam

Universal silicone surfactants combine high activity with medium FR properties. They are suitable to produce foams with FR requirements like Cal 117 and MVSS 302. Generally foamers use these surfactants for their conventional foam grades too.

TEGOSTAB®	KEY FEATURES	STABILIZER POTENCY	DENSITY RANGE	NUCLEATION EFFICIENCY	PROCESSING LATITUDE	ULTRA-LOW CYCLICS <sup>(1)</sup>	FLAME RETARDANT PERFORMANCE
B 8110	High potency with good cell structure	...	EL – M	....	...	✓	..
B 8160	Broad processing latitude especially for more hydrophobic polyols including NOP						
	Suitable for CO <sub>2</sub> foaming	...	L – M	...	...	✓	..
B 8244	Ultra-low cyclics surfactant for excellent density distribution and fine cell in quality-demanding foams, including automotive and flame lamination	...	M – H	....	...	✓	..
B 8164	Ultra-low cyclics surfactant for broad processing latitude for high quality demanding foam and soft foams						
	Suitable for box and continuous foaming	..	M – H	...	...	✓	..

<sup>(1)</sup> D4, D5 and D6 content <0.03% weight (in total)

EL = Extremely Low  
L = Low  
M = Medium  
H = High

- = Low performance or narrow processing latitude
- .. = Medium performance or medium processing latitude
- ... = High performance or wide processing latitude
- .... = Very high performance or very wide processing latitude

# SILICONE SURFACTANTS

## For flame retardant foam

Flame retardant silicone surfactants are particularly well-suited for the production of flame retardant foam grades, since they enhance the efficiency of the flame retardants by their minimized contribution to the flammability on the foam.

TEGOSTAB®	KEY FEATURES	CRIB V CERTIFIED	STABILIZER POTENCY	DENSITY RANGE	NUCLEATION EFFICIENCY	PROCESSING LATITUDE	ULTRA-LOW CYCLICS <sup>(1)</sup>	FLAME RETARDANT PERFORMANCE
B 8239	Excellent flammability test performance; fine and regular cell structure	✓	...	L – M	..	..	✓	....
B 8239 F	Excellent flammability test performance; pinhole-free cell structure. Recommended for foam grades for flame lamination processes.	✓	...	L – M	..	..	✓	....
B 8258	For FR applications with broad processing	✓	..	L – H	...	...	✓	...

<sup>(1)</sup> D4, D5 and D6 content <0.03% weight (in total)

EL = Extremely Low  
L = Low  
M = Medium  
H = High

- = Low performance or narrow processing latitude
- .. = Medium performance or medium processing latitude
- ... = High performance or wide processing latitude
- .... = Very high performance or very wide processing latitude



SILICONE SURFACTANTS  
For MDI/TDI viscoelastic foam

Viscoelastic foam is characterized by a delayed recovery after deformation and a low resilience. With the snug and cosy feeling, its application in mattresses, topper pads and pillows is well-appreciated in the market.

The selected TEGOSTAB® products are silicone surfactants qualified for and dedicated to the usage in MDI/TDI viscoelastic foam grades.

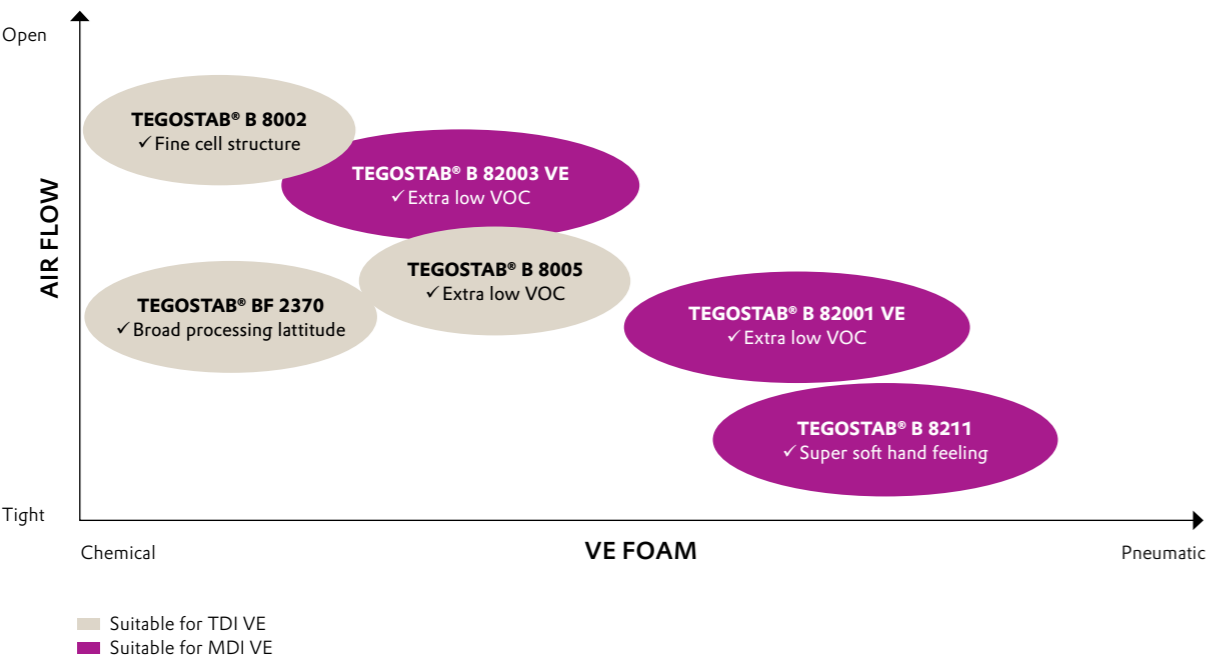


INTRODUCING  
TEGOSTAB® B 82001 VE

TEGOSTAB® B 82001 VE is a surfactant designed to produce fine, pneumatic cell foams.

- Fine and tight cell structure without shrinkage
- VOC-optimized with cyclic siloxane (D4, D5 and D6) content <0.1% weight in total (ideal for meeting IKEA IOS Mat 0010 V 15 specifications)
- Suitable for combustion modified viscoelastic flexible foams
- Non-hydrolysable

OVERVIEW OF MDI/TDI VISCOELASTIC SURFACTANTS





## SILICONE SURFACTANTS

### For high resilience slabstock foams

These surfactants are specifically designed to cover different cell-regulating and -stabilising potencies based on varying formulation ingredients, such as polymer content in the polyol, cross-linker level, and the portion of isocyanate other than TDI 80.

TEGOSTAB®	ACTIVITY	PROCESSING LATITUDE	POLYOL	MDI	TDI	LOW VOC
B 8681	•	•••	SAN/PHD/PIPA	••	•••	
B 8707 LF 2	••	••	SAN/PIPA	•••	•••	✓
B 8773 LF 2	••	••••	SAN/PHD/PIPA	••	•••	✓

- = Low activity or processing latitude
- = Medium activity or processing latitude
- = High activity or processing latitude
- = Very high activity or processing latitude
- = Recommended
- = Strongly recommended
- ✓ = Suitable

# CATALYSTS

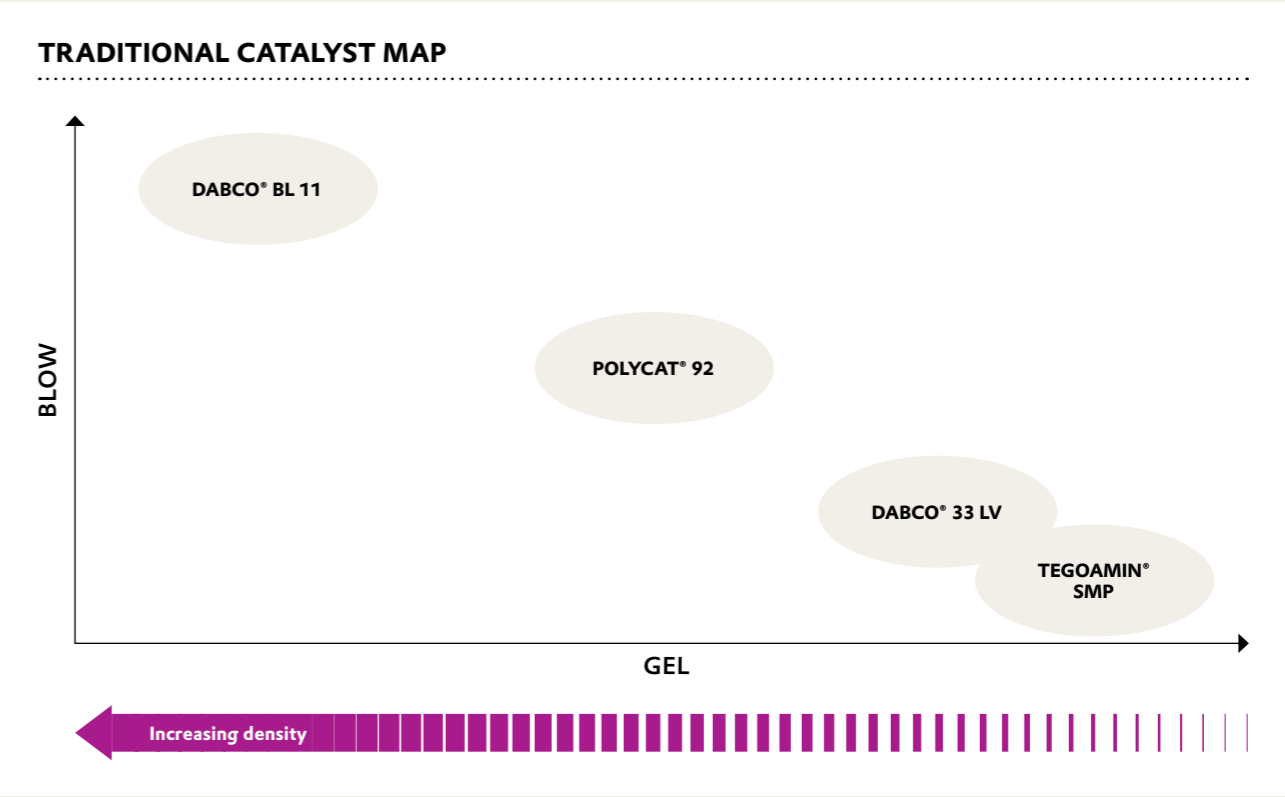
Our DABCO®, KOSMOS® and POLYCAT® brands cover an extensive range of high performing amine catalysts, metal catalysts and special catalysts.



# TRADITIONAL CATALYSTS

Our carefully selected amine and metal catalysts are crucial in balancing between the various reactions during the polyurethane foam formation.

PRODUCT	DESCRIPTION
DABCO® 33 LSI	Low odor gel catalyst based on Triethylenediamine
DABCO® 33 LV	Standard gel catalyst based on Triethylenediamine in DPG
DABCO® 8154	Delayed action gel catalyst that helps improve foam curing
DABCO® BL 11	Strong urea reaction blow catalyst
DABCO® CS 90	Balanced amine catalyst with cell opening properties, recommended for high density conventional foam, HR and VE foams
KOSMOS® T 9	Stannous octoate
KOSMOS® T 900 <span>NEW</span>	Alternative to stannous octoate , offering improved EH&S
KOSMOS® 54	Co-catalyst for cold flow prevention in HR and visco foams
POLYCAT® 92	Optimized amine catalyst for maximum versatility
TEGOAMIN® SMP	Tertiary amine with outstanding catalytic properties, recommended for low density foams



EMISSION-OPTIMIZED CATALYSTS

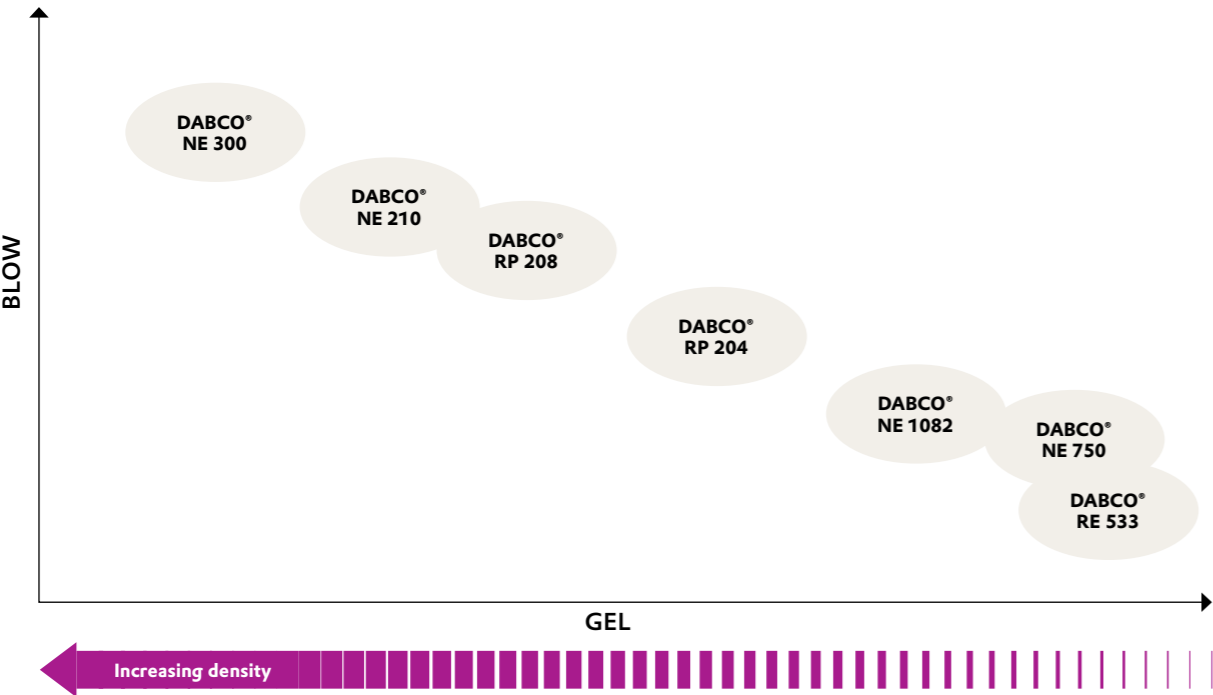
Our latest Negligible Emissions (NE) grades offer reduced emissions compared to traditional amines, resulting in lower exposure to VOC's for both workers and consumers.

PRODUCT	DESCRIPTION
DABCO® NE 210	Balanced low emission amine catalyst
DABCO® NE 300	Negligible emission, low odor reactive blowing catalyst
DABCO® NE 1082	Negligible emission reactive gelling catalyst
DABCO® NE 750	Negligible emission reactive gelling catalyst for production of foam with challenging curing
DABCO® RP 204	Emission-optimized and balanced catalyst
DABCO® RP 208	Negligible emission, low odor and balanced catalyst
DABCO® RE 533	Emission-optimized gel catalyst based on Triethylenediamine
KOSMOS® EF	Emission-optimized tin catalyst

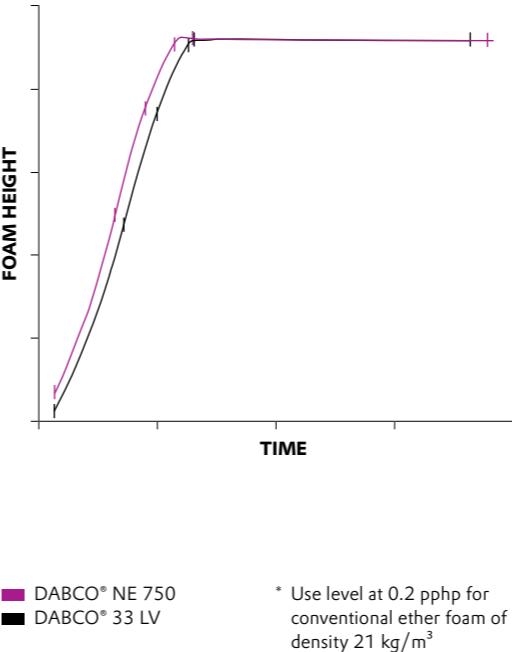
INTRODUCING  
DABCO® NE 750

- DABCO® NE 750 is an extra low-emission amine catalyst with outstanding gel selectivity
- Extremely high similarity of rise profile to DABCO® 33 LV
  - Odor-optimized
  - Lower tack-free time
  - Ideal for fulfilling comfort industry labels like LGA, OEKOTEX, and automotive OEM specifications, including VDA 278
  - Helps to pass PVC staining tests
  - Recommended for viscoelastic, low index and soft foams

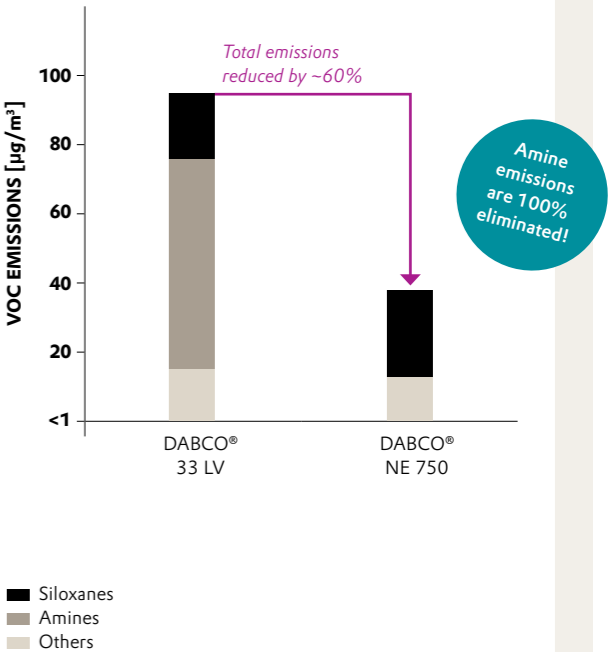
EMISSION-OPTIMIZED CATALYST MAP



RISE PROFILE COMPARISON\*



VOC EMANATION  
CHAMBER TEST 23°C



# PERFORMANCE ADDITIVES

The Performance Additives portfolio of Evonik can help formulators to improve processing and foam physical properties.



## CROSSLINKERS AND CHAIN EXTENDERS

### DESCRIPTION

ORTEGOL® CXT	Additive to reduce splits in low index and filler formulations. Also enhances the elongation properties of the foam.
ORTEGOL® G	Highly efficient crosslinker for flexible foams containing fillers
ORTEGOL® 204	Additive for cold flow prevention in HR and visco foams
ORTEGOL® 720	Crosslinker that improves compression sets and density/hardness distribution for HR slabstock foams

## HARDENERS

ORTEGOL® HA 1	Hardening additive with broad processing latitude
---------------	---

## SOFTENERS

ORTEGOL® FS 1	Softening additive to prevent splits in low index formulations and providing silky foam touch
ORTEGOL® FS 2	Softening additive to prevent splits in low index formulations; amine-free and odor-optimized
ORTEGOL® 310	Softening additive

## EMULSIFIERS

ORTEGOL® NOP	Emulsifier for blends of natural oil-based polyols and standard polyols
--------------	---

## INTRODUCING ORTEGOL® CXT

A difunctional reactive additive for improved processing latitude of sensitive formulations

- Reduces splits in low index and filler formulations
- Supports the production of soft flexible slabstock by lowering the index
- Compatible with high levels of fillers or NOPs
- Partially substitutes for DEOA in HR foams
- Maintains consistent processing and improves quality in VE foams

## INTRODUCING ORTEGOL® HA 1

A hardening additive for use in flexible polyether blockfoam

- Increases long-lasting foam hardness up to 25% with minimal impact on airflow and other physical properties
- Achieves ultra-hard foams (>10kPa) when used in combination with polymer polyol (POP)
- No formulation adjustments in most cases
- Saves cost by reducing the use of TDI and/or tin catalyst

COMPRESSION SET IMPROVERS

ORTEGOL® 700	Improving foam recovery after compression and reducing curing time before compression
ORTEGOL® 702	Improving foam recovery after compression and reducing curing time before compression. Provides excellent recovery in demanding applications

ANTI-SCORCHERS

ORTEGOL® AO 1	Antioxidant for scorch prevention
ORTEGOL® AO 2	Scorch prevention, for polyester foam
ORTEGOL® AO 7	Highly efficient antioxidant for scorch prevention, low VOC, also in high temperature automotive VOC tests

ANTISTATIC AGENTS

ORTEGOL® AST	Antistatic additive
ORTEGOL® AST 2	Antistatic additive with reduced tendency for scorch

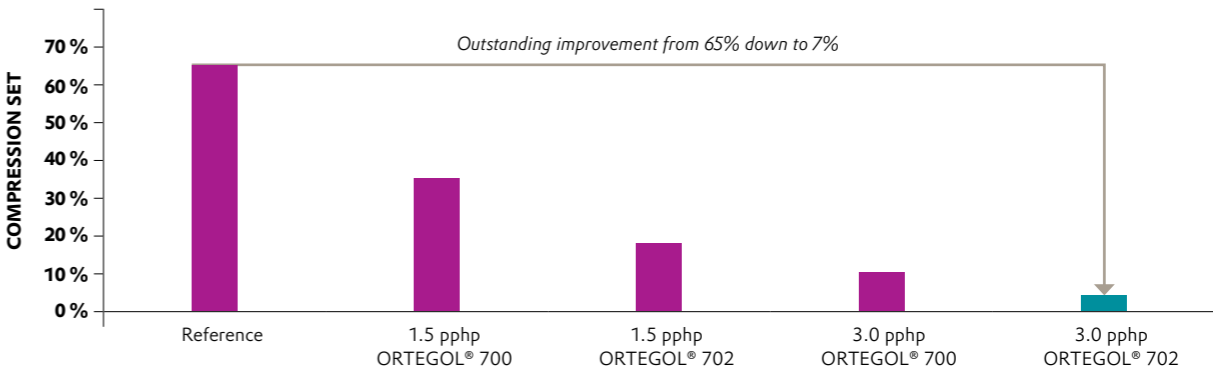
OTHER PROCESSING ADDITIVES

DABCO® BA 100	Acid-based blocking agent for delaying cream time to reduce or eliminate pinholes in foams
DABCO® PE 40	Strong compatibilizer for powder dispersions and polyol emulsions
ORTEGOL® BS 1	Wetting agent for rebonded foam production to reduce binder level
ORTEGOL® CC3	Coarse cell additive in Conventional, HR and VE foams
ORTEGOL® COM	Emulsifier for blends of high ethylene oxide and high propylene oxide containing polyols, and natural oil-based polyols and standard polyols
ORTEGOL® HPH 1	Additives to enhance the wetting of foam by liquids, especially water
ORTEGOL® HPH 2	Additives to enhance the wetting of foam by liquids, especially water
ORTEGOL® VCO	Cell opener for viscoelastic foams

INTRODUCING  
ORTEGOL® 700 &  
ORTEGOL® 702

- Superior foam recovery after prolonged compression
- Reduced curing time before compression
- Improved wet compression set
- Odor-optimized
- Emission-optimized; suitable for room temperature chamber tests

COMPRESSION SET WITH ORTEGOL® 700 & ORTEGOL® 702

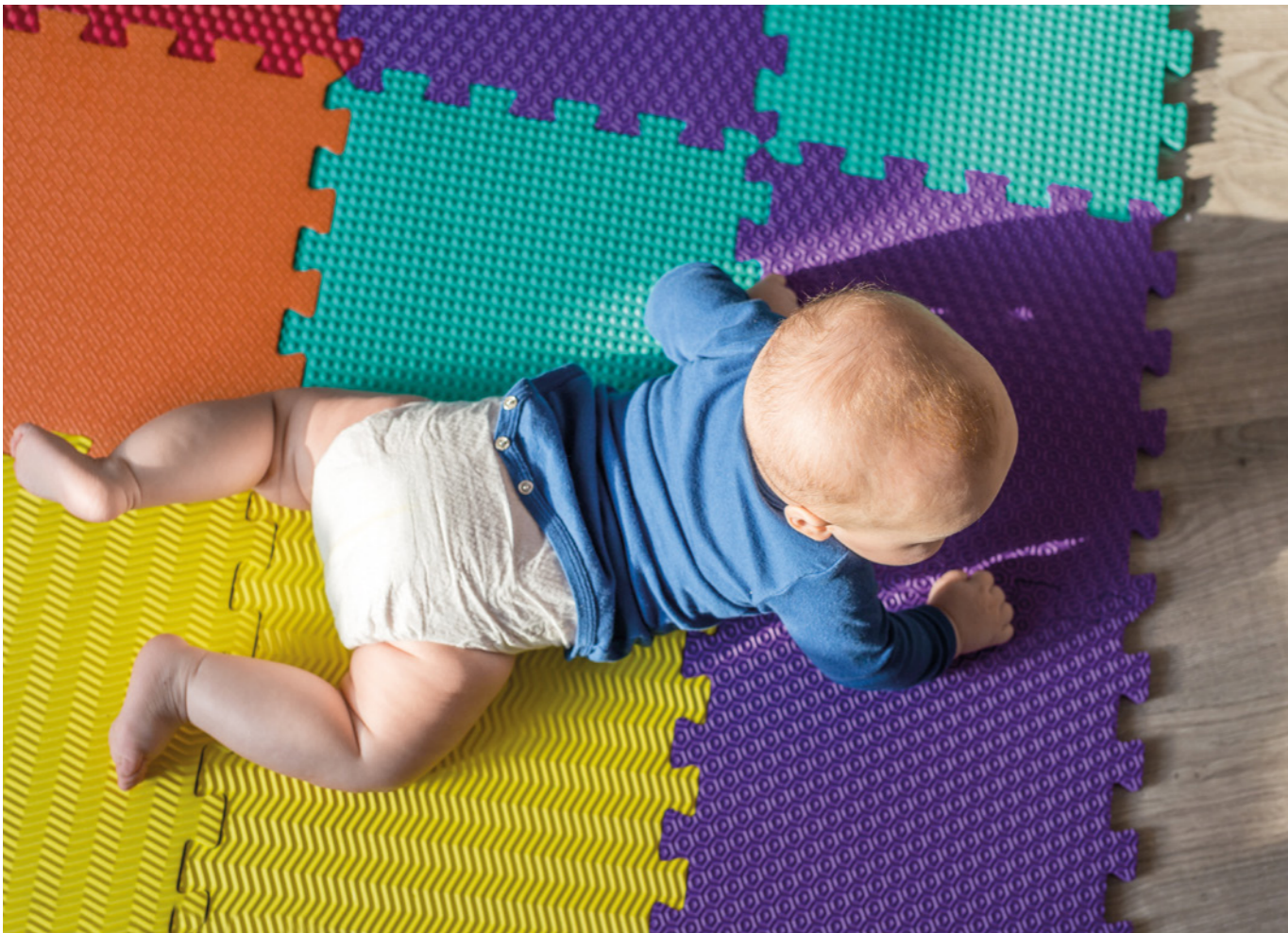


→ ORTEGOL® 700 & ORTEGOL® 702 significantly improve compression set, with ORTEGOL® 702 particularly helpful in demanding applications.



# COLOR PASTES

All of our TEGOCOLOR® color pastes provide strong and long-lasting color for decorative effects. They are required in low use levels and show minimal interference to the processing latitude of the overall formulation.



## TEGOCOLOR®

Color pastes that offer key performance benefits of:

- Brilliant color
- Minimal VOC- and FOG-emanation
- Phthalate-free
- BHT-free

### COLOR EXAMPLE






The colored foam samples above are images of foams made with 3.0 pphp TEGOCOLOR® products.

**PIONEERING RESEARCH HUB IN SINGAPORE**  
Delivering innovative solutions to the flexible foam industry



Our new Asia technical service lab houses state-of-the-art equipment dedicated to:

-  Developing new formulations
-  Troubleshooting technical issues
-  Facilitating your transition to the latest Evonik materials and technologies

**OUR COMMITMENT**

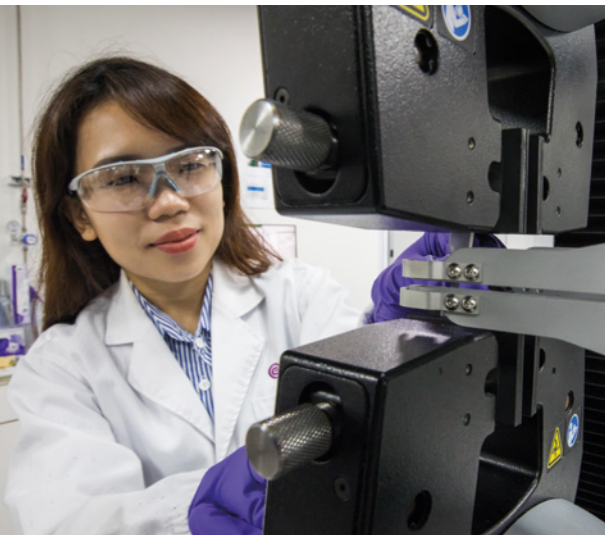
Evonik is committed to producing new additives that improve productivity, enhance performance and have a reduced impact on the environment and CO<sub>2</sub> footprint. We have strict quality management processes in place as well as many diversity initiatives.

Our products are backed by a global network of support services:

- Local sales & technical service personnel, with in-depth industry knowledge and understanding of your needs
- Dedicated R&D centers of excellence
- Analytical labs
- Worldwide manufacturing and warehouse capabilities

**SAFETY IS PARAMOUNT  
AT EVONIK**

- Evonik is one of the safest chemical manufacturers globally.
- An industry leader in environmental, health and safety (EH&S) performance.
- Every employee is required to understand and adhere to our global EH&S policy, which is a condition of employment.



PRODUCT INDEX

PRODUCT NAME	FUNCTION	PAGE NUMBER
DABCO® 33 LSI	Traditional Catalyst	15
DABCO® 33 LV	Traditional Catalyst	15, 17
DABCO® 8154	Traditional Catalyst	15
DABCO® BA 100	Performance Additive	20
DABCO® BL 11	Traditional Catalyst	15
DABCO® CS 90	Traditional Catalyst	15
DABCO® NE 210	Emission-optimized Catalyst	16
DABCO® NE 300	Emission-optimized Catalyst	16
DABCO® NE 750	Emission-optimized Catalyst	16, 17
DABCO® NE 1082	Emission-optimized Catalyst	16
DABCO® PE 40	Performance Additive	20
DABCO® RE 533	Emission-optimized Catalyst	16
DABCO® RP 204	Emission-optimized Catalyst	16
DABCO® RP 208	Emission-optimized Catalyst	16
KOSMOS® EF	Emission-optimized Catalyst	16
KOSMOS® T 9	Traditional Catalyst	15
KOSMOS® T 900	Traditional Catalyst	15
ORTEGOL® 204	Performance Additive	19
ORTEGOL® 310	Performance Additive	19
ORTEGOL® 700	Performance Additive	20, 21
ORTEGOL® 702	Performance Additive	20, 21
ORTEGOL® 720	Performance Additive	19
ORTEGOL® AO 1	Performance Additive	20
ORTEGOL® AO 2	Performance Additive	20
ORTEGOL® AO 7	Performance Additive	20
ORTEGOL® AST	Performance Additive	20
ORTEGOL® AST 2	Performance Additive	20
ORTEGOL® BS 1	Performance Additive	20
ORTEGOL® CC3	Performance Additive	20
ORTEGOL® COM	Performance Additive	20
ORTEGOL® CXT	Performance Additive	19
ORTEGOL® FS 1	Performance Additive	19

PRODUCT NAME	FUNCTION	PAGE NUMBER
ORTEGOL® FS 2	Performance Additive	19
ORTEGOL® G	Performance Additive	19
ORTEGOL® HA 1	Performance Additive	19
ORTEGOL® HPH 1	Performance Additive	20
ORTEGOL® HPH 2	Performance Additive	20
ORTEGOL® NOP	Performance Additive	19
ORTEGOL® VCO	Performance Additive	20
POLYCAT® 92	Traditional Catalyst	15
TEGOAMIN® SMP	Traditional Catalyst	15
TEGOCOLOR®	Color Paste	22, 23
TEGOSTAB® B 8002	Silicone Surfactant	7, 10
TEGOSTAB® B 8005	Silicone Surfactant	7, 10
TEGOSTAB® B 8110	Silicone Surfactant	8
TEGOSTAB® B 8123	Silicone Surfactant	7
TEGOSTAB® B 8138	Silicone Surfactant	7
TEGOSTAB® B 8160	Silicone Surfactant	8
TEGOSTAB® B 8164	Silicone Surfactant	8
TEGOSTAB® B 8195	Silicone Surfactant	7
TEGOSTAB® B 8211	Silicone Surfactant	10
TEGOSTAB® B 8228	Silicone Surfactant	7
TEGOSTAB® B 8239	Silicone Surfactant	9
TEGOSTAB® B 8239 F	Silicone Surfactant	9
TEGOSTAB® B 8244	Silicone Surfactant	8
TEGOSTAB® B 8258	Silicone Surfactant	9
TEGOSTAB® B 8295	Silicone Surfactant	7
TEGOSTAB® B 8297	Silicone Surfactant	7
TEGOSTAB® B 8681	Silicone Surfactant	13
TEGOSTAB® B 8707 LF 2	Silicone Surfactant	13
TEGOSTAB® B 8773 LF 2	Silicone Surfactant	13
TEGOSTAB® B 82001 VE	Silicone Surfactant	10, 11
TEGOSTAB® B 82003 VE	Silicone Surfactant	10
TEGOSTAB® BF 2370	Silicone Surfactant	7, 10

To discuss your requirements for polyurethane additives for the comfort foam industry further, or to learn more about regional product availability.

Please visit:

[www.evonik.com/pu-contacts](http://www.evonik.com/pu-contacts)

**Evonik Operations GmbH**  
**Goldschmidtstraße 100**  
**45127 Essen**  
**Germany**  
**Phone +49 201 173-3006**

**Evonik India Pvt. Ltd.**  
**Krislon House,**  
**Saki Vihar Road,**  
**Sakinaka, Mumbai**  
**400072**

[polyurethane@evonik.com](mailto:polyurethane@evonik.com)  
[www.evonik.com/pu-additives](http://www.evonik.com/pu-additives)

This information and any recommendations, technical or otherwise, are presented in good faith and believed to be correct as of the date prepared. Recipients of this information and recommendations must make their own determination as to its suitability for their purposes. In no event shall Evonik assume liability for damages or losses of any kind or nature that result from the use of or reliance upon this information and recommendations. EVONIK EXPRESSLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, NONINFRINGEMENT, MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE (EVEN IF EVONIK IS AWARE OF SUCH PURPOSE) WITH RESPECT TO ANY INFORMATION AND RECOMMENDATIONS PROVIDED. Reference to any trade names used by other companies is neither a recommendation nor an endorsement of the corresponding product, and does not imply that similar products could not be used. Evonik reserves the right to make any changes to the information and/or recommendations at any time, without prior or subsequent notice.



<https://explorepu.evonik.com>