



Baerlocher Additives for PVC

# Sheets and Foamed Profiles



we add character to plastics

**BÆRLOCHER**





## **we add character to plastics**

The Baerlocher Group of Companies is one of the world's leading suppliers of additives for the plastics industry with a strong focus on PVC.

Baerlocher has extensive technology and market know-how drawn from more than 190 years of company history.

Additives play a crucial role in determining processing properties as well as product quality and character. Baerlocher offers a broad range of additives for polymers suitable for various industries.

Baerlocher is your global partner for Ca-based solutions and metal soaps.

By developing and supplying innovative additives, Baerlocher enables the plastics industry worldwide to manufacture high-quality and sustainable products.

**[www.baerlocher.com](http://www.baerlocher.com)**



Global presence and more than 1200 employees worldwide make sure that we are always close to the customer. Future-oriented, we are continuously investing in research and development. Our innovative power results from the creativity of our in-house scientists and technical experts. Baerlocher has R&D facilities in Germany (Munich-Unterschleissheim), France (Marseille), Italy (Lodi), the United States (Dover, Cincinnati) and India (Dewas).

Environmentally sound production processes as well as the safety and protection of people and environment are key corporate goals. As a globally active group of companies we are aware of our responsibility, regardless of time or place. We are committed to the principles of "Responsible Care": Our quality management is certified to ISO 9001 and our environmental management system to ISO 14001, encouraging our employees to work together in a responsible way. This policy will not least benefit our customers.

### Baerlocher products

<b>BAEROPAN</b>	<b>BAEROCID</b>
<b>BAEROSTAB</b>	<b>BAEROCIN</b>
<b>BAEROPOL</b>	<b>CEASIT</b>
<b>BAEROLUB</b>	<b>ZINCUM</b>
<b>BAEROPHOB</b>	

# BÆRLOCHER



# Additives for the Extrusion of PVC Sheets and Foamed Profiles

PVC sheets are products with excellent technical properties that meet the most demanding economic and ecological requirements. Applications are: apparatus engineering, worktops, siding and exhibition stands. Sandwich systems can be used for interior trimmings of railway carriages and aeroplanes, PVC doors, etc. Baerlocher PVC additives allow sheets of high quality to be made efficiently, imparting to the finished products specific performance characteristics, such as resistance to chemicals, weathering resistance, low density, high Vicat softening temperature, food approval, low flammability.

Baerlocher develops tailor-made products to suit the needs of each customer and manufacture them at one of the worldwide production sites. Special emphasis is always placed on customer focus and consistent quality.

We offer a full range of stabilizers from proven Lead and Tin stabilizers to the increasingly important Calcium/Zinc stabilizers. All stabiliser types are available in various supply forms, ranging from powders to one-packs in granule form.



## Baerlocher PVC Additives

- high-performance
- tailor-made
- quality-controlled
- future-orientated
- cost-efficient

## Contents

6	Compact sheets
9	Free foam sheets
10	Celuka® foam sheets
11	Foamed profiles
14	Co-extruded foamed profiles





# Compact Sheets

## Calcium/Zinc

### Baeropan MC 9047 PLK

Baeropan MC 9047 PLK is a stabiliser for up to 30 mm thick compact sheets. For thicker sheets (up to 40 mm) stabiliser and lubricant level have to be adjusted. Dosage: 5.0 – 5.5 phr

### Baeropan MC 9048 PLK

Baeropan MC 9048 PLK is suitable for sheets in direct food contact applications. It is designed for up to 20 mm thick compact sheets. Dosage: 4.5 – 5.0 phr. Stabiliser and lubricant level have to be adjusted for applications up to 40 mm thickness.

#### Example

Components	[phr]
S-PVC, k-value 57 – 60	100.0
Coated filler	5.0
Titanium dioxide	4.0
Baerodur E-ST 5D	4.0
Baerorapid 10 F	2.0
Baeropan MC 9047 or 9048 PLK	4.5 – 5.5

#### Supply forms

Baeropan	MC	R	Y	SMS	TX	liquid	Dosage [phr]	Metal basis	Application	Transparent
9401 PLK	●	●	●	●	●	–	4.5 – 5.5	Ca/Zn	outdoor/indoor	–

## Lead and Tin

In addition, compact PVC sheets can be Lead- or Tin-stabilized. All of these stabiliser systems can also be used in pigmented products.

#### Supply forms

Baeropan/Baerostab	MC	R	Y	SMS	TX	liquid	Dosage [phr]	Metal basis	Application	Transparent
50302 PLK	●	●	–	●	●	–	5.0 – 5.8	Pb	outdoor/indoor	–
M26 SF*	–	–	–	–	–	●	1.5 – 2.0	Sn	outdoor/indoor	●
M 170*	–	–	–	–	–	●	1.5 – 2.0	Sn	outdoor/indoor	●
M 64*	–	–	–	–	–	●	2.0 – 2.5	Sn	outdoor	–
MSL*	–	–	–	–	–	●	2.0 – 2.5	Sn	outdoor	●

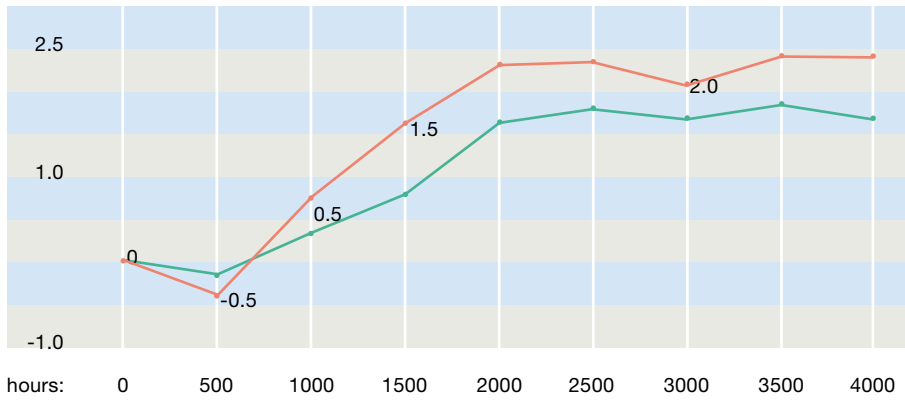
\*Lubricant one-pack necessary for Tin-stabilized systems: 2.0 – 3.0 phr Baerolub MC 8571 /1 PLS/F-SN

MC = powder; E, R = granules; Y = extrusion granules; SMS = flakes; TX = pellets

None of the above-mentioned stabilizers affect water absorption and all are suitable for use in outdoor applications.

**Xenon test 1200 (RAL-GZ 716/1)  $\Delta L$**

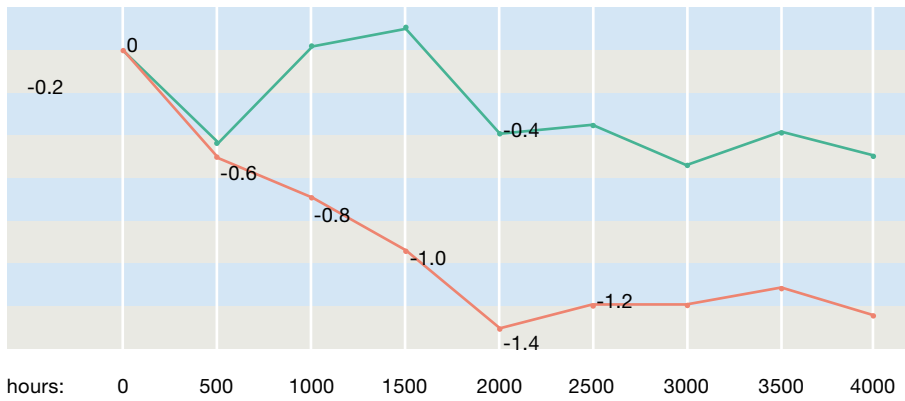
$\Delta L$ -value



● Ca/Zn system  
● Pb system

**Xenon test 1200 (RAL-GZ 716/1)  $\Delta b$**

$\Delta b$ -value

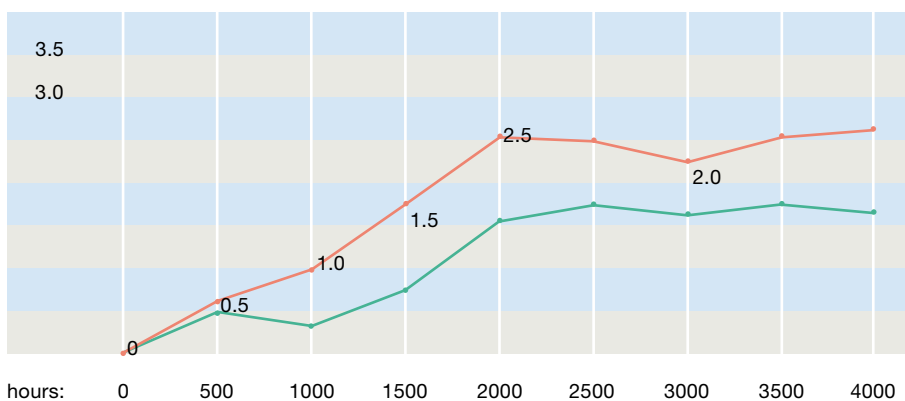


**The graphs show that Calcium/Zinc stabiliser systems for compact sheets give better colour hold than Lead systems.**

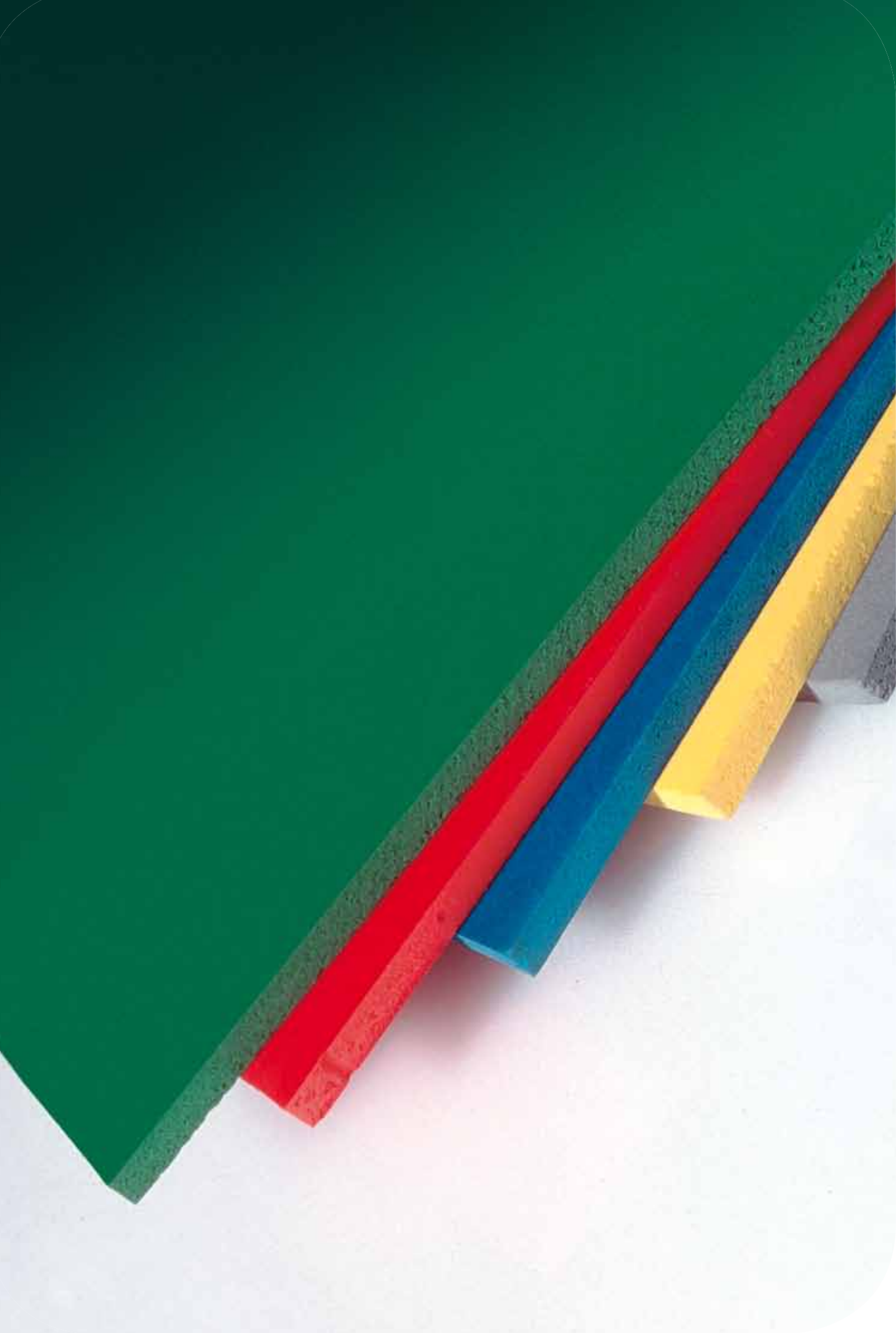
● Ca/Zn system  
● Pb system

**Xenon test 1200 (RAL-GZ 716/1)  $\Delta E$**

$\Delta E$ -value



● Ca/Zn system  
● Pb system





# Free Foam Sheets

## Calcium/Zinc

### Baeropan MC 9050 PLS/F

Baeropan MC 9050 PLS/F imparts excellent whiteness to foamed sheets and boosts the expansion process when used in combination with special kickers. The stabiliser is very easy to process, offers excellent processing latitude and can be adjusted to meet the specific needs of each application. Dosage: 4.5 – 5.5 phr

#### Example

Components	[phr]
S-PVC, k-value 57 – 60	100.0
Coated filler	5.0
Titanium dioxide	4.0
Baerorapid 30 FD	8.0
Baeropan MC 9050 PLS/F	4.5 – 5.5
Blowing agent	as required

#### Supply forms

Baeropan	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
8829/4 PLS/F	●	●	-	-	-	4.0 – 4.5	Ca/Zn	outdoor/indoor
9050 PLS/F	●	●	-	-	-	4.5 – 5.5	Ca/Zn	outdoor/indoor

## Lead and Tin

#### Supply forms

Baeropan/Baerostab	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
R 2882/1 PLS-F	●	●	-	-	-	6.0 – 7.0	Pb	outdoor/indoor
M 26 SF*	-	-	-	-	●	1.5 – 3.0	Sn	outdoor/indoor
M 170*	-	-	-	-	●	1.5 – 2.5	Sn	indoor

\*Lubricant one-pack necessary for Tin-stabilized systems: 2.0 – 3.0 phr Baerolub MC 8571 /1 PLS/F-SN

MC = powder; R = granules; SMS = flakes; TX = pellets

# Celuka® Foam Sheets

## Calcium/Zinc

### Baeropan MC or R 9051 PLS/C

Baeropan MC or R 9051 PLS/C provides the high dynamic heat stability required of Celuka foam sheets and imparts even colour over their whole width. The use of Baeropan MC or R 9051 PLS/C does not impair the flame retardancy of the sheet according to DIN 4102-B1. Dosage: 6.0 – 6.5 phr

#### Example

Components	[phr]
S-PVC, k-value 57 – 60	100.0
Coated filler	5.0
Titanium dioxide	4.0
Baerorapid 20 F	8.0
Baeropan MC 9051 PLS/C	6.0 – 6.5
Blowing agent	as required

#### Supply forms

Baeropan	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
9051 PLS/C	●	●	–	–	–	5.5 – 6.0	Ca/Zn	outdoor/indoor

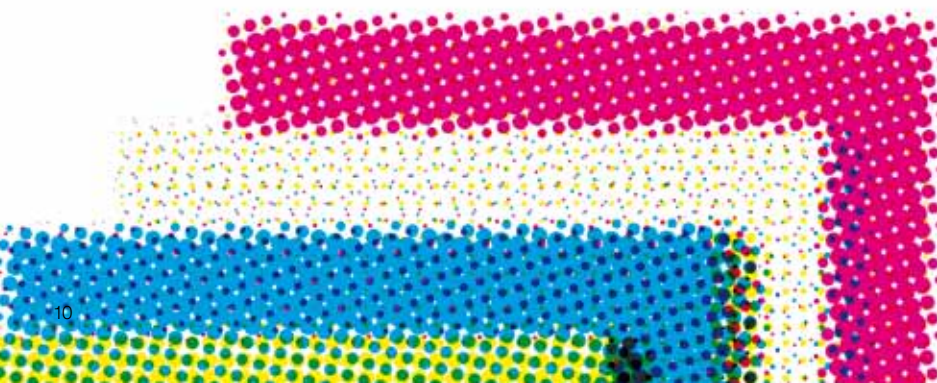
## Tin

#### Supply forms

Baerostab	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
M 26 SF	–	–	–	–	●	1.5 – 2.0	Sn	outdoor/indoor
M 170	–	–	–	–	●	2.0 – 2.5	Sn	indoor

\*Lubricant one-pack necessary for Tin-stabilized systems: 2.0 – 3.0 phr Baerolub MC 8571 /1 PLS/F-SN

MC = powder; R = granules; SMS = flakes; TX = pellets



# Foamed Profiles

## Calcium/Zinc

### Baeropan MC or R 9049 PS

Baeropan MC or R 9049 PS offers excellent processing latitude for the manufacturing of foamed profiles in a wide range of dimensions. Dosage: 4.0 – 4.5 phr

#### Example

Components	[phr]
S-PVC, k-value 57 – 60	100.0
Coated filler	5.0
Titanium dioxide	4.0
Baerorapid 20 F	5.0 – 6.0
Baeropan MC/R 9049 PS	4.0 – 4.5
Blowing agent	as required

#### Supply forms

Baeropan	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
8902 PS/2	●	●	-	-	-	3.5 – 4.0	Ca/Zn	outdoor/indoor
9076 PS/1	●	●	-	-	-	4.5 – 5.0	Ca/Zn	outdoor/indoor
9347 PS	●	●	-	-	-	3.0 – 3.5	Ca/Zn	outdoor/indoor

## Lead and Tin

#### Supply forms

Baeropan/Baerostab	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
M 26 SF*	-	-	-	-	●	1.0 – 1.5	Sn	outdoor/indoor
M 170*	-	-	-	-	●	1.5 – 1.8	Sn	indoor
50226 PS	-	-	●	●	-	4.5 – 5.5	Pb	outdoor/indoor

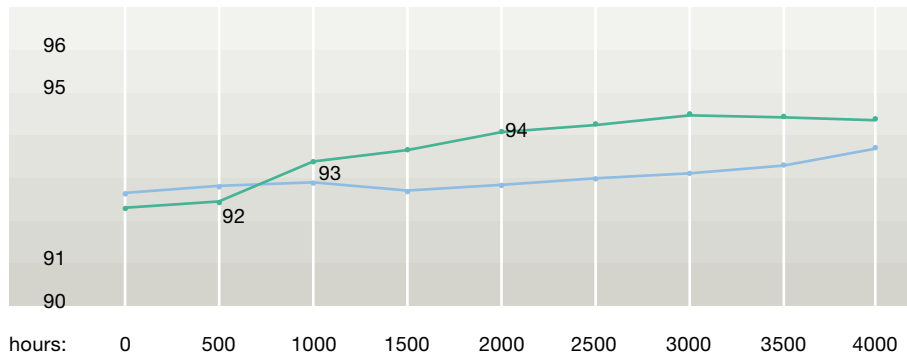
\*Lubricant one-pack necessary for Tin-stabilized systems: 2.0 – 2.5 phr Baerolub MC 8571 /1 PLS/F-SN

MC = powder; R = granules; SMS = flakes; TX = pellets

**Weathering data of Calcium/Zinc-stabilized foamed profiles in comparison with Tin-stabilized profiles. Both formulations contain 5.0 phr of titanium dioxide.**

**Xenon-test L-value**

L-value

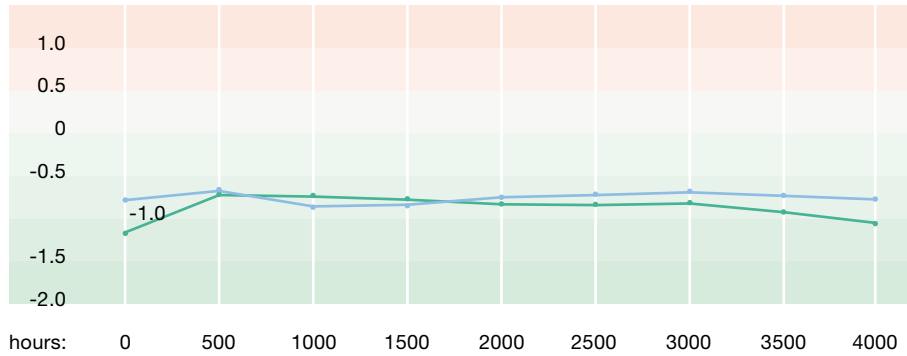


The graphs show that the Calcium/Zinc-stabilized profile has much better weathering resistance than the Tin-stabilized profile.

- Ca/Zn system
- Sn system

**Xenon test a-value**

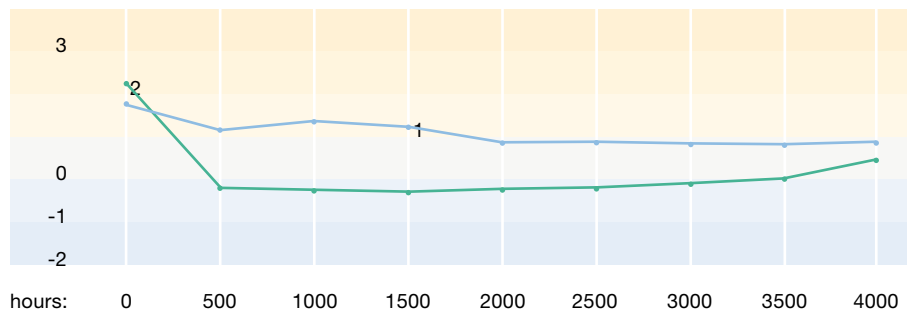
a-value



- Ca/Zn system
- Sn system

**Xenon test b-value**

b-value



- Ca/Zn system
- Sn system





# Co-extruded Foamed Profiles

## Calcium/Zinc

### Baeropan MC or R 9046 FS

Baeropan MC or R 9046 FS gives the co-extruded compact outer skin excellent whiteness and good light stability. The foam core recipe can be formulated similar to the ones given for foamed profiles (cf. p.11).

#### Example

Components	[phr]
S-PVC, k-value 57 – 60	100.0
Coated filler	5.0
Titanium dioxide	4.0
Baerorapid 3 FK	2.0
Baerodur E-ST 5D	2.0 – 4.0
Baeropan MC 9046 FS	3.0 – 3.5

#### Supply forms

Baeropan	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
9046 FS	●	●	-	-	-	3.0 – 3.5	Ca/Zn	outdoor/indoor
9347 PS	●	●	-	-	-	3.0 – 3.5	Ca/Zn	outdoor/indoor

## Lead and Tin

#### Supply forms

Baeropan/Baerostab	MC	R	SMS	TX	liquid	Dosage [phr]	Metal basis	Application
M 26 SF*	-	-	-	-	●	1.0 – 1.5	Sn	outdoor/indoor
M 170*	-	-	-	-	●	1.5 – 1.8	Sn	indoor
50226 PS	-	-	●	●	-	3.5 – 4.5	Pb	outdoor/indoor

\*Lubricant one-pack necessary for Tin-stabilized systems: 2.0 – 2.5 phr Baerolub MC 8571 /1 PLS/F-SN

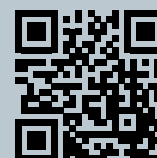
MC = powder; R = granules; SMS = flakes; TX = pellets



we add character to plastics

Notice: Although the information and recommendations contained in this document (hereinafter "Information") are presented in good faith and believed to be correct at the date of their publication, Baerlocher makes no representations or warranties as to the completeness or accuracy of Information. Information is supplied upon the condition that the persons or entities receiving same will make their own determination as to its suitability for their purposes prior to their use. In no event, will Baerlocher be responsible or liable for any loss of profits, lost goodwill, direct, special, indirect, incidental, or consequential damages of any nature whatsoever, including without limitation lost revenue, resulting from the use of or reliance upon Information or the product to which Information refers. Nothing contained in this disclaimer is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent or intellectual property right, and Baerlocher makes no representation or warranty, express or implied, that the use thereof will not infringe any patent or intellectual property rights. No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to Information or the product to which Information refers.

August 2016



Reach out for the Future: [www.baerlocher.com](http://www.baerlocher.com)

**Please download the following brochures  
from our webpage:**

**Baerlocher Additives for PVC**

- Extrusion and Injection Moulding
- Cables and Wires
- Calendered Films and Sheets
- Lead Stabilizers
- Lubricants
- Organotin Stabilizers
- Plastisol

**Baerlocher Special Additives**

- Metallic Stearates

**BÆRLOCHER**



Baerlocher GmbH  
Freisinger Str. 1  
85716 Unterschleissheim  
Germany  
phone: +49/ 89 14 37 30  
fax: +49/ 89 14 37 33 12  
info@baerlocher.com  
www.baerlocher.com