Baerlocher Additives for PVC

Calendered Films and Sheets

we add character to plastics

BAERLOCHER

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

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

BAEROPAN
BAEROSTAB
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BAEROLUB
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BAEROCIN
CEASIT
ZINCUM

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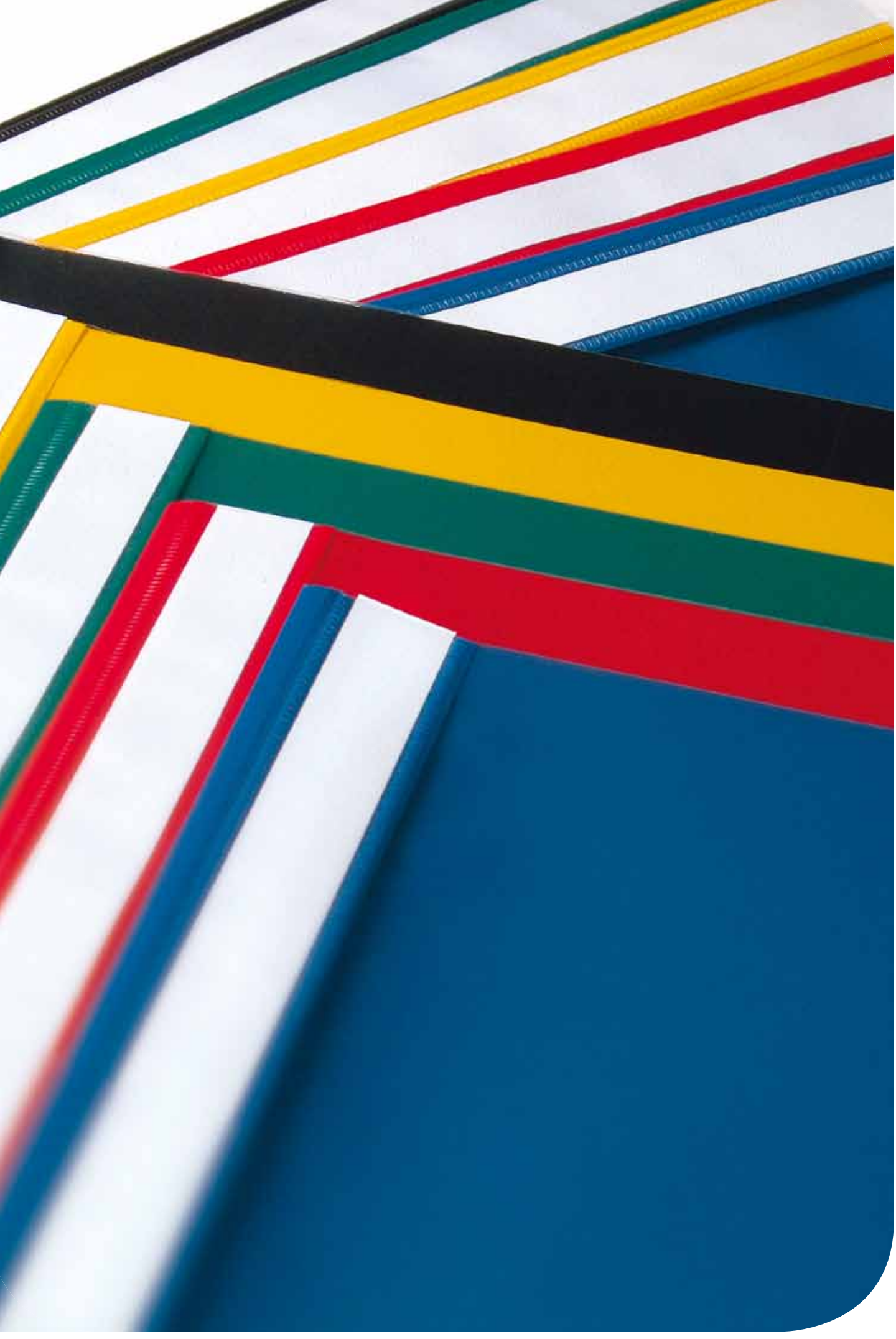
Additives for the Production of Calendered PVC Films and Sheets

After the substitution of Cd stabilizers for plasticised and semi-rigid films in Europe, the liquid BaZn stabilizers became new standards for these applications.
In addition to BaZn stabilizers, modern CaZn stabilizer systems fulfil stabilization requirements. The application field for CaZn is still expanding.
For applications as for example food contact, toys, tablecloth, CaZn stabilizers have been developed.
Independent from metal base aspects like VOC, odour, toxicity, labelling are becoming increasingly important for the processing of films. Where special emphasis is placed on low odour and emission-free products, mixed metals in powder form are available as fatty acid salts with good self-lubrication or as stabilizers based on inorganic co-stabilizers with varying degrees of self-lubrication for extreme demands on odour and emissions.
Rigid PVC sheets are generally stabilized by organotin compounds. Very effective completely odourless stabilizer lubricant compounds in powder form are available.
Baerlocher stabilizers for films are developed regarding the safety and protection of people and environment.
When choosing a stabilizer, the requirements of the final product need to be specified in detail in order to adjust both the performance and the good cost performance.

Baerlocher PVC Additives

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

Contents



Applications

The requirements a stabilizer must comply with depend essentially on:

- application
- processing and specific necessities
- the performance required of the final product
- the legal requirements during manufacture and use of the final product

Stabilizer properties are affected by its composition. The stabilizer itself can influence the processing and the performance of the finished article.

Stabilizer	Processing	Finished product
Colour	Adhesion	Adhesive receptivity
Compatibility with ESBO/plasticiser	Condensation	Amine resistance
Compatibility with pigments	Heat/dynamic stability	Blocking
Efficiency	Lubrication	Colour
Emission/VOC	Melt viscosity	Fogging
Flashpoint	Melting characteristic	Gloss
Odour	Plate-out	Heat ageing resistance
Pumpability/viscosity		Light/UV resistance
Storage stability		Migration
Phenol or Nonyl phenol content		Non-tox properties
		Odour
		Printability
		Residual heat stability
		Surface
		Transparency
		Weather resistance
		Weldability
		Whiteness

Important notice

Non-tox products: A group of stabilizers composed of those components approved by the different regulations as substances in PVC intended to come into contact with foodstuffs. For detailed pieces of information please contact one of Baerlocher's representatives.

Rigid films

Food and pharma: Organotin stabilizers are traditionally used for the manufacturing of non-tox rigid films (crystal clear and pigmented), e.g. thermo-formed food packaging and pharmaceutical blisters.
Today, new odourless CaZn stabilizers in powder form are available:

Baerostab	Form	Approvals	Characteristics
OM 710 S	L	EU 10/2011, FDA	Octyl tin mercaptide “high mono” with reduced odour, standard for food packaging, Dosage approx. 1,0 – 2,0 phr
OM 710 N	L	EU 10/2011, FDA	Octyl tin mercaptide “low mono” standard for food and pharmaceutical packaging, Dosage approx. 1,0 – 2,0 phr
MTS 1200	L	EU 10/2011	Methyl tin mercaptide, for food packaging and pharmaceutical packaging, Dosage approx. 1,0–2,0 phr
MTS 1220	L	EU 10/2011	Methyl tin mercaptide, for food packaging and pharmaceutical packaging, Dosage approx. 1,0–2,0 phr
NT 1601 P	P	EU 10/2011, FDA	CaZn, low lubricated, low odour, good early colour and transparency, synergetic effects with ESBO, Dosage: stabilizer approx. 1,5–2,0 phr / ESBO approx. 2,0–2,5 phr
NT 1883 P	P	EU 10/2011, FDA	CaZn, low lubricated, low odour, designed for pigmented formulations, synergetic effects with ESBO, Dosage: stabilizer approx. 1,5–2,0 phr / ESBO approx. 2,0–2,5 phr

L = liquid; P = solid/powder

Technical: Liquid organotin stabilizers are used for technical applications (crystal clear and pigmented).
However, in special cases tin stabilizers in powder form may be required, for example to meet the highest demand of printability and high vicat value (e.g. credit cards).

Baerostab	Form	Characteristics
MTS 1227	L	Methyl tin mercaptide designed for application which require excellent colour hold., Dosage approx. 1,0–2,0 phr
OM 710 N	L	Octyl tin mercaptide “low mono” suitable when high performance is needed, Dosage approx. 1,0–2,0 phr
OM 36	P	Octyltin mercaptide carboxylate for special applications or as co-stabilizer (booster) in combination with liquid tin or Cd- and Pb-free mixed metal stabilizers. Requires a balanced lubrication, Dosage approx. 0,7–1,2 phr
MC 9991-2 CR	P	CaZn, low odour, very low self-lubrication, designed for pigmented formulations, synergetic effects with ESBO, Dosage: stabilizer approx. 2,0–3,0 phr / ESBO approx. 2,0–2,5 phr

L = liquid; P = solid/powder

Plasticized films

Main characteristics of these stabilizers are self-lubrication with low plate-out tendency and good colour hold during process. In the most of the cases synergetic effects with ESBO (2,0–3,0 phr) are utilised.

Baerostab	Form	semi rigid	Characteristics
UBZ 711-1 X RF	L	●	Standard, low phenol, 2-EHA free, nonylphenol free, ptBBA free
UBZ 733-1 X RF	L	●	High performance, low phenol, nonylphenol free, ptBBA free, 2-EHA free, high transparency,
UBZ 780 X RF	L	●	High performance, low phenol, nonylphenol free, ptBBA free, good dynamic heat stability
UBZ 764 RF	L	●	High performance, nonylphenol free, ptBBA free, high transparency, good dynamic heat stability
UBZ 780 RF	L	●	High performance, nonylphenol free, ptBBA free, high transparency, good dynamic heat stability
UBZ 784 RF	L	●	Standard, nonylphenol free, ptBBA free, 2-EHA free
UBZ 715 RF	L	●	High performance, nonylphenol free, ptBBA free, high transparency, low lubricated
UBZ 751 RF	L	●	Standard plus, 2-EHA free, nonylphenol free, ptBBA free, high transparency
CT 9083 RF	L		Standard, 2-EHA free, nonylphenol free, ptBBA free,
CT 9063 X RF	L	●	Standard plus, low odour, low phenol, 2-EHA free, nonylphenol free, ptBBA free, highly lubricated
CT 341 P	P		Standard plus, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication, good transparency
NT 319 P MC 8763-1 CP	P		High performance, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication, good transparency
MC 8807-16 CP	P		Standard plus, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication
UBZ 729 RF	L	●	Standard plus, 2-EHA free, nonylphenol free, ptBBA free, highly self-lubricated, high whiteness, high compatibility with bonding agent, only for filled application
NT 580 A	P		Standard plus, non-tox stabilizer, phenol free, 2-EHA free, nonylphenol free, ptBBA free, good self-lubrication

L = liquid; P = solid/powder; PS = paste

Car interiors

The main requirements for car interiors are low fogging, colour resistance in contact with PUR foam which – due to the amine sensitivity. PVC discolouration resistance can only be achieved by additional use of special co-stabilizers. In the most of the cases synergetic effects with ESBO (2,0–3,0 phr) are utilised.

Baerostab	Form	Type	Characteristics
UBZ 711-1 X RF	L	BaZn	Standard, low phenol, 2-EHA free, nonylphenol free, ptBBA free, highly self lubricated, low fogging
NT 580 A	P	CaZn	Standard plus, non-tox stabilizer, phenol free, 2-EHA free, nonylphenol free, ptBBA free, good self-lubrication
NT 319 P MC 8763-1 CP	P	CaZn	High performance, non-tox for all types of films and profiles, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low emission
ASM 711 ASM 715	P	co-stabilizer	Co-stabilizer in combination with BaZn and CaZn for improvement of the heat ageing resistance in the temperature range of 120–150 °C and the amine resistance when backed with PUR foam

Outdoor applications

Main characteristics of these formulations are presence of TiO_2, biocides, UV absorber and very often fire retardants. In some cases synergetic effects with ESBO (2,0–3,0 phr) are utilised.

Baerostab	Form	Type	Characteristics
UBZ 711-1 X RF	L	BaZn	Standard, low phenol, 2-EHA free, nonylphenol free, ptBBA free
UBZ 729 RF	L	BaZn	Standard plus, 2-EHA free, nonylphenol free, ptBBA free, highly self-lubricated, high whiteness, high compatibility with bonding agent
UBZ 782 XLP RF	L	BaZn	Standard, very low phenol, 2-EHA free, nonylphenol free, ptBBA free, reduced interference with biocide (e.g. DCOIT)
CT 9083 RF	L	CaZn	Standard, 2-EHA free, nonylphenol free, ptBBA free,
NT 319 P MC 8763-1 CP	P	CaZn	High performance, non-tox for all types of films and profiles, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low emission, performance could be improved by combination with liquid phosphites like Baerostab CWM 201
MC 8763-10 CP	P	CaZn	High performance, , phenol free, 2-EHA free, nonylphenol free, ptBBA free, low emission, performance could be improved by combination with liquid phosphites like Baerostab CWM 201. High Congo red performance.
MC 91024-2 CP	P	CaZn	Cost-efficient , phenol free, 2-EHA free, nonylphenol free, ptBBA free, low emission, performance could be improved by combination with liquid phosphites like Baerostab CWM 201

L = liquid; P = solid/powder; PS = paste

Flooring

Flooring producers show high concern in environmental issues. For that reason low odour, low emission and low phenol stabilizers are mainly used in this application. In the most of the cases synergetic effects with ESBO (2,0–3,0 phr) are utilised.

Transparent wear layer:

Baerostab	Form	Type	Characteristics
CT 9063 X RF	L	CaZn	Standard plus, low odour, low phenol, 2-EHA free, nonylphenol free, ptBBA free, highly lubricated
CT 341 P	P	CaZn	Standard plus, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication
MC 8807-16 CP	P	CaZn	Standard plus, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication
MC 8763-11 CP	P	CaZn	High performance, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission

L = liquid; P = solid/powder

Pigmented, filled:

Baerostab	Form	Type	Characteristics
CT 9063 X RF	L	CaZn	Standard plus, low odour, low phenol, 2-EHA free, nonylphenol free, ptBBA free, highly lubricated
MC 8807-16 CP	P	CaZn	Standard plus, phenol free, 2-EHA free, nonylphenol free, ptBBA free, low odour, low emission, good self-lubrication
MC 9268 CP	P	CaZn	High performance, phenol free, 2-EHA free, nonylphenol free, ptBBA free, very good thermo stability, good self-lubrication, low emission

L = liquid; P = solid/powder

PVC flooring of the Olympic handball hall in Athens

Other Additives for Calendering

Product	Type	Form	Dosage [phr]	Application
Baerolub FTA	Stearic acid	P	0,2–0,4	External lubricant, plate-out tendency reduced or completely prevented
Baerolub LS 100	Complex ester	P	0,3–0,5	External lubricant, plate-out tendency reduced or completely prevented
Baerolub PA Special	Oxidised PE wax	P	0,05–0,15	External lubricant, high efficient, very good metal release behaviour
Baerolub L-PL	Glycerol partial esteR GMO / GDO	L	0,3–2,0	Internal lubricant, very soluble in PVC, antifogging agent, improves heat stability particularly in formulations based on sulphur containing tin stabilizers, some antistatic effect
Baerolub L-CD	Hydrogenated castor oil	P	0,3–0,5	Internal lubricant for U-PVC formulation,
Baerolub L-MS	Glycerol partial ester GMS	P	0,5–0,8	Internal lubricant for U-PVC formulation, 40% glycerol mono stearate
Baerostat 351	Antistatic agent	L	0,5–10,0	Improves electrical conductivity, imparts antistatic properties, plasticizing effect
Baerostat 318 S	Antistatic agent	L	0,5–10,0	Improves electrical conductivity, imparts antistatic properties, plasticizing effect
Baerostat 350 R	Antistatic agent	P	1,0–2,0	Improves electrical conductivity, imparts antistatic properties, for U-PVC
Antiblocking 3780	Silica complex	P	0,3–0,5	Reduction of surface tackiness in plasticized PVC films
Antiblocking 7831	Silica complex	P	0,5–1,5	Reduction of surface tackiness in plasticized PVC films
Baerolub L-AK Baerolub L-AS	Amide wax, EBS	P	0,4–0,6	External lubricant, impart antiblocking properties and dry grip
Laevisiel SL	Silica	P	0,5–1,0	Avoids formation of plate-out during processing, d50 = 5 µm
Laevisiel SP	Silica	P	0,5–1,0	Avoids formation of plate-out during processing, d50 = 20 µm
Baerostab ASM 711 Baerostab ASM 715	Co-stabilizer	P	0,5–2,5	Improvement of the heat ageing resistance in the temperature range of 120-150°C (prevents discolouration and embrittlement) and for achievement of amine resistance (PUR foam backing)
Baerostab ASM 104	Co-stabilizer	P	0,1–0,5	Organic co-stabilizer pink discolouration during heat ageing. for U-PVC
Baerostab LSA	ESBO	L	2,0–4,0	Epoxidised soya bean oil, improvement of heat and light stability by synergetic effect together with mixed metal stabilizers
Baerostab LSU	Epoxy octyl stearate	L	2,0–4,0	Co-stabilizer, improvement of heat and light stability by synergetic effect together with mixed metal stabilizers
Baerostab CWM 201	Organo-Phosphite, TTDP	L	0,3–1,0	Organic co-stabilizer, improvement of heat stability and colour, low odour, for outdoor applications
Baerostab CWM 201 XLP	Organo-Phosphite, TTDP	L	0,3–1,0	Organic co-stabilizer, improvement of heat stability and colour, low odour, for outdoor applications, very low phenol content

L = liquid; P = solid/powder

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Reach out for the Future: **www.baerlocher.com**

Please download the following brochures from our webpage:

Baerlocher Additives for PVC

- Extrusion and Injection Moulding
- Cables and Wires
- Lead Stabilizers
- Lubricants
- Organotin Stabilizers
- Plastisol
- Sheets and Foamed Profiles

Baerlocher Special Additives

- Metallic Stearates

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