

Additives for Polyamides

Creating the missing link.

Big expansion of polymer additives production plant at our headquarters in Heilbronn



- Secure long-term supply for our customers
- Highest reliability and flexibility
- Optimum product quality



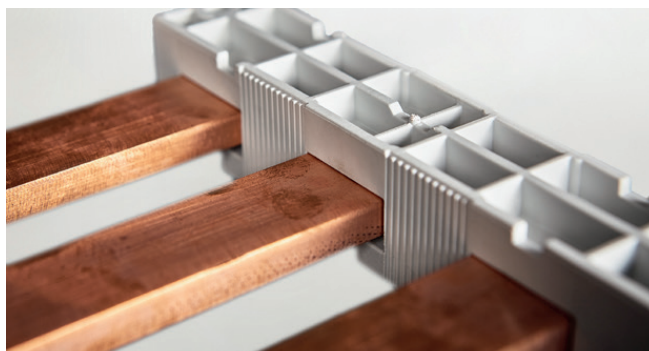
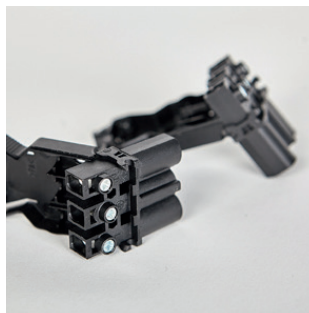
Newest
technology
with a high
degree of
automation

Product innovations targeted to customer demands

Brüggemann continuously develops speciality additives in response to the requirements of the market. More than 40 years' experience in the polymer industry, along with technical expertise and close partnerships with customers, are the basis for the timely development of innovative solutions. This enables customers to enhance the value of their products in order to meet the ever-increasing technical demands of the marketplace.

The product range mainly comprises tailor-made and well-balanced speciality additives. These additives are mixtures of several active components and present solutions for specific applications in customized product forms, such as powder, compacted or polymeric granules.

Brüggemann produces key active ingredients in these additive packages on its own state of the art production and based on Brüggemann know-how. This know-how includes chemical synthesis on speciality equipment and a broad range of dedicated drying processes.



High Performance Additives for

BRUGGOLEN® H

Copper Based Antioxidants Heat Stabilization of Polyamides at High to Very High Temperatures

Classic Copper Salt Based Heat Stabilizers (up to 180°C)

BRUGGOLEN®H320/H321*

Blend of CuI/KI/KBr/Stearates

BRUGGOLEN®H324/H325*

Blend of CuI/KI/Stearates

BRUGGOLEN®H328F/H329F*

Blend of CuI/KBr/Stearates

Powerful long-term protection

- characteristic bluish or greenish color after conditioning
- excellent quality and homogeneity via specific production know-how
- variety of stabilizers to serve all customer requirements

New Copper Iodide Based Heat Stabilizer (up to 180°C)

BRUGGOLEN®TP-H1607*

Prolongs retention of mechanical properties compared to classic copper stabilizers

- high efficiency enables low dosage
- broad application including E & E (allows high CTI of 600V)
- new, proprietary technology
- more competitive solution than CuI/KI stabilizers
- excellent dispersion, easy handling, accurate dosing

Proprietary Copper Complex Based Heat Stabilizers (up to 180°C)

BRUGGOLEN®H3386/H3387*

BRUGGOLEN®H3350/H3351**

Natural color/ Powerful long-term protection

- retains natural color of polyamide after conditioning
- excellent UV-stabilization
- very good dispersion
- H3351** masterbatch is suited for monofilament and fibre applications

BRUGGOLEN®H3376/H3377*

Natural color/ Especially suited for E & E applications

- high comparative tracking index (CTI) up to 600V
- retains natural color of polyamide after conditioning
- H3377* compacted granules suited for fibre and monofilament applications
- high extraction resistance; no plate-out

BRUGGOLEN®H3336

BRUGGOLEN®H3344

Characteristic bluish color

- best value - allows high CTI up to 600V where color is not an issue
- excellent dispersion
- high extraction resistance, no plate-out
- suited for E&E applications

High Heat Stabilizer for Aliphatic Polyamides above 200°C

BRUGGOLEN®TP-H1805**

Powerful long-term protection of aliphatic polyamides at very high temperatures: PA6 up to 200°C, PA6.6 up to 230°C

- tensile strength retention > 50% for 3000h at 200°C
- no activation required
- easy processing during compounding
- upgrades aliphatic polyamides to the performance range of high temperature nylons

Polyamides and Polyesters

BRUGGOLEN® H

Heat Stabilizers with Focus on Polyamides

Processing Stabilizer

BRUGGOLEN®H10

Best protection of polyamides against discoloration during processing

- reduced yellowing during melt processing
- protection against discoloration after ageing by heat and by UV-light
- H10 is superior to organic phosphites because of its:
 - excellent resistance against high shear stress and elevated temperatures
 - non-volatility
 - resistance against hydrolysis
- especially suited for glass fibre reinforced polyamides

Phenolic based Heat Stabilizer Packages

BRUGGOLEN®H164

Long term protection of polyamides against heat ageing for technical applications

- non-discolouring
- excellent in glass fibre reinforced or mineral filled polyamides

BRUGGOLEN®H161

Long term protection of polyamide fibres and unfilled injection / extrusion grades

- very good color stabilization, e.g. during storage
- non-extractable; no plate-out

BRUGGOLEN®H175

Very efficient color and long-term heat stabilization of engineering thermoplastics

- non-extractable, no plate-out
- effective also in polyesters, polycarbonates and styrenics
- excellent color stabilization

BRUGGOLEN®H180

Excellent processing stabilizer and antioxidant package for polyacetals

- scavenges formaldehyde

Phenolic Plus: Phenolic based Heat Stabilizer Package with Extended Temperature Range for Polyamides

BRUGGOLEN®TP-H1803*

Outperforms conventional phenolic based stabilizers

- improved retention of mechanical performance under heat
- extended heat stabilization for short-term peak temperatures of up to 180°C
- phenolic stabilizer package upgraded with copper complex technology (low copper content)

Secondary Aromatic Amine based Heat Stabilizer Package

BRUGGOLEN®TP-H1802

Protection of polyamides against hot oils, fats and glycols

- good long-term thermal stabilization
- characteristic brownish translucent discoloration
- not CMR classified, free of DPPD

BRUGGOLEN® P

Processing Agents for Polyamides and Polyesters

Nucleating Agents	
BRUGGOLEN®P22 for Polyamides BRUGGOLEN®P252 for Polyesters	Highly efficient nucleating agents <ul style="list-style-type: none"> • reduction of cycle time during injection moulding • improved dimensional stability - significant reduction of warping in GF-reinforced compounds • improved mechanical properties (tensile strength, stiffness, etc.) • increased heat distortion temperature • non-volatile; non-extractable
BRUGGOLEN®TP-P1401** for Polyamides	Nucleating agent in granular form <ul style="list-style-type: none"> • suited for higher processing temperatures • easy to dose, disperse and process • improved surface properties of nucleated compound • for application both in compounding and injection moulding
Flow Enhancers for Polyamides	
BRUGGOLEN®TP-P1507** for Aliphatic Polyamides BRUGGOLEN®TP-P1810** for Semi-Aromatic Polyamides	Easy flow + excellent mechanical performance <ul style="list-style-type: none"> • superior melt flow • improved processing of glass fibre filled compounds • retention of mechanical properties • advantages in injection molding <ul style="list-style-type: none"> • shorter cycle time • low energy consumption • more complex design • easy to dose and disperse
Processing Agents	
BRUGGOLEN®P14 for Polyamides BRUGGOLEN®P130 for Polyamides and Polyesters	Combination of internal and external lubricants <ul style="list-style-type: none"> • very efficient due to low volatility and high thermal stability • high gloss and good surface protection • excellent mould release • broadened processing window
Processing One-Packs for Polyamides (Prime Grades / Recyclates)	
BRUGGOLEN®P30 / P31* BRUGGOLEN®P32 / P33*	Ready-to-use synergistic packages for injection moulding <ul style="list-style-type: none"> • P30/P31* is specifically suited for recycling of fibre waste or regrind • improved melt flow • efficient color protection / processing stabilization
Processing Auxiliary (liquid) for Dry Blending	
BRUGGOLEN®P60	Improved quality of blends with polymer chips + additive powder <ul style="list-style-type: none"> • reduced separation during transport • improved additive dispersion

BRUGGOLEN® M

Modifiers for Polyamides

Chain Extenders for Polyamides

BRUGGOLEN®M1251**
BRUGGOLEN®M1253**

Unique increase of molecular weight via linear chain extension

- no cross-linking
- upgrade of injection moulding grades to extrusion grades
- increase of impact strength
- increase of elongation at break
- typical applications in extrusion, blow-moulding, recycling and injection moulding
- M1253 micro-granules are also suited for monofilament and fibre applications

Chain Cutter for Recycling of High Viscosity Polyamide Scrap or Waste

BRUGGOLEN®TP-M1417**

Controlled and reproducible reduction of molecular weight

- exact adjustment of the relative viscosity to specific target values
- upcycling to injection moulding grades
- generating flow properties and mechanical performance comparable to that of prime material
- allowing cost advantages through usability of scrap or waste material
- enabling recycling of cast nylon waste

BRUGGOLEN® L

Light Stabilizers

Light Stabilizers / Optical Brightener for Engineering Thermoplastics

BRUGGOLEN®L11

Very efficient optical brightener + stabilizer package

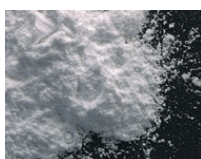
- brightening of colours
- improving color stability via better resistance to high processing temperatures
- masking of yellowish discoloration

BRUGGOLEN®L20
BRUGGOLEN®L206

Effective protection against ageing caused by UV-light and heat

- synergistic UV-stabilization packages
- L20 for pigmented, L206 for unpigmented systems

Product Forms (as indicated)



fine to coarse
powder



*low dust
compacted pellets



**dust-free
polymeric granules

Further commercial **BRUGGOLEN® Polymer Additives** and new test products are available on request.

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