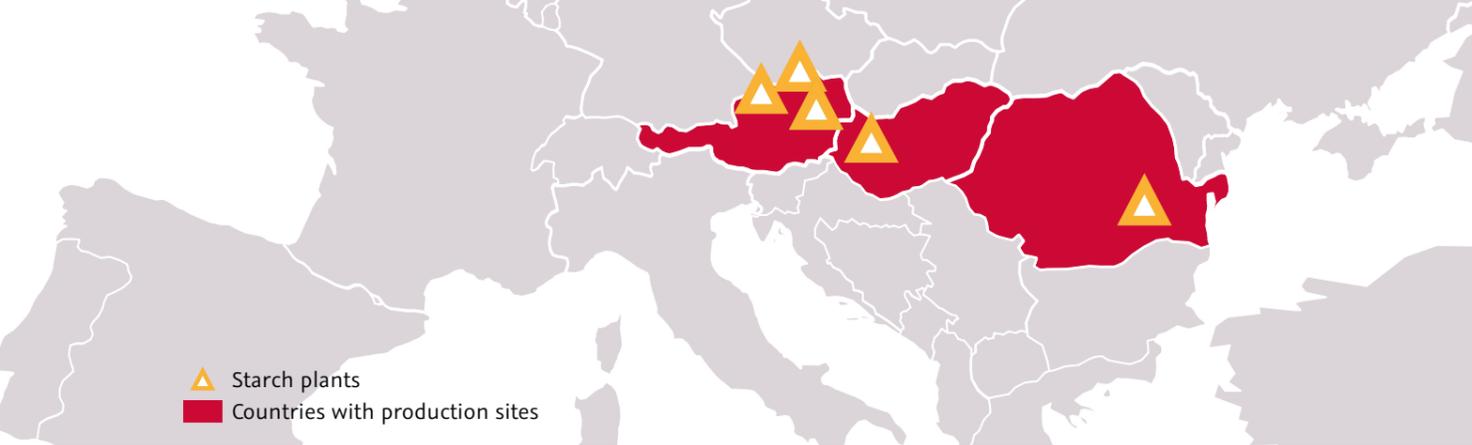




CONSTRUCTION CHEMICALS AND ADDITIVES

AGRANA STARCH



▲ Starch plants
■ Countries with production sites

AGRANA STARCH

AGRANA – an internationally oriented Austrian company – specialises in processing and adding value to high quality agricultural rawmaterials such as corn, potatoes and wheat to make a wide range of starch products, tailored to different industrial uses.

AGRANA STARCH has a long and exceptionally successful track record in the development and marketing of modified starch products, under the brand name AMITROLIT®, for the construction materials industry. The products are the result of longstanding and intensive research and development in close cooperation with the Research Division Starch (ARIC: AGRANA Research and Innovation Center).

AGRANA STARCH'S CUSTOMER FOCUS

is characterized by extensive and competent advisory services which completes the AMITROLIT® portfolio offered by AGRANA such as

-  ■ individual technical advice
-  ■ customized products
-  ■ individual service
-  ■ clean and consistent quality
-  ■ short delivery time

APPLICATIONS

AGRANA starch ethers are used in mineral-based binding systems such as **gypsum** and **cement**:

- Gypsum, slaked lime, cement and various combinations are typical applications where AMITROLIT® starches are used to immediately and reliably improve the consistency of the desired end-product properties.
- AMITROLIT® increases the efficiency of conventional water retention agents and improves the adhesive strength of combinations of building materials for difficult surfaces. They can also be used to optimize the efficacy of air-entraining admixtures.

AMITROLIT® starch ethers offer a wide range of different and unique product properties specifically designed, for the needs of industries such as the drymix mortar industry, with characteristics including.

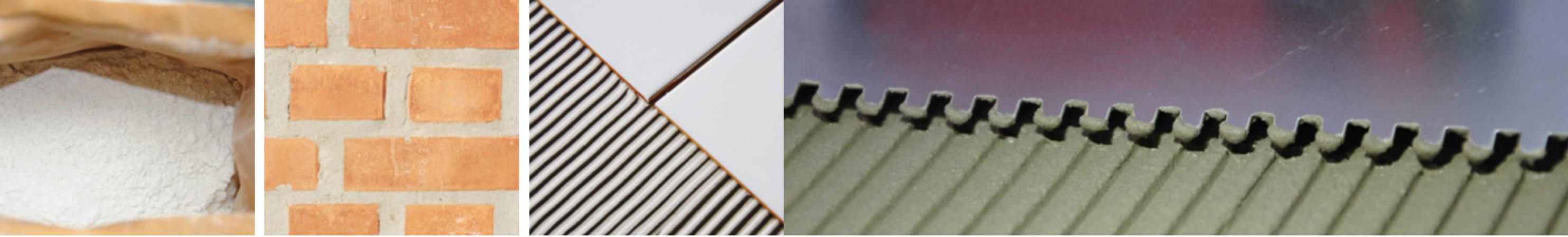
- exact adaptation to the required rheological product property for such applications as:
 - tile adhesives
 - joint compounds
 - plaster and render
 - gypsum plasterboards
 - concrete technology
 - dispersion systems
 - wallpaper glues
 - insulation board adhesives
- high product consistency by using the latest technology in our manufacturing plants and maintaining the highest standards of our quality assurance
- excellent overall compatibility with additives used in these applications
- highest efficiency at the required dosage
- ecologically friendly and nontoxic

Beyond these applications AGRANA Starch ethers are well established in the fabrication of gypsum plasterboards (COLLAMIDON®).

PRODUCT SELECTION GUIDE

		AMITROLIT® 8850	AMITROLIT® 8860	AMITROLIT® 8872	AMITROLIT® 8873	AMITROLIT® 8873C	AMITROLIT® 8882	AMITROLIT® 8869	AMITROLIT® 8865	AMITROLIT® 8400	COLLAMIDON® 8805
CEMENTITIOUS SYSTEMS	Masonry mortars	++	++				+	+			
	Plasters	++	+	++	+	+	+	+			
	Skim coats	+	+		++	++	++	++			
	Tile adhesives standard (CTA acc. EN12004)	+	++	++	+	+	+	++			
	Tile adhesives improved (CTA acc. EN12004)	+	++	+	++	+	++	++			
	ETICS – External Thermal Insulation Composite System	++	++	+	++	+	+	+			
GYPSUM SYSTEMS	Plasters	++			+	+	++				
	Skim coats	++			+	++	++				
	Gypsum plaster boards										++
CONCRETE	Stabilizer for Self Compacting Concrete (SCC)									++	
	Rebound reducing agent for shotcrete (dry & wet)									++	
WALLPAPER-GLUE	Wallpapers glues									++	

INFORMATION: Above given information is based on findings, operating experience and extensive research evolving from practical application. Due to other raw materials and supplementary chemicals being used in formulations as well as varying processing conditions we are not liable for the above given information. Please contact us for our technical support.



PROPERTIES AND CHARACTERISTICS OF AMITROLIT® STARCH ETHERS IN HYDRAULIC BINDER SUSPENSIONS

THICKENING

AMITROLIT® starch ethers strengthen the consistency of materials which are based on hydraulic binders resulting from a distinctive impact on the rheological behaviour of the binding matrix in water. Particularly the flow characteristics, the yielding point as well as the water demand of the various formulations are enhanced by **AMITROLIT®**. With the appropriate application of the **AMITROLIT®** types, materials including renders or tile adhesive show significantly high non-sag properties.

ADJUSTMENT OF THE FLOW CHARACTERISTICS

As a result of the impact on the flow properties, the structural viscosity of the suspensions and the time dependent flow properties, such as thixotropy or rheopexy, can be adapted to the desired application as well as processing technique. With the selection of the right **AMITROLIT®** type and the appropriate dosage, the workability of renders and tile adhesives can be optimized.

COMPATIBILITY WITH OTHER COMPONENTS

AMITROLIT® products are compatible with commonly used aggregates and additives. **AMITROLIT®** improves the efficiency of the additives and significantly reduces the required quantities. The product properties are resulting in an increase of the water retention, enhanced adhesion and optimized workability. In general, the **AMITROLIT®** products show low influence on the reactivity of the hydraulic binder (cement, gypsum, lime).

CALCIUM SENSITIVITY OF THE STARCH ETHER

Akin to other technical products based on poly saccharides, which are categorized amongst Polyhydroxyl-Polymers, the **AMITROLIT®** starch ethers, may exhibit a certain level of sensitivity towards polyvalent cations, such as calcium, with regards to the solution rate and the peak viscosity. Such sensitivity can be related to the quantity of **AMITROLIT®** used, the interdependence to the type of polyvalent cations, the pH and in addition the type of **AMITROLIT®**. In general, **AMITROLIT®** products exhibit a lower sensitivity towards calcium-ions at higher pH levels in comparison to other starch products.

CONSTRUCTION MATERIALS

CEMENTITIOUS BASED CONSTRUCTION MATERIALS

A wide range of different starch ethers guarantee that we meticulously meet our customers' needs and preferences when it comes to provide optimized formulations. The **AMITROLIT®** series comprises different raw materials combined with diverse modifications to exceed the product properties with regards to

- rheological behaviour
- workability
- sag resistance
- water retention
- set retardation

Application areas include:

- mortars
- renders and skim coats
- tile adhesives (C1 and C2 according to EN12004)
- external wall insulation systems and
- beyond

SUITABLE PRODUCTS

- ✓ ■ **AMITROLIT®** 8850
- ✓ ■ **AMITROLIT®** 8860
- ✓ ■ **AMITROLIT®** 8872
- ✓ ■ **AMITROLIT®** 8873
- ✓ ■ **AMITROLIT®** 8873C
- ✓ ■ **AMITROLIT®** 8882
- ✓ ■ **AMITROLIT®** 8869

GYPHUM BASED CONSTRUCTION MATERIALS

The demanding formulation of gypsum based materials requires specific rheological behaviour. A specific range of different starch ethers provide the exactly desired behaviour and improvement in the material performance. The **AMITROLIT®** series comprises different raw materials combined with diverse modifications to exceed the product properties with regards to

- rheological behaviour
- workability
- sag resistance
- water retention
- set retardation

Application areas include:

- mortars and adhesives
- renders and skim coats
- machine processed plaster
- joint compounds and
- beyond

SUITABLE PRODUCTS

- ✓ ■ **AMITROLIT®** 8850
- ✓ ■ **AMITROLIT®** 8873
- ✓ ■ **AMITROLIT®** 8873C
- ✓ ■ **AMITROLIT®** 8882

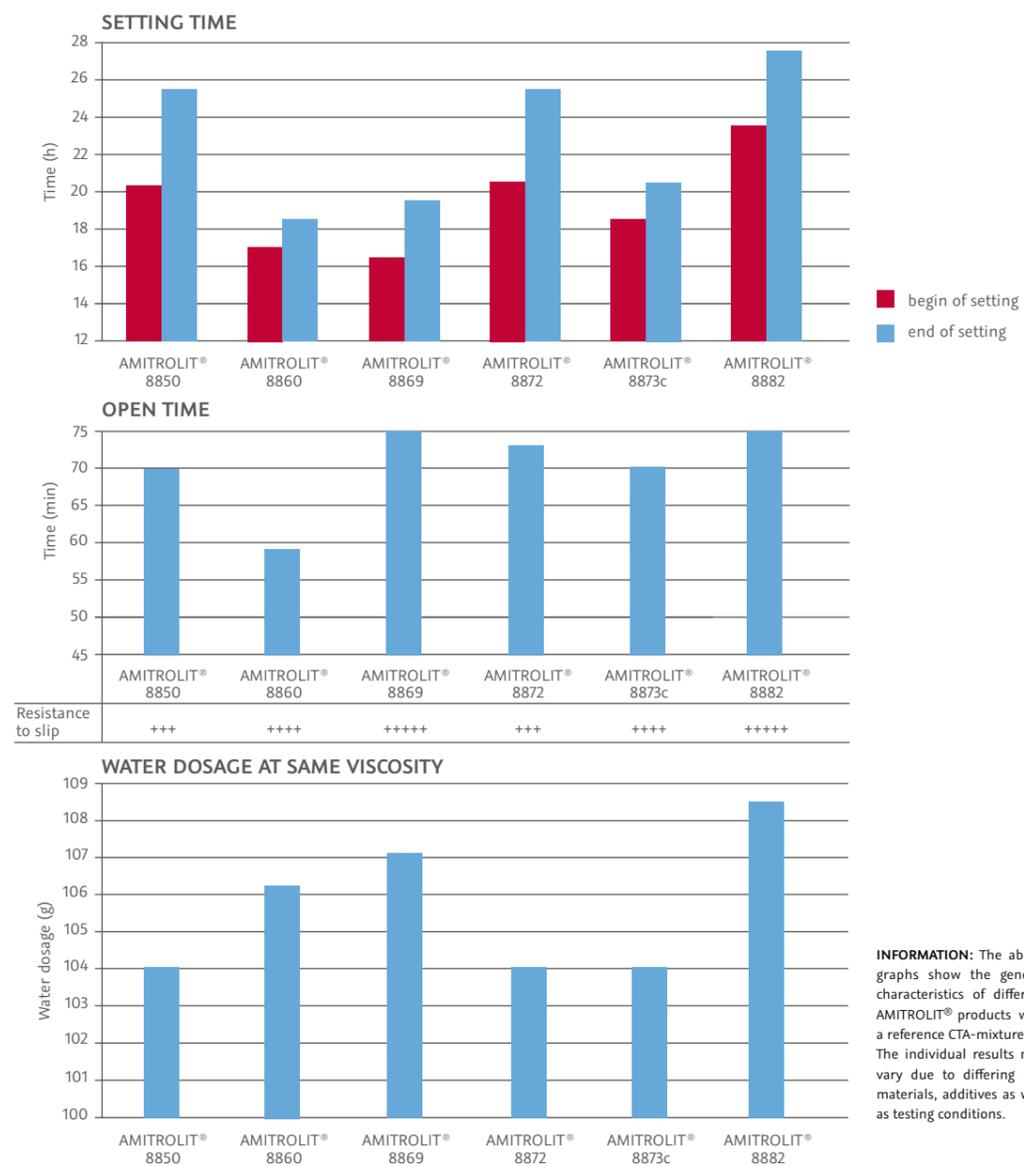
For the highly demanding mass production process of gypsum plasterboards, the **COLLAMIDON®** is a unique additive to optimize the adhesion between the cardboard and the gypsum base.

SUITABLE PRODUCT

- ✓ ■ **COLLAMIDON®** 8805



PRODUCT PROPERTIES OF SELECTED AMITROLIT® PRODUCTS (e.g. CTA)



CONSTRUCTIONS MATERIALS

MACHINE SPRAYED PLASTER	PART BY WEIGHT
Gypsum-Lime binding system	
Gypsum	66
Hydrated lime	3
Lime stone powder	30
Retarder	0.2
Celluloseether	0.1
Air entraining agent	0.01
Perlite 0 – 1mm	0.8
AMITROLIT® 8882	0.02
Lime-Cement binding system	
CEM I	15
Hydrated lime	5
Sand	80
Celluloseether	0.1
Air entraining agent	0.03
AMITROLIT® 8850	0.03
TILE ADHESIVE	
Formulation A (EN 12004 C2)	
CEM I	40
Quartzsand 0.1 – 0.4 mm	59
Redispersion powder	0.5
Celluloseether	0.5
AMITROLIT® 8860	0.05
Formulation B (EN 12004 C2)	
CEM I	35
Quartzsand 0.1 – 0.4 mm	63
Redispersion powder	1
Celluloseether	0.4
AMITROLIT® 8882	0.05

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ETICS ADHESIVES	PART BY WEIGHT
Portland cement CEM I 42,5 R	25
Quartz sand	62
Limestone powder	10
Emulsion powder	2.5
Cellulose ether	0.2
AMITROLIT® 8850	0.07
Air-entraining agent	0.01
SKIM COAT	
PART BY WEIGHT	
White cement	30
Calcium carbonate	69.5
Celluloseether	0.4
AMITROLIT® 8873C	0.05
STABILIZER FOR FLUID CONCRETES (Flow 55 – 60 cm)	
PART BY WEIGHT	
CEM II A – M 42, 5N	230
Fly ash	60
0/4 aggregates (moist)	930
4/16 aggregates (moist)	920
Water	180
Superplasticizer	4.4
AMITROLIT® 8865	0.035

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