ELCO ascorbic acid. The quality brand the milling industry trusts.

Mühlenchemie
makes good flours even better

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GEPRÜFTE MÜHLENQUALITÄT
APPROVED MILLING QUALITY

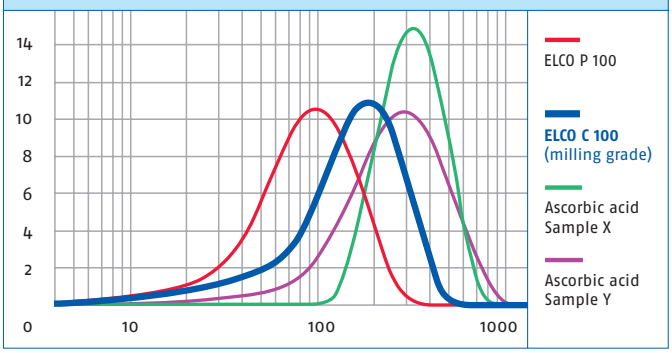
ELCO is 100 % reliable in the production process.

- Mühlenchemie offers standardized grain sizes ensuring maximum security on the production line.
- Our ascorbic acid is available in a tailor-made composition designed to meet your specific requirements.
- ELCO is the brand most often used by the milling industry.

Branded ascorbic acid ensures safe production.

Ascorbic acid is indispensable for standardizing and improving flour. It increases the gas retention capacity of the dough and the volume of the baked products. With the aid of the enzymes naturally present in the flour it makes the gluten of the dough firmer by oxidation.
To make the production process as safe as possible the ascorbic acid must have a precisely defined particle size. **If the particles are too large there is a risk that they will be sifted out. If they are too small the dosing system may be blocked.** With ELCO C 100, Mühlenchemie has developed a standard for the milling industry that meets the most demanding requirements.

Comparative analysis of the particle size in ELCO C 100



Vertical axis: volume (%) Horizontal axis: particle size (µm)

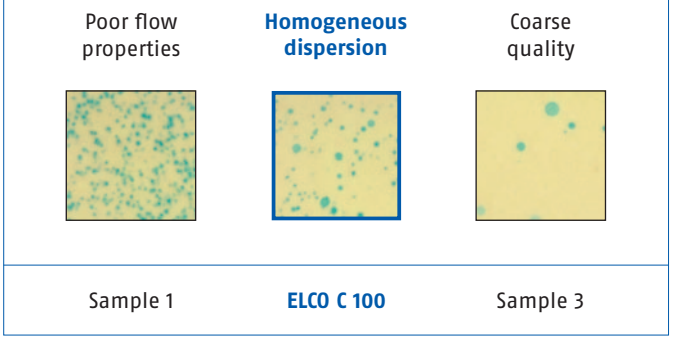
ELCO C 100 is manufactured with the greatest possible care.

Ascorbic acid must be manufactured with great care. Crystalline ascorbic acid, sodium ascorbate, calcium ascorbate and ascorbyl monophosphate are produced synthetically from D-glucose.

Mühlenchemie has developed standardized methods of purifying and sifting ascorbic acid to meet the specific requirements of the milling industry and modifying it according to individual customers' needs. This refining process is carried out at our high-tech plant near Hamburg.

Even the baking properties are checked regularly.

Detection of ascorbic acid with Tauber's reagent



Homogeneous dispersion of the ascorbic acid in the flour depends to a large extent on the size of the particles. Mühlenchemie checks its product with Tauber's reagent. The first Pekar slab shows very fine ascorbic acid powder (99 % < 65 µm) that is a serious risk when used at mills because of its poor flow properties (Sample 1); Sample 2 is ELCO C 100 developed by Mühlenchemie specially for use at mills; Sample 3 is a coarse, crystalline product that would be sifted out.

In addition to all the tests carried out on the product itself, Mühlenchemie also analyzes the action of ascorbic acid in the baking process. This is done at our own baking laboratory.

Top left:
Mühlenchemie's packaging line

Above:
Our Technology Centre in Ahrensburg

Mühlenchemie's ascorbic acid range.

Active substance	MC Quality	Description	Properties in Dough and Baked Products	Dose per 100 kg Flour
Ascorbic acid	GLUTIN A	Ascorbic acid, 10 %	· Enhances dough properties · Increases fermentation stability · Increases volume yield	20 – 50 g
	ELCO A 20	Ascorbic acid, 20 %		10 – 30 g
	ELCO P 100	Ascorbic acid, 100 %, fine powder, 100 mesh		2 – 6 g
	ELCO C 100	Ascorbic acid, 100 %, powder, 80 mesh		2 – 6 g
	ELCO K 100	Ascorbic acid, 100 %, crystalline, 40–80 mesh	· Like pure ascorbic acid, but with delayed action · More pliant doughs	2 – 6 g
	ELCO BECS	Ascorbic acid, encapsulated in fruit acids		5 – 15 g
	ELCO GF 90	Ascorbic acid 90 %, encapsulated in fat		3 – 10 g

Precision dosing device EMCEtec GLD 87.

Success depends just as much on precise dosing as on the quality of the ascorbic acid.

We offer a dosing device developed by us for adding ascorbic acid to flour. It can be integrated into any existing milling or flour processing plant.

If you would like more information on precise dosing of ascorbic acid, we will be pleased to advise you. On request, our company will also give you professional help in installing our precision dosing device EMCEtec GLD 87 as part of your system.

EMCEtec GLD 87

Analytical kit for Tauber's reagent

Analytical kit for Tauber's reagent.

Mühlenchemie stocks an analytical kit with which you can check the distribution of the ascorbic acid in the flour for yourself (using Tauber's reagent). Just get in touch with us.

- **Low-quality ascorbic acid can result in very expensive loss of production.**
- **So only trust ELCO branded quality made by Mühlenchemie.**
- **Only use the product supplied in the original box!**

Our Range of Mühlenchemie Products.

Mühlenchemie offers the whole spectrum of products for flour treatment in first-class branded quality.

Rely on us – like the many mills throughout the world that do so already.

Further details at www.muehlenchemie.de

Flour standardization

Enzyme Systems
- Amylases
- Oxidases
- Hemicellulases
- Proteases

Bromate substitutes
Oxidizing agents
Other flour improvers

Flour improvement to solve specific problems and for special applications

Low-enzyme flour
Heat damage
Low-protein flour
Ropiness
Bug damage
Sprout damage
Rye flours

Vitamin premixes

Vitaminizing

Flour with additional benefits, "functional food"

Fatty-acids with a vitamin effect
Probiotic dietary fibres
Lecithin to promote performance
Refreshing ingredients
Protein improvement

Biscuits, crackers, wafers

Enzyme Systems
Emulsifiers and releasing agents
Flavourings

Pastry goods

Whipping agents
Raising agents

Baking premixes

Frozen doughs
Small wheat products
Mixed wheat and rye bread
Flat bread and pizza bases

Raw materials for baking

Emulsifiers
Wheat gluten
Hydrocolloids
Malt flour
Preservatives
Soy flour
Food colorants
Sour dough powder
Sugars and artificial sweeteners

Pasta and steamed doughs

Enzyme Systems
Functional compounds

Services

Cereal and flour analysis
- Baking trials
- Advice on flour quality
- Analytical kits

Training courses and seminars
Laboratory equipment

Dosing equipment

Precision dosing device

Mühlenchemie

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