



# Rovabio Excel AP10

Quality Standard

REF: 102- 800 PF 303. V6 (12/12/2014)\_GB

## 1. Description

Rovabio Excel AP10 is a 10% dilution of Rovabio Excel AP (powder) whose main enzymatic activities are xylanase and  $\beta$ -glucanase obtained from a fermentation broth of "Talaromyces versatilis\*" (formerly named and known as Penicillium funiculosum)". This product hydrolyzes pentosans and  $\beta$ -glucans in vegetable raw materials.

Effect:

- Improves the nutritional value of feeds containing different types of cereals (wheat, maize, barley, triticale, rye, oats, ...) and oilseed meals (soybean, sunflower, canola...).
- Reduces gut viscosity.
- Reduces the free ammonia concentration in the litter.

\*Talaromyces versatilis and Penicillium funiculosum are 2 different names for the same micro-organism. This change is linked to the evolution of the methods of micro-organism classification (taxonomy), in relation to the improvement of identification techniques.

## 2. Composition

Main active substances:

Endo-1,4- $\beta$ -xylanase: N° EC 3.2.1.8.

Endo-1,3(4)- $\beta$ -glucanase: N° EC 3.2.1.6.

## 3. Specifications

Appearance	powder
Color	from light to dark beige due to natural wheat flour color variations
Minimum activities	
Endo-1,4- $\beta$ -xylanase	2 200 VU/g
Endo-1,3(4)- $\beta$ -glucanase	3 000 VU/g
Bacteriological controls	
Yeast and molds	< 1 000 cfu/g
Salmonella	absent per 25 g
Total viable count	< 900 000 cfu/g
E. coli	< 10 cfu/g
Enterobacteria at 30°C	< 100 cfu/g

Unit equivalency:

Xylanase 2 200 visco units = 140 AXC units = 320 DNS units

Beta-glucanase 3 000 visco units = 200 AGL units = 430 DNS units

1 viscosimetry unit (VU) of xylanase or  $\beta$ -glucanase is the amount of enzyme which hydrolyzes the substrate (wheat arabinoxylan or barley  $\beta$ -glucan, respectively), reducing the viscosity of the solution, to give a change in relative fluidity of 1 (dimensionless) unit/mn at 30°C and pH 5.5.

1 DNS xylanase or  $\beta$ -glucanase unit is defined as the release of one  $\mu$ mole of xylose or glucose equivalent per minute from a substrate (birchwood xylan or barley  $\beta$ -glucan, respectively).

## 4. Duration of guarantee

12 months within the manufacturing date, in closed packaging, below 30°C and protected from humidity.

## 5. Physical and chemical properties\*

*\*This data, which results from careful tests on representative samples, is provided for information purposes only and does not in any way constitute a guarantee.*

Dried fermentation broth, free of active micro organisms, diluted on a vegetable and mineral carrier (calcium carbonate and wheat middlings).

Density	0.60 to 0.80
Endo-1,4- $\beta$ -glucanase (cellulase)*	> 640 DNS units /g

\*Additional voluntary control.

## 6. Packaging

25 kgs bags (1000 kgs pallet).

## 7. Use

- Animal feeding.
- Incorporation into mash feeds or pellets produced at temperature below 85°C.
- Regulation:
  - EU: 4a1604i; for all poultry species, piglets (weaned), pigs for fattening and sows. For use in sows from one week before farrowing to whole lactation period.
  - USA: reported in the AAFCO list of enzymes/source organisms acceptable for use in animal feeds on the basis of an FDA non objection letter.
- Dose in feed: 500 g of Rovabio Excel AP10 per ton of feed, giving:
  - o xylanase: min. 1 100 VU /kg of feed
  - o  $\beta$ -glucanase: min. 1 500 VU /kg of feed

Regardless the production process for feeds or premixes, it is recommended to check enzyme activity in feeds, using the Rovabio Test Kit.

## 8. Methods of analysis

### ■ Method for endo-1,4- $\beta$ -xylanase activity:

Reference: T004

• The assay is based on the enzymatic hydrolysis of a standard wheat arabinoxylan solution, the activity being determined by the reduction in relative viscosity.

Reference: T006

• The assay is based on the enzymatic hydrolysis of a birchwood xylan (pH 4 and 50°C) and reaction of the reducing group with 3,5-dinitrosalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.

### ■ Method for endo-1,3(4)- $\beta$ -glucanase activity:

Reference: T008

• The assay is based on the enzymatic hydrolysis of a standard barley  $\beta$ -glucan solution, the activity being determined by the reduction in relative viscosity.

Reference: T007

• The assay is based on the enzymatic hydrolysis of a barley  $\beta$ -glucan solution (pH 5.0 and 50°C) and reaction of the reducing group with 3,5-dinitrosalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.

### ■ Method for cellulase (endo-1,4- $\beta$ -glucanase) activity:

Reference: T003

• The assay is based on the enzymatic hydrolysis of a carboxy-methyl-cellulose solution (pH 5.0 and 50°C) and reaction of the reducing group with 3,5-dinitrosalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.

Assay methods available upon request.

## 9. Safety

Product MSDS (Material Safety Data Sheet) available on [www.quickfds.com](http://www.quickfds.com).

Handling of the product may cause allergic reactions by inhalation.

Use in the feed: once incorporated into the feed, the product offers all original guarantees of safety.

For safety: breathing protection, glasses and gloves shall be used during handling.

*The information and all technical and other advice reported in our product documentation are based on ADISSEO's affiliates present knowledge and experience. Reasonable care is being taken to ensure that the product documentation content is accurate and up-to-date. ADISSEO's affiliates reserve the right to make any changes to information or advice at any time, without prior or subsequent notice. The updated version of our product documentation is available on [www.adisseo.biz](http://www.adisseo.biz). Customers are invited to consider and assess compliance with local applicable regulations prior to use our products. ADISSEO's affiliates assume no liability for the use of their product.*