



DESCRIPTION

Rovabio® Excel AP is a concentrated powder whose main enzymatic activities are xylanase and β -glucanase obtained from a fermentation broth of "*Talaromyces versatilis*"* (formerly named and known as *Penicillium funiculosum*). This product hydrolyzes pentosans and β -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.

Minimum activities:

Endo-1.4- β -xylanase 22,000 VU/g

Endo-1.3(4)- β -glucanase 30,000 VU/g

SPECIFICATIONS

Appearance	powder
Color	from light to dark beige due to natural wheat flour color variations
Endo-1.4-β-xylanase	22 000 VU/g
Endo-1.3(4)-β-glucanase	30.000 VU/g
Yeasts and moulds	< 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

1 viscosimetry unit (VU) of xylanase or β -glucanase is the amount of enzyme which hydrolyzes the substrate (wheat arabinoxylan or barley β -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 β -glucanase unit is defined as the release of one micromole of xylose or glucose equivalent per minute from a substrate (birchwood xylan or barley β -glucan, respectively).

DURATION OF GUARANTEE AND STORAGE CONDITIONS

12 months from date of the manufacture, keep in original unopened packaging stored well closed in a cool dry place, protected from sun and weather. Cardboard box: Stacking on 2 levels maximum with rigid cardboard spacer (type honeycomb) in between / Big-Bag: No stacking allowed.



Rovabio® Excel AP

QUALITY STANDARD

REF: 101 V12 (17/11/2021)_EN

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.

Density	0.40 to 0.60
Particle size > 500 µm	max. 10 %
Particle size between 100 and 500 µm	85 to 90 %
Endo-1,4-β-glucanase (cellulase)*	> 6,400 DNS units /g
Moisture	10 %

* Additional activity voluntarily controlled.

Dried fermentation broth, free of active micro organisms, diluted on a wheat flour carrier.

PACKAGING

25 kgs cardboard boxes (500 kgs pallet); 500 kgs big bags (500 kgs pallet).

USE

- Animal feeding.
- Incorporation into mash feeds or pellets produced at temperature below 85°C.
- Dose in feed: 50 g of Rovabio® Excel AP per tonne of feed, giving:
 - o endo-1,4-β-xylanase: min. 1 100 VU /kg of feed
 - o endo-1,3 (4)-β-glucanase: min. 1 500 VU /kg of feed

This product must be diluted in a premix before incorporation in feeds.

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

LABELING RECOMMENDATIONS:

For use in sows from one week before farrowing to whole lactation period. Recommended dose: min. 1 100 VU endo-1,4-β-xylanase and 1500 VU endo-1,3 (4)-β-glucanase/kg of complete feedingstuff (50g/t). For use in premixtures or in compound feeds. Stability to pelleting until 85°C.



METHODS OF ANALYSIS

- Viscosimetric determination of endo-1,4- β -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.
- DNS assay of endo-1,4- β -xylanase activity: Reference: T006
 - The assay is based on the enzymatic hydrolysis of a beechwood xylan (pH 4 and 50°C) and reaction of the reducing group with 3,5-dinitrisalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.
- Viscosimetric determination of endo-1,3(4)- β -glucanase activity: Reference: T008
 - The assay is based on the enzymatic hydrolysis of a standard barley β -glucan solution, the activity being determined by the reduction in relative viscosity.
- DNS assay of endo-1,3(4)- β -glucanase activity: Reference: T007
 - The assay is based on the enzymatic hydrolysis of a barley β -glucan solution (pH 5.0 and 50°C) and reaction of the reducing group with 3,5-dinitrisalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.
- DNS assay of cellulase (endo-1,4- β -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-dinitrisalicylic acid (DNS), the activity being determined by measuring the reducing sugars by colorimetry at 540 nm.

Assay methods available upon request.

SAFETY INFORMATION

Product MSDS (Material Safety Data Sheet) available on 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.

REGULATION

EU : Digestibility enhancers. 4a1604i. Zootechnical additives. Endo-1,4- β -xylanase / EC 3.2.1.8 / : min. 22 000 VU/g;
Endo-1,3 (4)- β -glucanase / EC 3.2.1.6 / : min. 30 000 VU/g.

4a1604i - Regulation N° 290/2014 of 21 march 2014 and Regulation N°1138/2014 of 27 october 2014.

All poultry species, piglets (weaned), pigs for fattening and sows.

- 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.

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