Quality assurance in dairy

Infosheet

Natamycin

Introduction

The coating on cheese is a yellow or red layer applied around the cheese during ripening to protect the cheese from mould and bacteria. The coating contains Natamycin, or Pimaricin, an antifungal agent (E235). As Natamycin is broken down in the intestines, it does not pose a health hazard in small amounts. However, gastrointestinal complaints are associated with consumption of the coating (containing natamycin) of cheese. It's better to be safe than sorry!

Legislation

For food additives, European regulations specify maximum values in:

- Regulation (EC) No 1129/2011 amending Annex II to Regulation (EC) No 1333/2008 by establishing a Union list of food additives.

The following maximum values are indicated for Natamycin in dairy products:

Category	E No.	Name	Maximum (mg/kg or mg/l)	Restrictions / exceptions
01.7.2 – Ripened cheese	E235	Natamycin	1 mg/kg	Surface treatment of hard, semi-hard and semi-soft cheese only
01.7.6 – cheese products (excluded products covered by category 16 (desserts)	E235	Natamycin	1 mg/dm2 surface area (not present at a depth of 5 mm)	Surface treatment of hard, semi-hard and semi-soft products only

Expertise

Qlip has many years of experience in analysing natamycin by high-pressure liquid chromatography (UPLC-UV). Qlip applies the accredited method, in accordance with NEN-EN-ISO 9233-2.

When testing natamycin, it is important to think about what you want to know. You need to ask yourself the following questions: In which part of the cheese do you want to measure the Natamycin content? In the cheese itself? In the coated cheese rind or in the uncoated cheese rind?

- In cheese
  - Research result in mg/kg: → test code CE4441e or CE4441d (duplicate)
- In cheese rind (including coating) at a depth of 0-5 mm (*)
  - Research result in mg/kg: → test code CE4441e of CE4441d (duplicate)
  - Research result in mg/dm2: → test code CE4440e or CE4440d (duplicate)
  - Research result in mg/kg en mg/dm2: → test code CE4442e or CE4442d (duplicate)
- In cheese rind (excluding coating) at a depth of 5 mm
  - Research result in mg/kg: → test code CE4445d (duplicate)

Qlip recommends test code CE4445d for natamycin testing in the cheese rind. This method, with removal of the coating, is most clearly described in NEN-EN-ISO 9233-2. The analysis is being conducted in duplicate and is also being used for the COKZ. You can find more detailed information on the back of this information sheet about the procedure for this method.

(*) For natamycin testing in the cheese rind (including coating), the standard depth is 0-5 mm. On request, this can also be done at a depth of 5-10 mm. You have to indicate this clearly to the laboratory in advance. Please contact the laboratory at the following e-mail address: sales@qlip.nl

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Method of examination

Method in the cheese rind (excluding coating) at a depth of 5 mm

The natamycin testing method is most clearly described in NEN-EN-ISO 9233-2 and is the method in which the coating is removed before sampling.
This works as follows:

- ✓ Carefully remove layer of coating (plastic) from the cheese
- ✓ With a scraper remove 5 mm of cheese (outer layer)
- ✓ From the layer underneath then shave 1 mm cheese with a David's knife
- ✓ Grind this cheese and make a sample according to the usual cheese preparation procedure
- ✓ Using high performance liquid chromatography (UPLC-UV) determine the amount of natamycin

Natamycin content is hereby expressed in mg/kg and is being conducted in duplicate.
The article code of the desired natamycin analysis excluding coating can be found on the front of this information sheet.

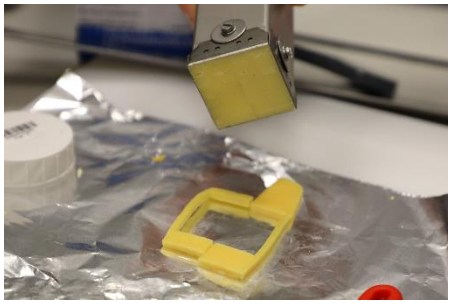
Method without coating removal

Furthermore, there is a method where the coating is not removed and therefore part of the sample. This method is as follows:

Using a planer, shave 5 mm of cheese.
From this cheese rind cut out 10cm x 10cm with a punch
Determine the weight of this sample
Grind this cheese and make a sample according to the usual cheese preparation procedure
Using high performance liquid chromatography (UPLC-UV), determine the amount of natamycin

In this study, natamycin content is expressed in mg/kg. But if required, this can be converted to mg/dm2, as it is known how much your cheese rind of 1 dm2 and a thickness of 5 mm weighs, based on the sampling.

You can have this study carried out in single or duplicate, with duplicate obviously giving a more accurate result.
The article code of the desired natamycin analysis can be found on the front of this information sheet.



Would you like to have these analysis performed?

You can easily request these analyses through our customer portal. If you still have questions about the natamycin analysis, please contact our sales department at sales@qlip.nl or +31 88-7547199.

Your Benefits

- Monitoring against the requirements listed in various EC regulations
- Reliable analysis results through validated techniques
- Execution by ISO17025:2017 accredited laboratory
- Easy to request via Qportal
- Clear reports
- Use of Qlip's specialised knowledge