



Nutriferm X – Frequently Asked Questions



Dr. Carien Coetzee

[Basic Wine](#)

9 December 2021

Nutriferm X is certainly taking the wine industry by storm. We asked **Lida Malandra from Enartis South Africa** a couple of **Frequently Asked Questions** regarding the innovative yeast nutrient.

What is Nutriferm X?

Nutriferm X is a unique yeast nutrient with the added benefit of supporting the yeast in thiol production. The nutrient is an essential factor (nitrogen being key) in the overall health and success of fermentation. Managing yeast nutrient requirements not only allows for regular and complete fermentations but can also enhance the sensory quality of wines.

Nutriferem X's application for the nutrition of yeast fermenting thiolic grapes, increases the expression of especially 3-mercaptohexanol (3MH) and 3-mercaptohexyl acetate (3MHA). Wines produced with Nutriferem X are highly aromatic, with intense notes of tropical and citrus fruit and have been found to be fuller on the palate.

How would you recommend using wines fermented with Nutriferem X?

It is recommended to use it as a blending component to support fruit aromas and add complexity to a wine. It can be especially useful to add character to a wine that needs freshening up.

How did Nutriferem X come about?

In short, the project was performed by Prof. Wessel du Toit and Sebastian Vannevel from Stellenbosch University and research was financially supported by Winetech.

In 2019, Enartis came on board as an industry and commercial partner. That same year the testing of the product in large scale fermentations were approved, which delivered outstanding results. After proof of concept the Wine and Spirit Board recommended the addition of the product to the list of permissible wine additives and the product was added to Table 6 – *Substances which may be added to liquor products* in the [Liquor Products Act 60 of 1989](#).

What is in Nutriferem X?

The product is a combination of ammonium salts (sources of nitrogen and sulphur) and thiamine (0.12 %). Nitrogen is needed in the yeast as one of the primary building blocks of proteins and sulphur is needed for the production of the sulphur-containing amino acids, which are responsible for the disulphide bridges in the tertiary structure of proteins. Sulphur is also used by the yeast to detoxify specific anti-fungal (anti-yeast) compounds in the grape juice. Thiamine is a vitamin used as a co-enzyme that stimulates yeast growth, speeds up fermentation and reduces the production of sulphur dioxide binding compounds.

What is the recommended dosage?

The recommended dosage is 50 mL/hL. This dosage will provide 10 mg/L of yeast assimilable nitrogen (YAN). Exceeding this dosage will exceed the maximum dosage of thiamine permitted by the OIV and EU regulations. Exceeding the dosage can also lead to the production of negative sulphur compounds.

How should it be applied?

It is advised to use Nutriferm X at the recommended dosage and to follow the instructions carefully.

- Place a strong mixer or pump on the tank of juice ready for yeast inoculation.
- Prepare the yeast for inoculation (rehydrate).
- Once the mixer is on, add 50 mL/hL Nutriferm X while mixing vigorously.
- Mix for exactly 15 minutes.
- Immediately after mixing, inoculate the juice with the rehydrated yeast.
- Mix for another one to two minutes.

Is Nutriferm X analytically traceable?

The initial form of Nutriferm X dissociates when added to the juice. Other than that, the yeast will take up and metabolise the nutrient. The resulting compounds will therefore differ from the initial molecules added. Thiamine is analytically traceable and limitations regarding thiamine concentrations in wine exist.

Will all Sauvignon blanc wines fermented with Nutriferm X taste the same?

No. Laboratory trials and large scale experiments have shown that factors such as juice composition (e.g., thiol precursors available) and yeast strain can have a major impact on volatile thiol production (with or without Nutriferm X). Nutriferm X merely supports the yeast in unlocking the inherent potential of the juice.

The producer will determine the style of wine to be made which will depend on the target market. Nutriferm X is just another tool in your toolkit to produce a wine with a certain aromatic profile.

Other than being a yeast nutrient and supporting thiol production, are there any other noticeable effects?

Large scale experimental studies showed no significant difference in the general chemical parameters when comparing the treated wine with a control wine (untreated). The wines fermented with Nutriferm X had a slightly lower alcohol content (average of 0.14 % vol lower), however, further studies are needed to ascertain if these differences are consistent and significant. Other than the general increase in fruity aroma, sensory analyses also showed that the wines treated with Nutriferm X had improved mouthfeel.

What are the risks when using Nutriferm X?

Research has shown that when it is not used carefully, wines fermented with Nutriferm X could potentially have a reductive aroma. Reduction will only occur in instances where the product was not used correctly and where the monitoring of standard processes failed, such as failing to rack the wine off of the lees, using too much sulphur dioxide and overdosing with Nutriferm X. Overdosing with Nutriferm X can also result in excess thiamine concentrations in the wine.

How stable are the thiols that are formed through the support from Nutriferm X?

The volatile thiols formed during fermentation with Nutriferm X are identical to the volatile thiols formed without support from Nutriferm X. Therefore, the same principles regarding stability and preservation will apply. The benefit of starting with a higher concentration of volatile thiols at the beginning of the product's shelf-life is that when the compounds start to deteriorate (which will happen inevitably with or without Nutriferm X), you will at least start with a higher thiol concentration. As a result, a wine that started with a higher volatile thiol concentration will likely still have residual volatile thiols after some time in the bottle, while a wine fermented without Nutriferm X (lower initial

volatile thiol concentrations) might not have sufficient residual volatile thiols to contribute to fruit aromas after the same amount of time.

Is the use of Nutriferm X permitted for wines destined for local and export markets?

Nutriferm X is approved for winemaking, in accordance with the [Liquor Products Act 60 of 1989](#). An extract from [The Economic Partnership Agreement \(EPA\) between the European Union and the Southern African Development Community \(SADC\)](#):

L 250/2080	EN	Official Journal of the European Union	16.9.2016
PART 2			
Trade in wine products and spirits			
Article 10			
Scope and coverage			
This Part applies to wine products and spirits falling under headings 2204 and 2208 of the International Convention on the Harmonised Commodity, Description and Coding System, hereinafter referred to as the 'Harmonised System', signed at Brussels on 14 June 1983.			
Article 11			
Winemaking practices			
1. The EU shall authorise the importation and marketing in its territory for human consumption of wine products originating in South Africa and produced in accordance with:			
(a) product definitions authorised in South Africa by laws and regulations referred to in Section A1(a) of Annex II to this Protocol,			
(b) oenological practices and restrictions authorised in South Africa under laws and regulations referred to in Section A1(b) of Annex II to this Protocol or otherwise approved for use in wines for export by the competent authority, in so far as they are recommended and published by the International Organisation of the Vine and Wine, hereafter referred to as the 'OIV', and			
(c) additional oenological practices and restrictions jointly accepted by the Parties under the conditions provided for in Section A1(c) of Annex II to this Protocol.			
2. South Africa shall authorise the importation and marketing in its territory for human consumption of wine products originating in the EU and produced in accordance with:			

In essence, the EU shall authorise the importation and marketing of wines originating from South Africa and produced in accordance with oenological practices authorised in South Africa. [Please consult the EPA](#) for full interpretation of Article 11.

DISCLAIMER

Enartis South Africa (Pty) Ltd makes no warranties and/or representation in regard to:

- 1) the correct use and/or application; and/or chemical composition; and/or quality; and/or concentration of Nutriferm X
- 2) the lawfulness of the intended use and/or application of Nutriferm X outside of South Africa; and/or any results that may be obtained from that use. It is for the purchaser of Nutriferm X to verify that the use and/or application of Nutriferm X complies with all legal and/or regulatory requirements in any jurisdiction in which any liquor product to which the purchaser has added Nutriferm X is sold by the purchaser, or any other person to whom the purchaser has sold and/or supplied such liquor product.

Please contact Lida Malandra for any further questions.

ENARTIS SOUTH AFRICA (PTY) LTD

25 Zandwyk Park, Old Paarl Rd, Paarl 7646

Tel +27 21 870 1181

info@enartis.co.za