EVERYTHING YOU NEED TO KNOW ABOUT

KYLMÄ®

OENOFRANCE

The potassium polyaspartate (or KPA)

CHARACTERISTICS OF POTASSIUM POLYASPARTATE (or KPA)

What is potassium polyaspartate (KPA)?

- It is a polyamino acid made by high-temperature polymerisation of L-aspartic acid.

How does potassium polyaspartate (KPA) work? How does it prevent precipitation of potassium bitartrate salts?

- It is an inhibitor to the formation of potassium bitartrate, and also prevents the growth of pre-existing micro-crystals.

Does KPA stabilise wines against precipitation of neutral calcium tartrate?

- No.

Where does the L-aspartic acid used for the synthesis of KPA come from? Is this product a GMO?

- L-aspartic acid is derived from the fermentation of microorganisms (bacillus): Oenofrance has guarantees from the manufacturer that these microorganisms are not GMOs.

WHAT IS THE ADVANTAGE OF KPA OVER OTHER TARTRATE STABILISATION METHODS?

CMC

- It does not destabilise colouring matter, and is more readily incorporated into the wine.

Metatartaric acid

- It does not alter the organoleptic profile (no variation in pH), and does not cause energy consumption.

Electrodialysis

- It does not alter the organoleptic profile (no variation in pH), is faster, and does not cause energy consumption.

Cold stabilisation

- It does not alter the organoleptic profile (no variation in pH), is faster, and does not cause energy consumption.

Mannoproteins

- It is less expensive and more effective for high tartate instability in red wines.

Is it possible to carry out a TSat (saturation temperature) measurement?

- The saturation temperature of a wine is related to its ionic charge. Adding a protective colloid does not alter the TSat. It is not possible to verify the effectiveness of addition of KPA simply by measuring Tsat.

Is it possible to carry out a Mini-Contact test?

- Yes, using the methods generally used in the laboratory for whites and rosés. However, it is necessary to be careful with red wines, since depending on the instability of the colouring material, the test may give false positives (showing unstable wines when in fact they are stable). Oenofrance is working on the development of a more reliable method for measuring a fall in conductivity.

Is it possible to carry out a DTI?

- The Degree of Tartrate Instability is a test that was developed with the goal of assessing the degree of instability of wines with regard to the risk of crystallisation of potassium hydrogen tartrate. The DTI is essential for controlling the tartrate stabilization process by means of electrodialysis; it determines the level of treatment necessary to achieve stability. Electrodialysis is a subtractive method which alters the physico-chemical parameters of wine, which is not the case for protective colloids such as KPA. This measurement does not therefore make it possible to verify the effectiveness of treatment with protective colloids.

The potassium polyaspartate (or KPA)

EFFECTS OF KPA ON TREATED WINE

What effect does temperature have on the product?

- Unlike treatment with MTA, studies have shown that wine treated with KPA is always stable after standing for 1 month at 35 °C (French institute study 2017-2018).

How stable is the product over time?

- Current perspective on tartrate stability of treated wines is > 24 months.

REGULATIONS / LABELLING

Does polyaspartate have an E number?

- Yes, E456

Is KPA produced from GMOs?

- No.

Is KPA an allergenic product?

- No.

Is KPA an authorised organic product?

- No, but it is currently being authorized as an alternative to metatartaric acid.

Is KPA a vegan product?

- The concept of veganism is not the same for everyone. In that KPA does not contain any animal-derived products, it is vegan. However, we have no guarantee that, during the toxicity tests required to have the compound validated by EFSA (European Food Safety Authority), no test was carried out on animals.

Does this product have to be mentioned on the back label?

- No.

Must this product be indicated in the cellar register?

- No.

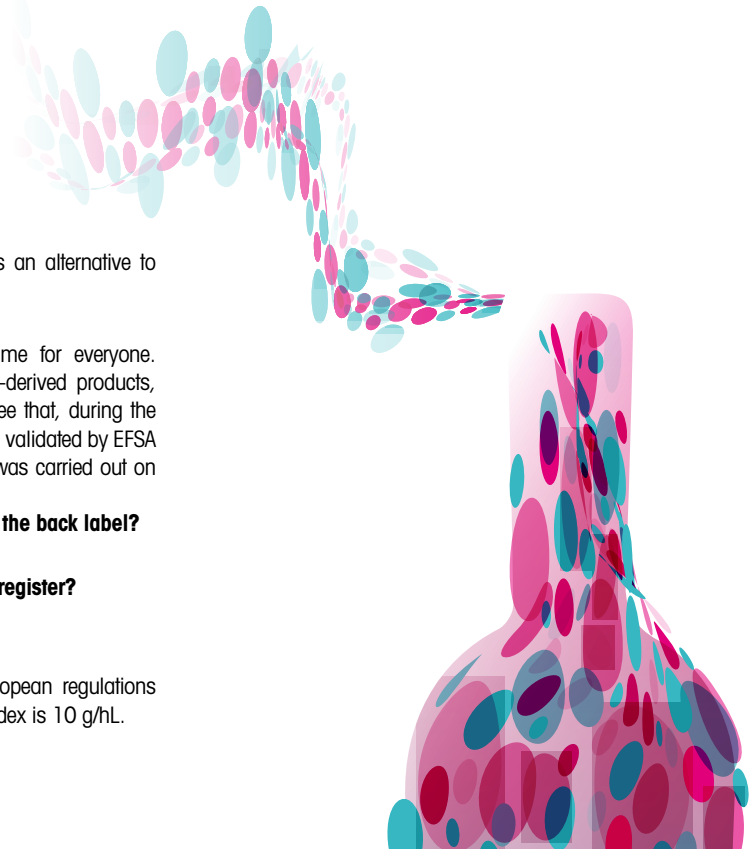
What is the maximum legal dose of KPA?

- The maximum legal dose defined by European regulations and in accordance with the Oenological Codex is 10 g/hL.

Polyaspartic acid and its salts are biodegradable.

What is the product's lifespan in wine?

- 'Biodegradable' means that the product is broken down by microorganisms. A significant presence of microorganisms in the wine should therefore be avoided so as to avoid possible breakdown. Under normal conditions of preparing wines for bottling there is no risk of breakdown. We have in our possession wines that are still stable three years after treatment.



KYLMÄ® INTENSE

CHARACTERISTICS OF KYLMÄ® INTENSE

A novel solution for tartrate stabilisation and stabilisation of colour in red wines.

EFFECTS OF KYLMÄ® INTENSE ON TREATED WINE

What impact does KYLMÄ® INTENSE have on the stability of colouring matter?

- Thanks to the presence of Verek gum arabic, known for its stabilising properties, KYLMÄ® INTENSE promotes stabilisation of colour.

What impact does KYLMÄ® INTENSE have on the organoleptic characteristics of wine?

- KYLMÄ® INTENSE enhances volume and roundness in the mouth, and reduces tannin sensation and bitterness on the finish.

Can KYLMÄ® INTENSE be used on very unstable wines? (early wines, heat-treated wines, etc)

- Yes, although tartrate and colour stability tests are essential. Oenofrance's team of oenologists recommends cold tests (6 days at -4 °C) and colour tests (3 days at 4 °C). Please ask your oenologist for a detailed protocol.

How long should you wait after using KYLMÄ® INTENSE?

- There is no need to wait: None. KYLMÄ® INTENSE is a product with excellent solubility. However, care should be taken to shake well so that the gum arabic component is well mixed into the matrix.

What dose of total SO_2 is provided by the addition of 20cL/hL of KYLMÄ® INTENSE?

- 6 mg/L.

What oenological activities may be carried out after using KYLMÄ® INTENSE?

- Addition of gum arabic and/or other protective colloids.

Can KYLMÄ® INTENSE be used on deacidified wines?

- Yes.

KYLMÄ® INTENSE alter the analytical data of wine?

- No.

Does KYLMÄ® INTENSE have an impact on the final density of wine?

- No.

What test is used to control the stability of a wine treated with KYLMÄ® INTENSE?

- Cold test for 6 days at -4 °C.

What are the recommended doses?

- 10-20 cL/hL.

At what temperature should the wine be when KYLMÄ® INTENSE is added?

- The colder the wine, the more the viscosity of the gum arabic present in KYLMÄ® INTENSE increases, and therefore the more important it is to mix thoroughly. However, temperature has no effect on the effectiveness of the product.

POSSIBLE INTERACTIONS BETWEEN KYLMÄ® INTENSE AND OTHER PRODUCTS OR INGREDIENTS

Lysozyme

- Yes.

Bentonite

- Yes, with partial loss of KPA.

Silica gel

- Yes.

Pea proteins

- Yes.

Isinglass

- Yes.

Is there any interaction with proteins?

- Yes. Although it is less reactive than CMC, potassium polyaspartate reacts with unstable proteins in wine. When treating whites and rosés, it is essential that wines be protein stable to avoid the appearance of any cloudiness.

Can KYLMÄ® INTENSE be added before treatment?

- If fining stages follow the addition of the product, the KPA is partially bound by the fining agents, and it will therefore be less effective.

Can KYLMÄ® INTENSE be added after treatment?

- After fining stages this is possible, since there should be no remaining residues present. However, it is necessary to pay attention to lysozyme.

PREREQUISITES FOR THE USE OF KYLMÄ® INTENSE

What are the prerequisites for using KYLMÄ® INTENSE?

- Wines ready for bottling, all the stages that promote colloidal stabilisation of the wine while it is being made (proteins, colour, etc) further optimise the use of KYLMÄ® INTENSE.

What kinds of wine is KYLMÄ® INTENSE effective on?

- The product was developed for still red wines, but there is no contraindication for its use on still white or rosé wines.

What kinds of sweet wine is KYLMÄ® INTENSE effective on?

- Sugar concentration does not affect the effectiveness of the product.

Should wine be protein stable before treatment?

- Yes: for reds, it guarantees that the product will be more effective and limits any possible precipitation of colour.

How should the product be used?

- KYLMÄ® INTENSE is a liquid product that can be used with a metering pump, just before final filtration or directly on the bottling line.

PACKAGING AND STORAGE

What packaging is available?

- 1L*, 5 L, 20 L and 1000 L*

How should the product be stored?

- In a cool, dry place.

What is its shelf life?

- 18 months, or one week after opening.

**To order*

KYLMÄ® PURE

CHARACTERISTICS OF KYLMÄ® PURE

KYLMÄ® PURE is a highly concentrated 20% solution for universal and total stabilisation of still wines.

EFFECTS OF KYLMÄ® PURE ON TREATED WINE

Is KYLMÄ® PURE soluble in wine?

- Yes

Does KYLMÄ® PURE have an organoleptic impact?

- No.

What quantity of total SO_2 is added when 5 cL/hL of KYLMÄ® PURE is added?

- 3,5 mg/L.

Does KYLMÄ® PURE alter the analytical data of wine?

- No.

Does KYLMÄ® PURE have an impact on the final density of wine?

- No.

What test is used to control the stability of a wine treated with KYLMÄ® PURE?

- Cold test for 6 days at -4 °C for reds: minicontact test for whites and rosés.

What are the recommended doses?

- 2.5-5 cL/hL.

How much time should elapse after using KYLMÄ® PURE?

- None. KYLMÄ® PURE is a product with excellent solubility.

What oenological activities may be carried out after using KYLMÄ® PURE ?

- Addition of gum arabic and/or other protective colloids.

Is it possible to mix wines treated with KYLMÄ® PURE with wines treated using other techniques?

- Yes.

What impact does an overdosage of KYLMÄ® PURE?

- Depending on the instability of colouring matter and the protein content of the wine, an overdosage could lead to the appearance of cloudiness.

POSSIBLE INTERACTIONS BETWEEN KYLMÄ PURE AND OTHER PRODUCTS OR INGREDIENTS

Lysozyme

- Yes.

Bentonite

- Yes, with partial loss of KPA.

Silica gel

- Yes.

Pea proteins

- Yes.

Isinglass

- Yes.

Is there any interaction with proteins?

- Yes. Although it is less reactive than CMC, potassium polyaspartate reacts with unstable proteins in wine. When treating whites and rosés, it is essential that wines be protein stable to avoid the appearance of any cloudiness.

Can KYLMÄ® PURE be added before treatment?

- If fining stages follow the addition of the product, the KPA is partially bound by the fining agents, and it will therefore be less effective.

Can KYLMÄ® PURE be added after treatment?

- After fining stages this is possible, since there should be no remaining residues present. However, it is necessary to pay attention to lysozyme.

KYLMÄ® PURE

PREREQUISITES FOR THE USE OF KYLMÄ® PURE

What are the prerequisites for using KYLMÄ® PURE?

- Wines ready for bottling. All the stages that promote colloidal stabilisation of the wine while it is being made (proteins, colour, etc) further optimise the use of KYLMÄ® PURE.

What kinds of wine is KYLMÄ® PURE effective on?

- Still wines of any colour.

What kinds of sweet wine is KYLMÄ® PURE effective on?

- Sugar concentration does not affect the effectiveness of KPA.

Is the wine's alcohol content significant?

- No, in a normal range of 12 –17%, alcohol has no impact.

Should wine be protein stable before treatment?

- Yes, this is essential for whites and rosés. For reds, it guarantees that the product will be more effective and limits any possible precipitation of colour.

Is KYLMÄ® PURE effective on sparkling wines?

- The use of potassium polyaspartate on sparkling wines is still being studied. Depending on whether closed tank or traditional methods are used, the constraints are not the same, and the time at which the product is added needs to be considered and tested.

How should the product be used?

- KYLMÄ® PURE is a liquid product that can be used with a metering pump, just before final filtration or directly on the bottling line.

FOR WHICH TYPES OF WINE IS KYLMA® PURE RECOMMENDED?

Is it possible to stabilise unfiltered wine?

- Yes, theoretically, although no verification has yet been carried out.

Can KYLMÄ® PURE be used on very unstable wines? (early wines, heat-treated wines, etc)

- Yes, although colour stability tests are essential if added to red wines. For this type of red wine it is recommended to use KYLMÄ® PURE. For highly unstable whites and rosés, the development of a specific formulation is in the process of being validated.

Can KYLMÄ® PURE be used on deacidified wines?

- Yes.

ENVIRONMENTAL BENEFITS

Why is KYLMÄ® PURE an environmentally-friendly product?

- Since KYLMÄ® PURE is highly concentrated there is less packaging and therefore:
  - lower dosages
  - less waste
  - less transport
  - less need for storage

REGULATIONS / LABELLING

Does this product have to be mentioned on the back label?

- No.

Must this product be indicated in the cellar register?

- No.

What is the maximum legal dose?

- 5 cL/hL.

PACKAGING AND STORAGE

What packaging is available?

- 1 L*, 5 L, 20 L and 1000 L*.

How should the product be stored?

- In a cool, dry place.

What is its shelf life?

- 18 months, or one week after opening.

**To order*

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www.oenofrance.com