uvaferm® 43™ RESTART

YSEO PROCESS
Yeast Security Optimization

ORIGIN AND APPLICATION

Optimised and pre-acclimated *Uvaferm 43* yeast resulting in a very robust culture,now called *Uvaferm 43™ RESTART*. The most fructophilic yeast in the Lallemand portfolio.

Under oenological conditions, glucose and fructose are the main fermentable sugars used by *Saccharomyces cerevisiae*. Although both of these hexoses are generally present in musts in equivalent quantities, *Saccharomyces cerevisiae* prefers to consume glucose, which explains why the main residual sugar in stuck ferments is fructose. In a Lallemand research project, the results showed that in oenological conditions where nitrogen, sugar and glucose/fructose ratios were varied, the yeast strain Uvaferm 43® proved to be the most efficient at metabolising fructose under conditions similar to those found in stuck ferments.

Uvaferm 43® is now available in a more robust form called ***Uvaferm 43™Restart***. This new yeast adapts more quickly after inoculation as it has been optimised and pre-acclimitised to perform well under the challenging conditions of stuck fermentation. It is highly fructophilic.

MICROBIAL AND OENOLOGICAL PROPERTIES

- *Saccharomyces cerevisiae var. bayanus*
- Competitive factor: active
- Excellent for restarting stuck ferments with high fructose/glucose ratio
- Very fructophilic yeast
- Relatively low nitrogen demand, low H_2S and low SO_2 production
- High tolerance to alcohol: up to 16% * *Subject to conditions.*
- High fermentation vigor
- Neutral sensory effect on the finished wine

RESTARTING A STUCK ALCOHOLIC FERMENTATION

Before restarting with fresh yeast culture the removal of spent yeast requires special comment. Where problem ferments have been going for some time it is best to remove the yeast which may contain or remain to be a source of inhibitory compounds to the fresh active culture. The addition of ***ResKue™*** (100% yeast walls) prior to yeast removal will help remove short and medium chain fatty acids and fungicides that are toxic to yeast cells.

Note on use of yeast nutrient in restart procedure

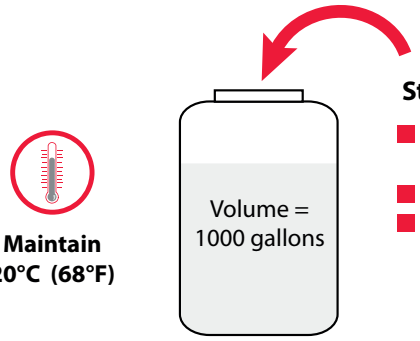
The conditions prevailing in wine where the primary ferment has been arrested short of dryness provides winemakers with various challenges including:

1. Minimising the risk of excess nutrient following a successful restart and completion of fermentation
2. Limiting the toxic effect of ethanol on the permeability of cell plasma membranes which affects the uptake of glucose/fructose and amino acids.
    - *The use of Fermaid O™ in the first fermentation phase of the restart procedure is a key prerequisite to limiting the impact of ethanol toxicity on the yeast cell membrane.*

The yeast is able to take up the α-amino nitrogen (provided by ***Fermaid O™***) in an environment where the cell membrane permeability and intracellular pH control ATPase functions are not compromised by the alcohol present. As a result, the intracellular reserve of alpha-amino nitrogen is increased and in readiness for an acceleration of metabolic activity when the yeast inoculum is introduced into the problem wine

RESTARTING STUCK ALCOHOLIC FERMENTATION NEW PROTOCOL

Restart a stuck alcoholic fermentation using RESKUE™ and UVAFERM 43 RESTART™: volume of stuck fermentation = 1000 gallons



Stuck juice/wine preparation:

- Add 10 – 20 ppm SO_2 to help with potential spoilage organism control
- Make a **RESKUE™** addition of **1.5 kg** (3.3 lbs)
- Mix and allow to settle 48 hours then rack off settled lees.

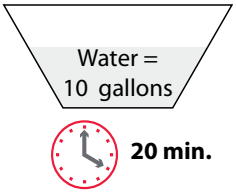
48 hours

Increase Temperature (T°) of the treated juice/wine to 20-25°C (68-77°F) after racking.

Water: 4**3°C** (109°F) with **GOFERM PROTECT evolution™** then after a drop to **37-40°C** (99-104°F) add **UVAFERM 43 RESTART™**

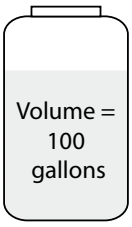
- Use **2 kg** (4.4 lbs) **GOFERM PROTECT evolution™**
- Use **1.5 kg** (3.3 lbs) **UVAFERM 43 RESTART™**

Gently stir to break up any initial clumps then repeat gentle stir after 20 minutes.



20 min.

Pied-de-cuve 20-25°C (~68-77°F)

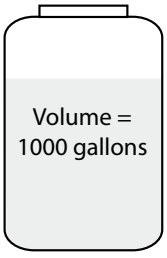


Add the rehydrated yeast to make a Pied-de-cuve:

- **40 gallons** water
- **40 lbs** sugar (adjust to 5 Brix)
- **50 gallons** post **RESKUE™** treated juice/wine
- **FERMAID O™**: 0.3 kg (2/3 lb)

Once sugar drops to 1000 density (0 Brix) transfer immediately

Maintain 20-25°C (~68-77°F)



Mix the Pied-de-cuve **100 gallons** into **900 gallons** of the post **RESKUE™** treated juice/wine

Add **1.5 kg** (3.3 lbs) of **FERMAID O™**

PACKAGING AND STORAGE

All Active Dried Yeast should be stored dry, best practice between 4-12°C (39-54°F) and the vacuum packaging should remain intact.

May 2017

A safety data sheet is not required for this product under US, CAN and EU regulation.
This document has been created on a voluntary basis to pass on safety information.

SECTION 1 – IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier: **Wine Active Dry Yeast**

1.2 Identified use: For use in wine making

1.3 Supplier details:

DANSTAR FERMENT AG
Subsidiary of Lallemand Inc.
Vejlevej 10
Fredericia
DK-7000 Denmark
Tel: +45 76 22 32 85 Email: fb.france@lallemand.com

1.4 Emergency telephone: Contact your local doctor or hospital.

SECTION 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance/mixture according to the Globally Harmonized System (GHS) and to Regulation 1272/2008/CE (CLP): Not dangerous

2.2 Label elements: None

2.3 Other Hazards: None

SECTION 3 – INFORMATION ON INGREDIENTS

Substance component(s) which may pose a health hazard: none.

SECTION 4 – FIRST AID MEASURES

4.1 Description of First Aid Measures:

Eye contact: ..... Adequately flush eyes with water.
Skin contact: ..... Wash affected area with soap and water.
Inhalation: ..... Immediately remove person to fresh air.
Ingestion: ..... Rinse mouth and throat thoroughly with water. Drink plenty of water.

4.2 Most important symptoms and effects, both acute and delayed:

Eye contact: ..... Possible irritation
Skin contact: ..... May cause irritation
Inhalation: ..... May cause coughing (irritation) or irritate asthma. May cause sensitization.
Ingestion: ..... Possible bloating, gas, and bowel discomfort.

4.3 Indication of any immediate medical attention and special treatment needed:

None; if any symptom persists seek medical attention.

SECTION 5 – FIRE FIGHTING MEASURES

5.1 Extinguishing media:

Suitable: ..... Water, foam, carbon dioxide, dry powder.
Unsuitable: ..... None

5.2 Special hazards arising from the material:

None

5.3 Advice to firefighters:

Wear a self-contained breathing apparatus (SCBA) when exposed to confined or enclosed fires as product powder could be in the air.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personnel precautions:

Avoid contact with the eyes, skin and clothing. Use appropriate protective equipment (see Section 8).

6.2 Environmental precautions: None

6.3 Method and materials for clean up:

Small accidental spillage or leak: Avoid the formation of dust or spray. Mop up with appropriate material. Place in an appropriate container. Clean the area affected with plenty of water.

Large accidental spillage or leak: Avoid the formation of dust or spray. Prevent spillage into the drains, subsoil or confined areas. Contain if necessary. Mop up the product spilled with inert material (e.g. dry sand or dry earth) and place in a chemical waste container. Recycle if possible.

6.4 References to other sections:

See Section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7 – HANDLING & STORAGE

7.1 Precautions for safe handling:

Handling:..... Avoid breathing dust. Avoid contact with eyes.
Occupational hygiene: ..... Wash hands thoroughly after handling.

7.2 Conditions for safe storage:

Risks: ..... Not at risk for corrosion, fire, explosion, or chemical reaction.

Place of storage:..... No special instruction to minimize risks (see above).
Store according to label directions to maintain label guarantees.

Fire/explosion protection: ..... None needed

7.3 Specific end use: ..... None

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Exposure limits: ..... No limit
Biological limits: ..... No limit

8.2 Exposure controls:

Engineering:..... None
Eye/face protection: ..... Protective glasses should be worn in conditions of excessive dusting.
Skin protection:..... Hand: None
Other: None. Wear appropriate clothing for work.
Respiratory protection: ..... P3 protective mask should be worn.
Thermal protection: ..... None
Environmental exposure: ..... None

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:..... Beige to light brown powder

Odour:..... Typical yeast smell

Solubility:..... Partially soluble

Odour threshold; pH; Melting point/Freezing point; Initial boiling point and boiling range; Flash point; Evaporation rate; Flammability; Vapour pressure; Vapour density; Relative density; Partition coefficient (n-octanol/water); Auto-ignition temperature; Decomposition temperature; Viscosity; Explosive properties; Oxidising properties: Not Applicable

9.2 Other information: None

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity:.....Not reactive
10.2 Chemical stability: .....Stable
10.3 Possibility of hazardous reactions: .....None
10.4 Conditions to avoid:.....None
10.5 Incompatible materials: .....None
10.6 Hazardous decomposition products: .....None

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity: .....No known effects.
Skin corrosion/irritation:.....Possible irritation to skin
Eye damage/irritation:.....Possible irritation to eye
Respiratory /Skin sensitization: .....Possible allergic reaction or sensitization
CMR (Carcinogenity, germ cell Mutagenicity, Reproductive toxicity): ..No known effects
Chronic effects: .....No known effects

SECTION 12 – ECOLOGICAL INFORMATION

12.1 Toxicity:.....No known ecological effects.
12.2 Persistence and degradability: .....No persistence and the substance is bio-degradable.
12.3 Bioaccumulative potential: .....None
12.4 Mobility in soil: .....Not relevant
12.5 Results of PBT and vPvB assessment: .....Not relevant
12.6 Other adverse effects: .....None

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Product and packaging can be disposed of in regular trash or waste. No special disposal method required. Follow all applicable local laws for recycling, bagging, and disposal of trash.

SECTION 14 – TRANSPORT INFORMATION

14.1 UN Number: .....Not relevant
14.2 UN proper shipping name: .....Not relevant
14.3 Transportation hazard class: .....Not classified as dangerous
14.4 Packing group:.....Not relevant
14.5 Environmental hazards: .....None
14.6 Special precautions: .....None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not relevant

SECTION 15 – REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

The format and content of this voluntary safety data sheet is based on regulations requirements However, some information may not be included because it is not relevant for this type of product.

15.2 Chemical safety assessment: Not relevant

SECTION 16 – OTHER INFORMATION

Disclaimer: The information, data and recommendations contained in this SDS are provided in good faith, obtained from reliable sources, and believed to be true and accurate as of the date of revision. The SDS serves as description of the products in regard to necessary safety measures. No warranty, expressed or implied, regarding the product described in this SDS shall be created or inferred by any statement in this SDS.

Revision date:	September 2016 - The whole datasheet has been revised to ensure conformity with EC Regulation 1907/2006 (consolidated version).
Date of preparation:	February 1, 2018

Declaration for Active Dry Yeasts for oenological use.

2018/02/07

Food Ingredient Fit for Human Consumption
We hereby confirm that raw materials/ ingredients used in the production of aforementioned products have a high purity level. The aforementioned products do not contain components or admixtures injurious to the health of the consumers. They meet applicable standards for food for human consumption as defined in the *Australia New Zealand Food Standards Code,* United States Code of Federal Regulations, United States Department of Agriculture and European Food Commission.

Under the aforementioned manufacturing conditions these products are safe for their intended use.

Food Safety / Food Defense
These products have been processed in a manner consistent with current Good Manufacturing Practices and HACCP. Practices include traceability, non-conformance, and recall. The facilities have written, implemented, recorded, and reviewed plans for manufacturing, processing, packaging, and holding food items. Additionally each production and storage facility has a plan specific to their building to address facility security and food security (food defense).

Food Allergens
The product(s) sold have been produced without the foods or their derivatives that account for the majority of human food allergic reactions as listed in EU Reg.1169/2011 as amended.

These products are considered free of the following:

- Cereals containing GLUTEN and products thereof
- Crustaceans and products thereof
- Eggs and products thereof
- Fish and products thereof
- Peanuts and products thereof
- Soy and products thereof
- Milk (including lactose) and products thereof
- Tree Nuts and products thereof
- Celery and products thereof
- Mustard and products thereof
- Sesame seeds and products thereof
- Lupine and products thereof
- Molluscs and product thereof

Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/litre expressed as SO_2

OIV (Organisation Internationale de la Vigne et du Vin)
The products we market for use in oenology are listed in the OIV Code as allowed in wine production. These products are in conformance with the current oenological OIV Codex regulations.

European regulation
European regulation 606/2009 laying down certain detailed rules for implementing Council Regulation (EC) No 479/2008 as regards the categories of grapevine products, oenological practices and the applicable restrictions allows the aforementioned products in oenological practices and processes.

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Food Additives
Active Dry Yeasts contains Sorbitan Monosterate (E491) as an additive.
Food Additives are defined in (EC) No. 1333/2008 and 21 CFR § 170-178. All Food Additive used comply with applicable Food Additive legislation (EC) No. 231/2012 and 21 CFR § 170-178.
No preservatives or colourings have been used in the production processes of the aforementioned products.

Food Contact Packaging
We hereby confirm that the packaging materials of these products are suitable for the packaging of food.
The product contact packaging is consistent with EC 1935/2004 and EU 10/2011 as amended.

In addition, we have statements from our suppliers that phthalates or its derivatives [bis-phenol A, and poly brominated substances (PBBs & PBDEs)] will not be added or are present in any package or packaging component during the manufacturing process.

Furthermore, these substances are not used in the production of micro-organisms or in the manufacture of ingredients used in the final products.

Genetic Modification
According to our knowledge, the microorganisms are as they were found in nature and have not been modified through genetic engineering. They have been rigorously checked and analyzed for identity and purity. Based on our suppliers' declarations, the raw materials used in the production process do not contain GMO. In these conditions, the aforementioned products do not contain GMO.

Nano-material
The aforementioned products have not been produced with the use of nanotechnology and therefore do not contain any engineered nano-materials in accordance with Regulation (EU) No 1169/2011 of the European Parliament.

Radioactivity and Ionization
The aforementioned products have not been ionized or irradiated and do not contain any ionized or irradiated components. They are compliant with directive 1999/2/EC of the European Parliament concerning foods and food ingredients treated with ionizing radiation and 21 CFR § 179 on irradiation in the production, processing and handling of food.

Use of Sewage Sludge
Sewage sludge has not been used in the production of the aforementioned products.

Growth on Petrochemical Substrate
The aforementioned products have not been grown on petrochemical substrate or sulphate waste liquor.

Ingredients of Animal Origin
The manufacture and development of the aforementioned products and their ingredients do not involved the use of any animal product, by product or derivative. These products are therefore free of any risk from BSE (Bovine Spongiform Encephalopathy) and TSE (Transmissible Spongiform Encephalopathy).

The aforementioned products and their ingredients do not and have not involved testing of any sort on animal.

Antibiotics
No antibiotics are used in the aforementioned products manufacturing process.

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Dioxins and PCB
There is no limit requirement for these products or their ingredients on dioxin levels under Commission Regulation (EC) No 1881/2006 “Setting maximum levels for certain contaminants in foodstuffs” section 5.

The manufacturing process of the aforementioned products is not susceptible of releasing dioxins. Additionally, the aforementioned products have not been manufactured near industrial or natural processes susceptible of releasing dioxins; nor were they manufactured using raw materials, processing aids or water resulting from such processes

Heavy Metals
The aforementioned products are produced from ingredients that are not considered as a risk of Heavy metal content. The production processes themselves do not bring any risk of introducing heavy metals in these products. The products are in compliance with the OIV Codex.

Hazardous Substances
These products are not listed on the EU REACH CMR (Carcinogenic, Mutagenic or toxic to Reproduction) and SVHC (Substances of Very High Concern), the US NTP (National Toxicology Program), and the WHO IARC monographs. The use of the aforementioned products does not represent a risk of exposure to the substances listed on California Proposition 65.

Solvents
No solvents have been used in the aforementioned products production process or in the ingredients used in the production process.

Charlotte Nielsen
QA Manager, Lallemand Oenology

This document is valid for 3 years from date of issue. Changes in production or legislation will result in document updates.

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OENOLOGIE

Vous trouverez dans la liste ci-dessous les produits vérifiés[1] ou attestés[2] par ECOCERT pour une **utilisation en Oenologie** et conformes aux règlements de l'Agriculture Biologique Européen ou Américain.

Produit	Fournisseur	Catégorie	Pays	Produit utilisable selon le règlement	Informations complémentaires
uvaferm 43 restart		Toutes	Tous	Tous	Rechercher
UVAFERM 43 RESTART	LALLEMAND SAS	Levure	FRANCE	Conforme selon le règlement européen **CE 834/2007 - RUE 203/2012** Conforme selon le règlement américain **NOP (National Organic Program)** *Pour le NOP, le produit certifié devra, selon le cas, être labellisé comme "made with organic..."* *Utilisation possible si indisponibilité d'un produit équivalent en BIO*	

INFORMATIONS IMPORTANTES :

La liste du site www.intrants.bio recense les intrants volontairement soumis par le fabricant ou distributeur à la société Ecocert SA, en vue d'une vérification non-obligatoire de leur caractère UAB via une prestation de Revue documentaire ou d'Attestation avec audit.

Le fait qu'un intrant ne figure pas/plus dans la présente liste ne signifie pas, en soi, que cet intrant ne serait pas/plus Utilisable en Agriculture Biologique, la revendication « UAB » restant de la seule responsabilité du metteur en marché (fabricant ou distributeur).

Par ailleurs, les intrants soumis à obligation réglementaire de certification en Agriculture Biologique ne sont dans tous les cas pas disponibles dans cette liste, nous vous invitons à consulter les certificats délivrés par les organismes de certification concernés. Pour les intrants certifiés selon les règlements (CE) no 834/2007 et (CE) no 889/2008 par Ecocert France SAS (FR-BIO-01, agréée par l'INAO) : certificat.ecocert.com

N'oubliez pas de vérifier que le produit que vous recherchez est bien conforme au règlement selon lequel vous êtes certifié (colonne « Produit utilisable selon le Règlement »).
Par exemple, un intrant dont le statut est « Conforme selon règlement américain NOP (National Organic Program). Utilisation possible si indisponibilité d'un produit équivalent en BIO » ne doit être considéré comme conforme que selon le règlement NOP et sous réserve d'indisponibilité d'un même produit certifié Bio NOP. Ce produit ne pourrait, par exemple, pas être considéré comme conforme au règlement Bio Européen.

[1] La Revue Documentaire d'un intrant par Ecocert est réalisée sur base documentaire exclusivement.
[2] L'Attestation d'intrants d'Ecocert est émise après un audit sur le site de fabrication et sur présentation de documents complémentaires.
Pour plus d'informations, consulter http://bp.ecocert.com/intrants/contactFabricant.php