01-15-10 P02:59 IN

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January 15, 2010

BY MESSENGER

Mr. Robert Pooler
National List Coordinator
USDA/AMS/NOP
Room 4008-South, Ag Stop 0268
1400 Independence Avenue S.W.
Washington, D.C. 20250

Re: Supplementary Information
For National List Petition (Enclosed) to Remove
Yeast (Autolysate, Bakers, Brewers, Nutritional and Smoked)
From 7 CFR § 205.605(a) and Include It in 7 CFR § 205.606,
"Nonorganically Produced Agricultural Products Allowed
As Ingredients in or On Processed Products Labeled as Organic"

Dear Mr. Pooler:

I am counsel for Marroquin Organic International, Inc., of Santa Cruz, California. (Marroquin). On August 8, 2006, Marroquin submitted the above-described National List petition to the National Organic Standards Board (NOSB). This petition is attached as Attachment A.

This letter and its attachments will provide supplementary information to assist the NOSB in considering this petition. The NOSB Handling Committee has requested this information pursuant to the NOSB Recommendation on the Classification of Materials, adopted by the NOSB at its meeting in November 2009. This recommendation reads in part as follows:

> ...where a manufacturer believes that it can manufacture a product of a naturally occurring biological process from sources and using a process that would classify the material as agricultural, we would encourage the manufacturer to submit a petition...that clearly details the source and process and aids in our understanding of the breadth of sources and processes on the market. We will review the petitioned material, determine classification and list as appropriate. (Page 9) (Emphasis added)

*  *  *  *

> Specifically, yeast has been the subject of much discussion and public comment for several years. Currently a petition to change the listing of yeast from § 205.605 to § 205.606 has been submitted but deferred for consideration by the petitioner. We ask the petitioner to review the petition, as appropriate, to ensure that a detailed discussion of the source of inputs and the processes used to produce yeast is included. We will consider the petition when it is resubmitted, request a technical review if required and will recommend reclassification of yeast and the appropriate listing of the material. (Page 12) (Emphasis added)

The following information in this letter will assist the NOSB Handling Committee by explaining both the source of the inputs and the processes that Agrano uses to make its Bioreal® organic yeast products. We are confident that this information will permit the Handling Committee to find that Bioreal® organic yeast products are "agricultural products."

If, as a result of its consideration of the petition, the Handling Committee decides to recommend that yeast be reclassified as an "agricultural product" on the National List and moved from § 205.605(a) to § 205.606, the Committee should bear in mind that yeast is listed in two separate places in § 205.605(a). It is listed as "yeast" and, as a fungus, yeast is also included in the listing of "microorganisms" in § 205.605(a). Therefore, in order to avoid confusion and inconsistency in § 205.605(a), when the listing of "yeast" is moved to § 205.606, yeast should also be removed from the coverage of the "microorganisms" listed in § 205.605(a).

Sources of the Inputs Used for Organic Yeast
Manufactured by Agrano GmbH & Co. KG

Agrano GmbH & Co. KG, in Riegel am Kaiserstuhl, Germany (Agrano), is the manufacturer of 11 Bioreal® organic yeast products. Marroquin is the U.S. importer of these products.

The products are listed in Item 4 on page 2 of the 6-page Organic System Plan for Processing, dated November 5, 2009, attached as Attachment B. The products are listed as follows:

- Yeast extract paste
- Yeast extract powder
- Yeast extract Typ N
- Yeast flakes with honey

- Yeast autolysate flakes with wheat
- Yeast autolysate flakes with rice
- Yeast flakes with wheat
- Yeast cream
- Yeast powder
- Active dry yeast
- Active dry wine yeast (oenoferm)

Also attached, as Attachment C, are the specifications for each of the 11 Bioreal® organic yeast products, which show the composition of each product. The NOP certified raw materials Agrano obtains from outside suppliers to make these yeast products are listed in Item 6 on page 3 of the Organic System Plan. These ingredients include:

- Wheat flour, from two different suppliers
- Rice flour
- Sunflower oil
- Honey
- Grape juice extract
- Rice autolysate
- Corn steep syrup (NOP certified, made using lactic acid instead of sulfur dioxide)
- Glucose syrup
- Potato starch
- Corn starch

The Organic System Plan, Item 10 on page 4, calls for a flow diagram that describes the processing step by step. This flow diagram, "Agrano Production of Organic Yeast," 10 pages in length, is attached as Attachment D. The first step, Flow Sheet 1, is to prepare the inoculum, the yeast strain, so that it can be used later in the Prefermentation step (See Flow Sheet 3).

The yeast strain used by Agrano comes from a wholly natural source. It goes back to a strain collected in a sourdough from a small bakery in the Engadine region of Southeastern Switzerland. As the bakery used natural sourdough, the yeast came originally from the wheat flour. The research was done at the University of Zurich. Agrano has patented its process and the yeast strain is deposited with the German Collection of Microorganisms and Cell Cultures (Deutsche Sammlung von Mikroorganismen und Zellkurturen GmbH) in Braunschweig, Germany.

Processes Used for Making Organic Yeast Products

The flow diagram is a detailed technical description of the multi-step process of manufacturing the 11 Bioreal® organic yeast products. The important thing to note is that in organic yeast manufacturing, there are no synthetic chemicals used, as there are in manufacturing conventional yeast.

The brochure for Bioreal® products, attached as Attachment E, contains the following table comparing the process for making organic yeast to the process for conventional yeast.

| Production | Conventional yeast | Bioreal® yeast products |
|---|---|---|
| Sugar source | Molasses (primarily) | Organically farmed grain |
| Nitrogen source | Ammonia ($NH_3$), ammonium salts | Organically farmed grain, brewer's yeast |
| pH regulator | Acids (e.g. sulphuric acid), lyes (e.g. caustic soda lye) | No pH level regulation necessary |
| Processing and growth substances | Synthetic vitamins, mineral salts | Sufficiently present in natural media |
| Antifoaming agent | Synthetic antifoaming agent | Organically farmed sunflower oil |
| Rinsing | Two times | Unnecessary |
| Waste water | Disposal difficult | Raw material for further products |

Source: Reiff, F.; Kautzmann, R.; Lüers, H.; Lindemann, M.; Die Hefen "Technologie der Hefen"

We hope this supplementary information will be helpful to you and to the NOSB Handling Committee. Please do not hesitate to contact me if you have any questions.

Sincerely yours,

Richard D. Siegel

Richard D. Siegel
Counsel for Marroquin Organic International

Attachments

cc: Grace Marroquin
Dr. Bernd Bohrer

# ATTACHMENT A

# COVER LETTER AND

# PETITION

# SUBMITTED BY MARROQUIN ORGANIC INTERNATIONAL

# AUGUST 8, 2006

marroquin
international
commodity services,

August 4, 2006

01-15-10 P03:00 IN

Ms. Valerie Frances
Executive Director
National Organic Standards Board
Room 4008-South
Stop 0268, Room 4008-S
1400 Independence Avenue NW
Washington, DC 20250-0268

Re: National List Petition (Enclosed) for Removal of Yeast (Autolysate, Bakers, Brewers, Nutritional and Smoked) From Section 205.605(a) and Inclusion on Section 205.606, "Nonorganically Produced Agricultural Products Allowed As Ingredients In or On Processed Products Labeled as Organic"

Dear Ms. Frances:

Accompanying this letter is a National List petition submitted by Marroquin International Organic Commodities Services, Inc., to list yeast (autolysate, bakers, brewers, nutritional and smoked) under Section 205.606.

The aim of this petition is simple. Yeast is currently on the National List under Section 205.605(a) as a nonsynthetic nonagricultural (nonorganic) substance. Since yeast is already on the National List, this petition is not to place yeast on the National List. This petition is intended to retain yeast on the National List, but remove it from its present listing under Section 205.605(a) as a "nonagricultural substance" and list yeast under Section 205.606 as an "agricultural product."

The Harvey v. Johanns decision has required that nonorganic agricultural products used in organic processed products must now be individually listed on the National List. As a result, the Board has recently received numerous petitions to add nonorganic agricultural products as new materials on the National List. Our petition is different from these other petitions because yeast is an existing material on the National List. It has already had TAP reviews. In November 2005 the Board made a "sunset" recommendation to retain yeast on the National List. Thus our petition does not call for any new technical information on yeast.

The only issue in our petition is the legal question of whether yeast is an "agricultural product" under the Organic Foods Production Act of 1990 (OFPA). It is our position that yeast, a microorganism, qualifies as an "agricultural product." Thus if the National List regulations continue to categorize yeast as a "nonagricultural substance," this is not consistent with OFPA. The listing of

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yeast as a "nonagricultural substance" in the National List regulations was an oversight that now needs to be corrected by an amendment to the National List regulations.

If as a result of this petition the Board recommends amending the National List by transferring yeast within the National List from the category of a "nonagricultural substance" under Section 205.605(a) to an "agricultural product" under Section 205.606, manufacturers who rely on conventional yeast will still be able to use it, unless organic yeast is "commercially available in organic form." To be "commercially available," organic yeast will need to be "in an appropriate form, quality, or quantity," as determined by the manufacturer's certifying agent.[1]

At this point we do not know to what extent organic yeast will be "commercially available" for the organic food industry, because to date yeast has not been recognized as an "agricultural product." This has prevented organic yeast from being adopted by most manufacturers, so we do not yet know what supply and demand there will be for organic yeast once this barrier is removed.

This letter will now discuss:

- Why Yeast Qualifies as an "Agricultural Product" under OFPA
- Why the Board's Prior View of Mushrooms as Livestock Would Apply to Yeast as Well
- Why This Petition Is Necessary to Enable Yeast to Become A Normal Organic Ingredient in Processed Foods
- Why the Board Does Not Need to Address and Resolve Organic Yeast Compliance Questions Before It Acts on This Petition
- Why the Definition of "Nonagricultural Substance" In the NOP Regulations Does Not Apply to Yeast

Why Yeast Qualifies as an "Agricultural Product" under the Organic Foods Production Act

OFPA defines "livestock" as "any cattle, sheep, goats, swine, poultry, equine animals used for food or in the production of food, fish used for food, wild or domesticated game, or other nonplant life." 7 USC § 6502 (11). Since yeast is a fungus and science considers fungi to be outside the plant kingdom, yeast is a form of "nonplant life." Therefore, yeast falls within the OFPA definition of "livestock." Since yeast qualifies as "livestock," OFPA makes yeast an "agricultural product." OFPA defines an "agricultural product" as "any agricultural commodity or product, whether raw or processed, including any commodity or product derived from livestock, that is marketed in the United States for human or livestock consumption." 7 USC § 6502(1).

This is the first time our company has submitted a formal National List petition requesting this change. However, Board members are already familiar with our legal position that yeast is an

[1] Definition of "commercially available" in National Organic Program regulations, 7 CFR § 205.2.

"agricultural product." On March 31, 2006, our counsel, Richard Siegel, first presented our legal position to the Board in a detailed memorandum to Kevin O'Rell, Chair of the Board. I then traveled to State College, Pennsylvania, to present my public comment before the Board on April 19, 2006.

At the April 19 public comment session we were most encouraged by the positive reception that several Board members gave to our request. (See Transcript, April 19, 2006, pp. 120-130.) It is notable that during the discussion, no Board member spoke to disagree with our basic position that under the definitions in OFPA, yeast would qualify as an "agricultural product."

The following day, at the conclusion of the Board meeting, Julie Weisman, Chair of the Handling Committee, confirmed that the committee was "entertaining this approach." She announced that the Handling Committee would lead a working group consisting of the members of the Handling and Materials Committees to consider our yeast proposal and develop a recommendation for the Board prior to the next meeting, which will be held in October. (Transcript, April 20, 2006, pp. 201-204.)

Therefore, we are filing this petition in parallel with the work that the Handling and Materials Committees are already doing on this question in advance of the October meeting.

Why the Board's Prior View of Mushrooms as Livestock Would Apply to Yeast as Well

Yeast is a living organism grown on a substrate that provides the yeast with the nutrients necessary for its growth. Mushrooms likewise are fungi that are grown by feeding. The key difference between fungi, such as mushrooms and yeast, and conventional livestock is that the food for fungi is not provided from a distance. Instead the fungi live and grow in and on a substrate that provides them with their food.

When the Board and the National Organic Program (NOP) first developed organic standards, they readily accepted the mushroom as an agricultural product eligible for organic certification. At its meeting in October 2001 the Board adopted proposed standards for organic mushroom production. These standards include provisions, subsections (c) and (d), that expressly regulate the materials used in the substrate.

During the Board's discussion, it was noted that because mushrooms derived their food from a substrate, this made mushrooms "akin to livestock" rather than plants. "Growing plants is very different from growing mushrooms," Dr. Eric Sideman, the scientist representative on the Board at that time, explained to the Board.

Dr. Sideman went on to state:

> Mushrooms are much more akin to livestock and they're actually using the substrate as a food source, as livestock use their food. And that food has to be organic and...the medium and the substrate that the mushrooms are growing on needs to be organic...
>
> (Transcript, October 16, 2001, p. 64.)

The next day, as the Board prepared to vote on the mushroom standards, Board member Rosalie Koenig said she agreed with Dr. Sideman. She remarked, "Eric has convinced me a lot on my thinking on mushrooms. I think I was approaching it more from looking at it as a plant originally, even though I studied mycology." (Transcript, October 17, 2001, p. 125.)

Turning from mushrooms to yeast, the same principle applies. Yeast is another fungus grown on a substrate. The only difference is that historically the Board took yeast on a different path from mushrooms. While the Board saw mushrooms from the start as an "agricultural product" eligible for organic certification, it saw yeast primarily as a candidate for the National List, since many organic products would require yeast and at the time there was no yeast being organically produced.

When it first designated yeast for the National List, the Board chose to list yeast as a "nonsynthetic" but "nonagricultural substance" instead of an "agricultural product." We have found in our research that in 1993 a Board member concluded that yeast should go on the National List as one of the "non-synthetic materials that cannot be produced organically (gases, yeast, cultures, etc.)."[2] This is when yeast first became "pigeon-holed" as a "nonagricultural substance." There was evidently no thought given at that time to whether yeast might be an "agricultural product" under OFPA. In May 2003 the Board missed another opportunity to analyze the legal status of yeast when it recommended listing "any food grade bacteria, fungi and other microorganisms" under Section 205.605(a).[3]

This is a misclassification that can now be corrected in response to this petition. Whether or not one believes that yeast can be produced organically, this is not the issue that the Board needs to decide. There is simply an inconsistency because the National List regulations do not conform to OFPA. OFPA includes yeast as an "agricultural product," and the National List identifies yeast as a "nonagricultural substance." To make the regulations conform to OFPA, yeast properly belongs under Section 205.606 of the National List as an "agricultural product."

Why This Petition Is Necessary to Enable Yeast to Become
A Normal Organic Ingredient in Processed Foods

The misclassification of yeast on the National List as a "nonagricultural substance" has had a crippling effect on the adoption of organically produced yeast as a normal ingredient in organic processed food products.

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[2] Report to Board by Dr. Richard Theuer on behalf of the Processing, Handling and Labeling Committee, at Board meeting in Fargo, Arkansas, September 28, 1993.

[3] The NOP has not yet accepted this recommendation. According to the NOP's Petitioned Substances Database on the NOP website, after the Board made this recommendation in May 2003, the NOP returned it to the Board for further documentation, and the database does not indicate that the Board has provided it.

Yeast that is grown on an organic grain substrate and handled according to organic requirements has been available to meet the organic ingredient needs of many if not all organic manufacturers. Organic yeast avoids the chemicals that are used in the production of conventional yeast: ammonia ($NH^3$), sulfuric acid, caustic soda lye, synthetic vitamins and a synthetic anti-foaming agent. While the wastewater from conventional yeast production must be treated before disposal to avoid pollution, wastewater from organic yeast production is a raw material available for further production.

In 1980 a German manufacturer, Agrano GmbH & Co. KG, in Riegel am Kaiserstuhl, a small town near Freiburg, Germany, began its pioneering work to develop an organic production method for yeast because of the view held in Europe that the various chemicals used in cultivating yeast microorganisms in conventional yeast production were not compatible with organic farming or food processing. In 1995 Agrano began commercial marketing of its Bioreal® organically produced yeast. Our firm began importing Bioreal® in 2002.

However, while the NOP regulations, in Section 205.301(b), require organic food manufacturers to use other commercially available organically produced ingredients in products labeled "organic," the National List portion of the NOP regulations create an unintended loophole under which manufacturers of organic products are not required to use organic yeast. Manufacturers are free to choose conventional yeast for their "organic" products, and they do, because conventional yeast is less expensive.

The reason for this loophole is that organic yeast is not recognized as an "organic" ingredient. This is because only an "agricultural product" is considered eligible to be certified as "organic." Keeping yeast classified as a "nonagricultural substance" keeps the loophole open and permits manufacturers to avoid using organic yeast. On the other hand, if yeast were listed on the National List as an "agricultural product" in Section 205.606, then manufacturers would be required in general to use organic yeast, and the listing of conventional yeast on the National List would mean that they could use conventional yeast, but only as a fallback when organic yeast would not be "commercially available in organic form."

Today a manufacturer desiring to use Bioreal® yeast can buy it from us. It is an organic product certified by Oregon Tilth. Certain soups, for example, require a higher than average percentage of yeast. Using Bioreal® as an organic ingredient enables the soup manufacturer to count this toward the minimum 95 percent level for organic ingredients.

However, in the case of the vast majority of organic food products, the manufacturers do not see organic yeast as an ingredient they can use to help them reach the 95 percent level. These products use yeast only in small amounts that fit within the remaining five percent of ingredient content that does not have to be organic. For yeast within the remaining five percent, the NOP does not compel those manufacturers to use organic yeast. They are allowed to use conventional yeast because it is on the National List and because the NOP does not officially recognize organic yeast as an organic ingredient. Because conventional yeast is listed on the National List under Section 205.605(a) instead of Section 205.606, manufacturers may use conventional yeast freely in the

remaining five percent, without first proving to their certifier that organic yeast is "not commercially available."

In a letter dated February 11, 2004, the NOP Program Manager, Richard Mathews, confirmed that until yeast is reclassified as an "agricultural product," "handlers are not required to source organic yeast" and "a petition is required to remove yeast from Section 205.605 and to seek yeast's reclassification as an agricultural product."

Why the Board Does Not Need to Address and Resolve
Organic Yeast Compliance Questions Before It Acts on This Petition

At the conclusion of the Board meeting on April 20, when Ms. Weisman announced plans for a working group of the Handling and Materials Committees, she indicated that the working group might be discussing more than just our position that yeast is an "agricultural product." She said the working group would also examine how organically produced yeast would literally comply with the NOP organic livestock standards, in Sections 205.236 – 239. She mentioned two standards in particular, (1) access to outdoors and pasture, and (2) organic feed. (Transcript, p. 203.)

Our petition presents just one direct question for the Board, whether conventional yeast should be reclassified on the National List as an "agricultural product." Our petition is a National List petition, so it applies to conventional yeast, not organic yeast. I hope this distinction will be clear to the Board.

In other words, while these questions about how yeast would meet organic livestock standards are certainly interesting and potentially significant in the certification process, they are not relevant to the petition at hand. The Board does not need to resolve any question about organic compliance in order to approve our petition. All that the Board needs to determine is whether conventional yeast on the National List is an "agricultural product" and therefore should be listed under Section 205.606 instead of Section 205.605(a).

Questions about yeast complying with the organic livestock standards will arise when an organic yeast producer actually applies to an Accredited Certifying Agent for certification under the livestock production standards. Then it will be the certifying agent's role to determine whether yeast production will meet those standards. We would be happy to engage in further dialogue with the Board on these questions, but for purposes of having our petition acted on at the October 2006 meeting, we hope these questions on organic compliance will not distract the Board from directly considering our simple petition to amend the National List.

Why the Definition of "Nonagricultural Substance"
In the NOP Regulations Does Not Apply to Yeast

Ms. Weisman, in her remarks at the April 20 Board meeting, further observed that the NOP regulations, Section 205.2, contain a definition of "nonagricultural substance" that identifies "a mineral or a bacterial culture" as examples of a "nonagricultural substance."

In case this comes up in the Board's discussion, we would like to explain that this definition making a "bacterial culture" a "nonagricultural substance" has nothing to do with yeast. While yeast is a microorganism, yeast is not a "bacterial culture." This is an important distinction.

The current systems of biological classification make a strong differentiation between bacteria, on the one hand, and fungi, such as yeast, on the other. Bacteria are prokaryotes, meaning that they do not have either a nucleus or an internal membrane-bounded structure. Fungi are eukaryotes, meaning that they have both a nucleus and a membrane-bounded structure. Biologists regard this as a "profound distinction."[4] Therefore, when one speaks of a "bacterial culture," this refers to a type of microorganism that is separate and distinct from fungi such as yeast.

Therefore, the Board does not have to review the policy in the existing NOP regulations that "bacterial cultures" are "nonagricultural" before it acts on our petition concerning yeast. Our concern is that if the Board were to widen its discussion at this time to deal with "bacterial cultures," this might prevent the Board from acting promptly on our pending petition for yeast, which can and should stand alone.

* * * * * * *

In closing, Marroquin International Organic Commodities Services appreciates the support and assistance of the Board and looks forward to having this petition considered at the next meeting of the Board. Please contact us if you have any questions.

Sincerely yours,

Marroquin International Organic
Commodities Services, Inc.

Grace Marroquin, President

Enclosure
cc: Members of National Organic Standards Board

[4] See "Classification, Biological," McGraw-Hill Encyclopedia of Science and Technology, 9th ed., 2002, Vol. 4, p. 219.

BEFORE THE NATIONAL ORGANIC STANDARDS BOARD

# PETITION FOR REMOVAL OF YEAST (NONSYNTHETIC) (AUTOLYSATE, BAKERS, BREWERS, NUTRITIONAL AND SMOKED) FROM SECTION 205.605(a) OF THE NATIONAL LIST AND INCLUSION OF YEAST (NONSYNTHETIC) (AUTOLYSATE, BAKERS, BREWERS, NUTRITIONAL AND SMOKED) IN SECTION 205.606, AS "NONORGANICALLY PRODUCED AGRICULTURAL PRODUCTS ALLOWED AS INGREDIENTS IN OR ON PROCESSED PRODUCTS LABELED AS 'ORGANIC'"

Petition Submitted by:

Marroquin International Organic Commodities Services, Inc.
303 Potrero Street, #18
Santa Cruz, California 95060
Telephone 831-423-3442
Contact: Grace Marroquin, President
grace@marroquin-organics.com

Date: _____

# PETITION FOR REMOVAL OF YEAST (NONSYNTHETIC) (AUTOLYSATE, BAKERS, BREWERS, NUTRITIONAL AND SMOKED) FROM SECTION 205.605(a) OF THE NATIONAL LIST AND INCLUSION OF YEAST (NONSYNTHETIC) (AUTOLYSATE, BAKERS, BREWERS, NUTRITIONAL AND SMOKED) IN SECTION 205.606, AS "NONORGANICALLY PRODUCED AGRICULTURAL PRODUCTS ALLOWED AS INGREDIENTS IN OR ON PROCESSED PRODUCTS LABELED AS 'ORGANIC'"

## ITEM A

As stated in the title above, this petition is to add yeast (nonsynthetic) (autolysate, bakers, brewers, nutritional, and smoked) to the National List, Section 205.606, as "nonorganically produced agricultural products allowed as ingredients in or on processed products labeled as 'organic.'"

## ITEM B

1. **Substance's common name.** Autolysate, bakers, brewers, nutritional and smoked yeast.

2. **Manufacturer's name, address and telephone number.** Numerous manufacturers.

3. **Intended or current use of substance.** Agricultural ingredient.

4. **List of handling activities for which substance will be used.** Food processing.

5. **Source of the substance and a detailed description of its manufacturing or processing procedures from the basic components to the final product.**
Production methods for yeast are widely known and explained in standard reference works. Yeast is already listed on the National List under Section 205.605(a) as a nonsynthetic nonagricultural (nonorganic) substance. TAP reviews were conducted in 1995 for each of the five types of yeast.

6. **Summary of any available previous reviews by State or private certification programs or other organizations of the petitioned substance.**
Not applicable. Yeast is already listed on Section 205.605(a). TAP reviews are in place.

7. **Information regarding EPA, FDA, and State regulatory authority registrations, including registration numbers.**

FDA lists the following registration numbers for yeast.
Yeast, autolysate, 977046-75-5
Yeast Extract, autolyzed, 977082-78-2
Yeast – Malt Sprout Extract, 977011-55-4
Yeasts, 977030-39-0
Yeasts, Dried, 977009-36-1

8. **Chemical Abstract Service (CAS) numbers.** Yeasts do not have CAS numbers. The Numbers shown in #7 above are the FDA's numerical codes in lieu of CAS numbers.

9. **Physical properties and chemical mode of action.** Not applicable for this petition. Yeast is used in food processing.

10. **Safety information.** Not applicable for this petition. Yeast is already on National List.

11. **Research information.** Not applicable for this petition. Yeast is already on National List.

12. **Petition justification statement. (Items of information in NOSB "Recommendation for the Establishment of Commercial Availability Criteria," April 20, 2006.)**

*Why conventional yeast should be permitted in organic products.* Yeast is a very necessary ingredient in the production of many types of foods. This is why yeast was one of the first ingredients to be proposed for the National List following the enactment of the Organic Foods Production Act of 1990 (OFPA). At the time the National List was first developed, yeast was placed on the National List as a "nonagricultural substance." This was an error in classifying yeast, because at the time the NOSB did not recognize that under OFPA yeast would qualify as an "agricultural product."

At the present time most manufacturers of foods requiring yeast use conventional yeast since it is listed on Section 205.605(a). Because yeast is carried on the National List as a "nonagricultural substance," organic yeast is not recognized as an "organic" ingredient because yeast is not classified as an "agricultural product" that is eligible to be organic. This has prevented the yeast industry from producing and marketing organic yeast.

*Current industry information on the supply of organic yeast is not available.* The yeast industry believes it could make organic yeast commercially available to meet the needs of many but not all manufacturers. When organic yeast is commercially available, then under Section 205.301(b), manufacturers should be required to use it in their products labeled "organic." It is important to note that because yeast has not been classified as an "agricultural product," the yeast industry has not yet had the opportunity to supply organic yeast to the full potential market of food manufacturers. Thus

it has no hard information on the size of this market and the industry's ability to provide organic yeast to this market on a consistent basis.

*Aim of this petition.* This petition is to retain yeast on the National List, while reclassifying yeast from a "nonagricultural substance" under Section 205.605(a) to an "agricultural product" under Section 205.606. After this reclassification of conventional yeast on the National List as an "agricultural product," manufacturers would continue to be able to use conventional yeast, but only if organic yeast was not commercially available.

Please refer to the extensive letter accompanying this petition for full and detailed information in support of this petition.

13. **Commercial Confidential Information Statement.** Not applicable for this petition.

**Completed and attached:**
**Forms for "Evaluation Criteria for Substances Added to the National List"**

- **Category 1. Adverse impacts on humans or the environment? (one page)**
- **Category 2. Is the substance essential for organic production? (one page)**
- **Category 3. Is the substance compatible with organic production practices? (one page)**

EVALUATION CRITERIA FOR SUBSTANCES ADDED TO THE NATIONAL LIST

**Category 1. Adverse impacts on humans or the environment?** Substance Yeast

| Question | Yes | No | N/A[1] | Documentation (TAP; petition; regulatory agency; other) |
|---|---|---|---|---|
| 1. Are there adverse effects on environment from manufacture, use, or disposal? [§205.600 b.2] | | | Yeast Not Synthetic | |
| 2. Is there environmental contamination during manufacture, use, misuse, or disposal? [§6518 m.3] | | X | | TAP – reviews for all 5 types of yeast |
| 3. Is the substance harmful to the environment? [§6517c(1)(A)(i); 6517(c)(2)(A) i] | | X | | TAP – reviews for all 5 types of yeast |
| 4. Does the substance contain List 1, 2, or 3 inerts? [§6517 c (1)(B)(ii); 205.601(m) 2] | | | Not used in production | |
| 5. Is there potential for detrimental chemical interaction with other materials used? [§6518 m.1] | | X | | TAP – reviews for all 5 types of yeast |
| 6. Are there adverse biological and chemical interactions in agro-ecosystem? [§6518 m.5] | | | Food ingredient | |
| 7. Are there detrimental physiological effects on soil organisms, crops, or livestock? [§6518 m.5] | | | Food ingredient | |
| 8. Is there a toxic or other adverse action of the material or its breakdown products? [§6518 m.2] | | X | | TAP – reviews for all 5 types of yeast |
| 9. Is there undesirable persistence or concentration of the material or breakdown products in environment? [§6518 m.2] | | X | | TAP– reviews for all 5 types of yeast |
| 10. Is there any harmful effect on human health? [§6517 c (1)(A)(i); 6517 c (2)(A) i; §6518 m.4] | | X | | TAP– reviews for all 5 types of yeast |
| 11. Is there an adverse effect on human health as defined by applicable Federal regulations? [205.600 b.3] | | | Not synthetic | |
| 12. Is the substance GRAS when used according to FDA's good manufacturing practices? [§205.600 b.5] | X | | | Dried yeasts and dried torula yeast, 21 CFR § 172.896<br>Bakers yeast glycan, 21 CFR § 172.898<br>Bakers yeast protein, 21 CFR § 172.325<br>Bakers yeast extract. 21 CFR § 184.1983 |
| 13. Does the substance contain residues of heavy metals or other contaminants in excess of FDA tolerances? [§205.600 b.5] | | | Not synthetic | |

[1]If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

**Category 2. Is the Substance Essential for Organic Production?** Substance Yeast

| Question | Yes | No | N/A[1] | Documentation (TAP; petition; regulatory agency; other) |
|---|---|---|---|---|
| 1. Is the substance formulated or manufactured by a chemical process? [6502 (21)] | | X | | NOSB found all 5 types of yeast to be non-synthetic. (See NOSB minutes, Oct. 31-Nov. 4, 1995, p. 13.) They are listed in Sec. 205.605(a) as nonsynthetic. |
| 2. Is the substance formulated or manufactured by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral, sources? [6502 (21)] | | X | | Same |
| 3. Is the substance created by naturally occurring biological processes? [6502 (21)] | X | | | Same |
| 4. Is there a natural source of the substance? [§205.600 b.1] | | | Not synthetic | |
| 5. Is there an organic substitute? [§205.600 b.1] | | | Not synthetic | |
| 6. Is the substance essential for handling of organically produced agricultural products? [§205.600 b.6] | | | Not synthetic | |
| 7. Is there a wholly natural substitute product? [§6517 c (1)(A)(ii)] | | X | | While organic yeast is available for some uses, market remains to be developed. |
| 8. Is the substance used in handling, not synthetic, but not organically produced? [§6517 c (1)(B)(iii)] | | | This provision was stricken from OFPA. | |
| 9. Is there any alternative substance? [§6518 m.6] | | X | | TAP– reviews for all 5 types of yeast |
| 10. Is there another practice that would make the substance unnecessary? [§6518 m.6] | | X | | TAP– reviews for all 5 types of yeast |

[1]If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

**Category 3. Is the substance compatible with organic production practices?**

Substance Yeast

| Question | Yes | No | N/A[1] | Documentation (TAP; petition; regulatory agency; other) |
|---|---|---|---|---|
| 1. Is the substance compatible with organic handling? [§205.600 b.2] | | | Not synthetic | |
| 2. Is the substance consistent with organic farming and handling? [§6517 c (1)(A)(iii); 6517 c (2)(A)(ii)] | X | | | TAP– reviews for all 5 types of yeast |
| 3. Is the substance compatible with a system of sustainable agriculture? [§6518 m.7] | X | | | TAP– reviews for all 5 types of yeast |
| 4. Is the nutritional quality of the food maintained with the substance? [§205.600 b.3] | | | Not synthetic | |
| 5. Is the primary use as a preservative? [§205.600 b.4] | | | Not synthetic | |
| 6. Is the primary use to recreate or improve flavors, colors, textures, or nutritive values lost in processing (except when required by law, e.g., vitamin D in milk)? [205.600 b.4] | | | Not synthetic | |
| 7. Is the substance used in production, and does it contain an active synthetic ingredient in the following categories:<br>a. copper and sulfur compounds; | | | Not used in production | |
| b. toxins derived from bacteria; | | | Same | |
| c. pheromones, soaps, horticultural oils, fish emulsions, treated seed, vitamins and minerals? | | | Same | |
| d. livestock parasiticides and medicines? | | | Same | |
| e. production aids including netting, tree wraps and seals, insect traps, sticky barriers, row covers, and equipment cleaners? | | | Same | |

[1]If the substance under review is for crops or livestock production, all of the questions from 205.600 (b) are N/A—not applicable.

# ATTACHMENT B

AGRANO GmbH & CO. KG

ORGANIC SYSTEM PLAN, PROCESSING

FOR

11 ORGANIC YEAST PRODUCTS

NOVEMBER 5, 2009

# Organic System Plan (OSP): Processing

'for certification according to NOP, USDA and/or Canadian Organic Products Regulation (COR)

## *Organic System Plan (OSP): Verarbeitung*

*für Zertifizierung nach NOP, USDA und/oder der Kanadischen Bio-Verordnung (COR)*

The purpose of the Organic System Plan is to provide a **complete** description of the operation and **all its practices**. If at all possible, please complete your Organic System Plan using a computer. You may adapt this form in order for you to better provide a complete picture of your operation.

*Zweck des Organic System Plans ist, eine **komplette** Beschreibung des Betriebes und **aller Verfahren** zu erstellen. Wenn irgend möglich, füllen Sie Ihren Organic System Plan mit dem Computer aus. Sie können dieses Formular abändern um ihren Betrieb besser darstellen zu können.*

## 1. Details of Operation / *Angaben zum Betrieb*

Registered name of operation / *Betriebsname*:
AGRANO GmbH & Co. KG

| Mailing Address of operation<br>*Postadresse:*<br><br>Bahnhofstraße 35<br>79359 Riegel am Kaiserstuhl | Physical Address (if different from mailing address)<br>*Physische Adresse (wenn abweichend von der Postadresse)* |
|---|---|
| Tel. : 07642/67-260 | Fax: 07642/67-261 |

Email: info@agrano.de

Managing director / *Betriebsleitung: Dr. Bernd Bohrer*

Person responsible for organic certification matters:
*Ansprechpartner für den Bio-Bereich : Dr. Bernd Bohrer*

Company is in certification process for compliance with:
*Betrieb ist im Zertifizierungsprozess nach:*
NOP **X** COR ☐ Regulation (EC) No. 834/07 **X** Other / *andere*: JAS

Is the company certified by another certification body? Yes /Ja ☐ No /Nein X
If yes, for which standards?
*Wird der Betrieb von einer weiteren Kontrollstelle zertifiziert?* Yes /Ja ☐ No /Nein X
*Wenn ja, nach welchen Standards?*

## 2. Sites involved in organic production / *Betriebsstätten in denen Bio-Verarbeitung stattfindet*

List name and address of all **production sites** that may be involved in producing organic products.
*Nennen Sie Namen und Adressen aller **Betriebsstätten,** in denen die Verarbeitung von Bio-Produkten stattfindet.*
Leiber GmbH & Co. KG
Hafenstraße 24; 49565 Bramsche
Ohly GmbH
Wandsbeker Zollstraße 59; 22041 Hamburg
Rabeler Fruchtchips GmbH
Nonnenwaldstraße 20; 82377 Penzberg
Dr. Oetker Food Service KG
Mörscher Straße 17 – 25; 76273 Ettlingen

Erbslöh Gmbh
Erbslöhstraße; 65366 Geisenheim
Uelzena EG
Im Neuen Felde 87; 29525 Uelzen

List all **storage and warehouse sites** that may be used to store organic raw materials and/or finished products.
*Nennen Sie alle Lagerstätten, an denen Bio-Rohstoffe und/oder Endprodukte gelagert werden.*

**3. Parallel Production /*Parallelproduktion***

Does the operation process organic products only? Yes /Ja ☐ No /Nein X
*Verarbeitet das Unternehmen ausschließlich Bio-Produkte?*

**4. List of NOP products and brand names / *NOP Artikelliste***

| Product<br>*Produkt* | Brandname<br>*Markenname* | NOP status (tick applicable) *(Zutreffendes ankreuzen)* | | | Same product as non-organic in range (tick if applicable) *Gleiches Produkt konventionell im Sortiment (ankreuzen wenn zutreffend)* |
|---|---|---|---|---|---|
| | | 100% organic | organic | made with organic | |
| Yeast extract paste | Bioreal | | X | | |
| Yeast extract powder | Bioreal | | X | | |
| Yeast extract Typ N | Bioreal | | X | | |
| Yeast flakes with honey | Bioreal | | X | | |
| Yeast autolysate flakes with wheat | Bioreal | | X | | |
| Yeast autolysate flakes with rice | Bioreal | | X | | |
| Yeast flakes with wheat | Bioreal | | X | | |
| Yeast cream | Bioreal | | X | | |
| Yeast powder | Bioreal | | X | | |
| Active dry yeast | Bioreal | | X | | |
| Active dry wine yeast (oenoferm) | Bioreal | | X | | |
| Baking powder | Bioreal | | | X | |
| Grape juice concentrate extracts | Bioreal | X | | | |

Please complete a separate product specification (Annex Y 065) for each product listed.
*Bitte füllen Sie für jedes Produkt eine separate Produktspezifikation (Annex Y 065) aus.*

**5. List of COR products and brand names / *COR Artikelliste***

| Product<br>*Produkt* | Brandname<br>*Markenname* | COR status (tick applicable) *(Zutreffendes ankreuzen)* | | Same product as non-organic in range (tick if applicable) *Gleiches Produkt konventionell im Sortiment (ankreuzen wenn* |
|---|---|---|---|---|
| | | Organic* | Contains X % organic ingredients** | |

| | | | | |
|---|---|---|---|---|
| | | | | *zutreffend)* |
| | | | | |
| | | | | |
| | | | | |

* organic: at least 95% ingredients COR certified organic; remaining 5% non-organic only if not commercially available
*mind. 95% der Zutaten sind COR zertifiziert; die restlichen 5% dürfen nur konventionell sein wenn nicht in COR verfügbar*

** contains X% organic ingredients: at least 70% ingredients COR certified organic
*Mindestens 70% der Zutaten COR zertifiziert*

Please complete a separate product specification (Annex Y 065) for each product listed.
*Bitte füllen Sie für jedes Produkt eine separate Produktspezifikation (Annex Y 065) aus.*

**6. Suppliers of NOP certified raw material(s) / *NOP Zertifizierte Rohstofflieferanten***

| Raw Material<br>*Rohstoff* | Name and Address of Supplier<br>*Name und Adresse des Lieferanten* | Name certification body<br>*Kontrollstelle* | No. NOP Certificate<br>*Nr. NOP Zertifikat* | Date issued<br>*Ausstellungs-datum* |
|---|---|---|---|---|
| Wheat flour | Rubin GmbH | BCS | | 31.03.2009 |
| Wheat flour | Hans Hofer GmbH | IMO | | 14.01.2009 |
| Rice flour | All Organic Trading | IMO | | 09.09.2009 |
| Sunflower oil | All Organic Trading | IMO | | 09.09.2009 |
| Honey | All Organic Trading | IMO | | 09.09.2009 |
| Grape juice extract | All Organic Trading | IMO | | 09.09.2009 |
| Rice autolysate | Meurens Natural S.A. | Certisys | | 25.08.2009 |
| Corn steep syrup | Agrana | Austria Bio Garantie | | 20.10.2006 |
| Glucose syrup | Agrana | Austria Bio Garantie | | 20.10.2006 |
| Potato starch | Agrana | Austria Bio Garantie | | 20.10.2006 |
| Corn starch | Agrana | Austria Bio Garantie | | 20.10.2006 |

**7. Suppliers of COR certified raw material(s) / *COR Zertifizierte Rohstofflieferanten***

| Raw Material<br>*Rohstoff* | Name and Address of Supplier<br>*Name und Adresse des Lieferanten* | Name certification body<br>*Kontrollstelle* | No. Canadian Certificate<br>*Nr. Kanadisches Zertifikat* | Expiry date<br>*Gültig bis* |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

**8. Receipt of raw materials / *Wareneingang***

Describe the procedure for receipt of organic raw materials. AA 7.6.2 Warenannahme
*Beschreiben Sie das Verfahren zum Wareneingang.*

How is the organic status of the incoming raw material verified? FB 7.6.2-01 Wareneingangskontrolle
*Wie wird der Bio-Status der angelieferten Rohstoffe geprüft?*

What records are kept of receipt of raw materials? Delivery bill, FB 7.6.2-01 Wareneingangskontrolle
*Wie wird der Wareneingang dokumentiert?*

**9. Storage of raw materials / *Lagerung der Rohstoffe***

Is there a separate storage facility for organic raw materials only?
*Gibt es separate Lagerräumlichkeiten ausschließlich für Bio-Rohstoffe?*
Yes /Ja ☐ No /Nein X

If no, describe how separation of organic raw materials in the storage area is ensured.
*Wenn nicht, beschreiben Sie wie die Trennung der Bio-Rohstoffe in den Lagerräumlichkeiten gewährleistet werden kann.*

*Labelling „NOP"*

Describe how traceability of origin and organic status of raw materials is ensured.
*Beschreiben Sie wie Rückverfolgbarkeit und Bio-Status der Rohstoffe gewährleistet wird.*

*AA 7.7.13 Rückverfolgbarkeit, Bio- Haccp*

## 10. Processing / *Verarbeitung*

Please attach a flow diagram describing the processing step by step.
Attach a flow diagram of each process.
*Legen Sie ein Fliessschema bei, das die Verarbeitung Schritt für Schritt darstellt.*
*Bitte legen Sie für jeden Verarbeitungsprozess ein separates Fliessschema bei.*

Describe measures taken during processing to prevent co-mingling of NOP and COR organic products with other organic or non-organic products. (eg cleaning, time of production, dry runs etc.)?
*Welche Maßnahmen werden bei der Verarbeitung getroffen, um die Trennung der NOP und COR Bio- Produkte von anderen Bio- oder konventionellen Produkten zu gewährleisten (z.B. Reinigung, Leerfahren, zeitliche Trennung)?*

Chargentrennung

## 11. Packaging / *Verpackung*

How is the product packed?
*In welche Verpackungseinheiten wird das Produkt verpackt?*
Bulk goods / *Lose Ware* X
Bulk goods in containers / *Schüttgüter in Containern* ☐
Finished products for retailers / *Endprodukte für den Einzelhandel* X

Other / *Andere*:

Describe the packaging material used.
*Benennen Sie die verwendeten Verpackungsmaterialien.*

Carton box, PE- film, PE/AL/PET- film

## 12. Labelling / *Etikettierung*

Please attach samples or copies or drafts of labels used on NOP and COR certified products.
*Legen Sie Muster oder Kopien oder Entwürfe der Etiketten bei, die für NOP und für COR zertifizierte Produkte verwendet werden.*

## 13. Storage of finished products / *Lagerung der Endprodukte*

How is separate storage of NOP and COR finished products organised?
*Wie ist die getrennte Lagerung der NOP und COR Produkte organisiert?*

*Labelling „NOP"*

## 14. Pest control / *Schädlingsbekämpfung*

Describe the methods of pest control employed in the storage area and on the premises.
Name products used for pest control.
*Beschreiben Sie die Maßnahmen zur Schädlingsbekämpfung, die in den Lagerräumlichkeiten und im Betrieb durchgeführt werden. Bitte die verwendeten Produkte nennen.*

Is pest control subcontracted to an external company?

*Wird Schädlingsbekämpfung von einem Subunternehmer durchgeführt?*
Yes /Ja X No /Nein ☐

How is it ensured that products used by the external company are suitable for organic production facilities?
*Wie ist es sichergestellt dass die von der externen Firma eingesetzten Produkte für Bio-Produktionsstätten geeignet sind?*

Überprüfung der eingesetzten Produkte

Are fumigants used any where in the facilities? *Wird eine Entwesung im Betrieb durchgeführt?*
Yes /Ja ☐ No /Nein X

If yes, how is contamination with organic products prevented?
*Wenn ja, wie wird die Kontamination der Bio-Produkte verhindert?*

## 15. Cleaning / *Reinigung*

Describe how the premises, machines and equipment are cleaned.
*Beschreiben Sie wie Maschinen und Anlagen gereinigt werden.*
AA 6.2.2 Sauberkeit und Hygiene
AA 6.3.3 Reinigung
AA 7.7.12 CIP- Reinigung

List cleaning agents used.
*Nennen Sie die Reinigungsmittel, die verwendet werden.*
NaOH, H3PO4, H2O2

## 16. Documentation / *Dokumentation*

Are all records and documents concerning the operation kept for a minimum of 5 years?
*Werden alle Aufzeichnungen und Dokumente für mindestens 5 Jahre aufbewahrt?*
Yes /Ja X No /Nein ☐

## 17. Subcontracted production / *Unteraufträge*

Are NOP and/or COR products produced by you as a subcontractor for another company?
*Werden NOP und/oder COR Produkten im Unterauftrag für eine andere Firme hergestellt?*
Yes /Ja ☐ No /Nein X

If yes: name of company, certification body of company, description of work done by you.
*Wenn ja: Name der Firma, Kontrollstelle, Beschreibung der von Ihnen durchgeführten Arbeit.*

Is part of your production/processing subcontracted to another company?
*Wird ein Teil Ihrer Produktion/Verarbeitung an Unterauftragnehmer vergeben?*
Yes /Ja X No /Nein ☐

If yes: name of subcontractor, certification body of subcontractor, description of subcontracted work.
*Wenn ja: Name des Subunternehmers, Kontrollstelle des Subunternehmers, Beschreibung der vom Unterauftragnehmer durchgeführten Tätigkeiten.*

See page 1, certified by Lacon, IMO, see organigram

## 18. Additional Information / *Zusätzliche Informationen*

**Declaration / *Erklärung*:**

This Organic System Plan has been compiled by an authorized representative of the operation. It reflects the actual situation in a correct and complete manor. The operator agrees to inform LACON of any major changes that may occur and, in such a case, to submit an up-dated Organic System Plan within the time period specified by LACON.

Dieser Organic System Plan wurde von einem autorisierten Vertreter des Unternehmens erstellt. Die aktuelle Situation ist korrekt und vollständig dargestellt. Der Unternehmer verpflichtet sich, alle wesentlichen Änderungen, die vorgenommen werden, der LACON mitzuteilen und in einem solchen Fall, einen aktualisierten Organic System Plan innerhalb dem von LACON vorgegebenen Zeitraum einzureichen.

5.11.09

Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

# ATTACHMENT C

# SPECIFICATIONS FOR

# 11 ORGANIC YEAST PRODUCTS

# MANUFACTURED BY

# AGRANO GmbH & CO. KG

# NOVEMBER 5, 2009

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast extract paste |
| Article Number / *Artikel Nr.* | 26.213.25.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysate | X | | 100 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6770 kg x 100 = 95,8 %
7070 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast extract powder |
| Article Number / *Artikel Nr.* | 26.215.25.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysate | X | | 100 |
| | Sunflower oil | X | | 80 |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6850 kg x 100 = 95,8 %
7150 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5. 11. 09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast extract Typ N |
| Article Number / *Artikel Nr.* | 26.220.25.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 1470 |
| | Rice autolysate | X | | 300 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 300 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

7520 kg x 100 = 96,0 %
7830 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast flakes with honey |
| Article Number / *Artikel Nr.* | 25.133.30.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysate | X | | 100 |
| | Honey | X | | 600 |
| | Wheat flour | X | | 600 |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

7970 kg x 100 = 96,4 %
8270 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast autolysate flakes with wheat |
| Article Number / *Artikel Nr.* | 25.107.30.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysat | X | | 100 |
| | Wheat flour | X | | 600 |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

7370 kg x 100 = 96,1 %
7670 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname /*Name/Markenname* | Bioreal yeast autolysate flakes with rice |
| Article Number / *Artikel Nr.* | 25.182.30.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysate | X | | 100 |
| | Rice flour | X | | 600 |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

7370 kg x 100 = 96,1 %
7670 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast flakes with wheat |
| Article Number / *Artikel Nr.* | 25.100.30.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysat | X | | 100 |
| | Wheat flour | X | | 600 |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

$$\frac{\text{Total net weight of organic ingredients (minus water and salt) } \textit{Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)}}{\text{Total net weight of finished product (minus water and salt) } \textit{Gesamt Gewicht Endprodukt (minus Wasser und Salz)}} \times 100 = \%\ \text{NOP-organic}$$

Calculation / *Kalkulation :*

7370 kg x 100 = 96,1 %
7670 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

$$\frac{\text{Total net weight of organic ingredients (minus water and salt) } \textit{Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)}}{\text{Total net weight of finished product (minus water and salt) } \textit{Gesamt Gewicht Endprodukt (minus Wasser und Salz)}} \times 100 = \%\ \text{COR-organic}$$

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast cream |
| Article Number / *Artikel Nr.* | 30.000.01.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysate | X | | 100 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6770 kg x 100 = 95,8 %
7070 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal yeast powder |
| Article Number / *Artikel Nr.* | 25.000.20.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Wheat flour (fermentation) | X | | 5750 |
| | Corn steep syrup | X | | 920 |
| | Rice autolysat | X | | 100 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | enzymes | | | 10 |
| | Brewers yeast extract | | | 290 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6770 kg x 100 = 95,8 %
7070 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal active dry yeast |
| Article Number / *Artikel Nr.* | 31000.00.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Glucose syrup | X | | 5500 |
| | Corn steep syrup | X | | 450 |
| | Potato starch | X | | 240 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | | | | |
| | Brewers yeast extract | | | 150 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6190 kg x 100 = 97,6 %
6340 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5.11.09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

**Product Specification / *Produktspezifikation***

**Name of company / *Betriebsname: AGRANO GmbH & Co. KG***

| **1. Product details / *Produktdaten*** | |
|---|---|
| Name/Brandname */Name/Markenname* | Bioreal active dry wine yeast (Oenoferm) |
| Article Number / *Artikel Nr.* | 60100.25.0 |
| Application for NOP status: *Antrag für NOP Status:* | 100% organic ☐ organic X made with organic ☐ |
| Application for COR status: Antrag für COR Status: | organic ☐ contains .....% organic ingredients ☐ |

**2. Product compostition / *Produkt Zusammensetzung***

| | Name / *Name* | NOP certified | COR certified | Quantity / *Menge* |
|---|---|---|---|---|
| Ingredients of agricultural origin / *Zutaten landwirtschaftlicher Herkunft* | Glucose syrup | X | | 5500 |
| | Corn steep syrup | X | | 450 |
| | Potato starch | X | | 240 |
| | | | | |
| | | | | |
| Processing aids/ *Hilfsstoffe:* | | | | |
| | Brewers yeast extract | | | 150 |
| | | | | |

**3. Calculation of percentage of organic ingredients *Kalkulation % NOP Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % NOP-organic

Calculation / *Kalkulation :*

6190 kg x 100 = 97,6 %
6340 kg

**3. Calculation of percentage of organic ingredients *Kalkulation % COR Zutaten***

Formula / *Gleichung :*

Total net weight of organic ingredients (minus water and salt) *Gesamt Gewicht Bio- Zutaten (minus Wasser und Salz)* / Total net weight of finished product (minus water and salt) *Gesamt Gewicht Endprodukt (minus Wasser und Salz)* X 100 = % COR-organic

Calculation / *Kalkulation :*

5. 11. 09
Date / *Datum*

Signature of Operator / *Unterschrift Unternehmen*

01-15-10 P03:00 IN

# ATTACHMENT D

## AGRANO GmbH & CO. KG

## FLOW DIAGRAM

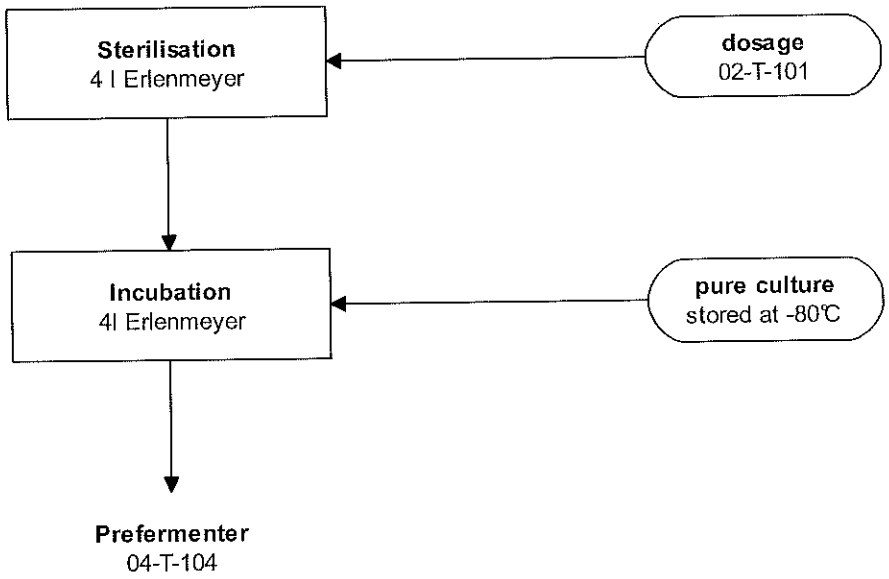
## FOR PRODUCTION OF ORGANIC YEAST

## JANUARY 12, 2010

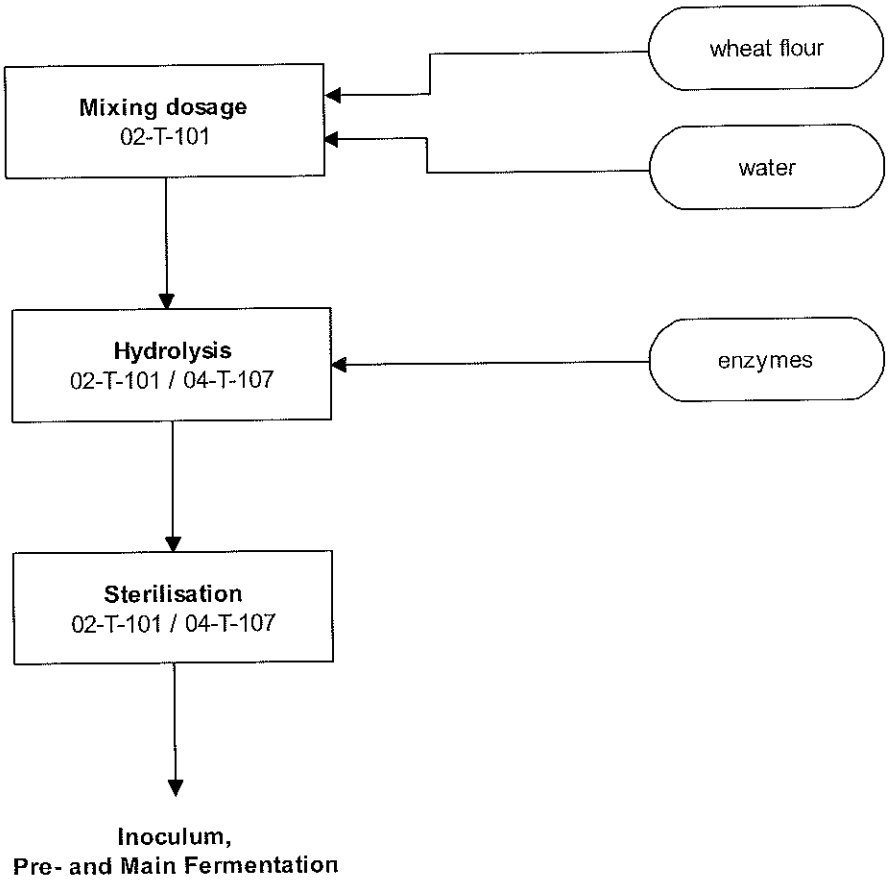
AGRANO

# Production of organic yeast

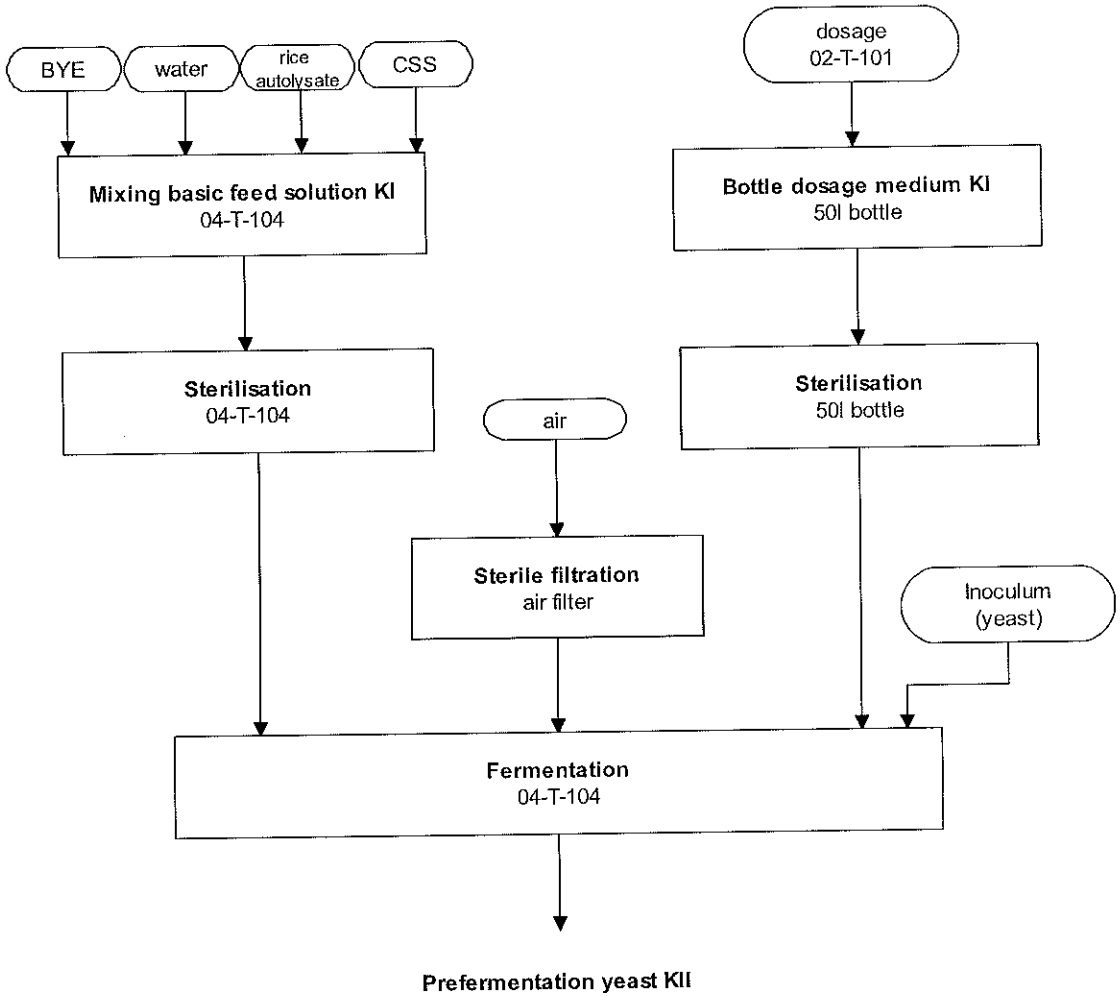
## Flow sheet 1: Preparing Inoculum



## Flow sheet 2: Preparation dosage

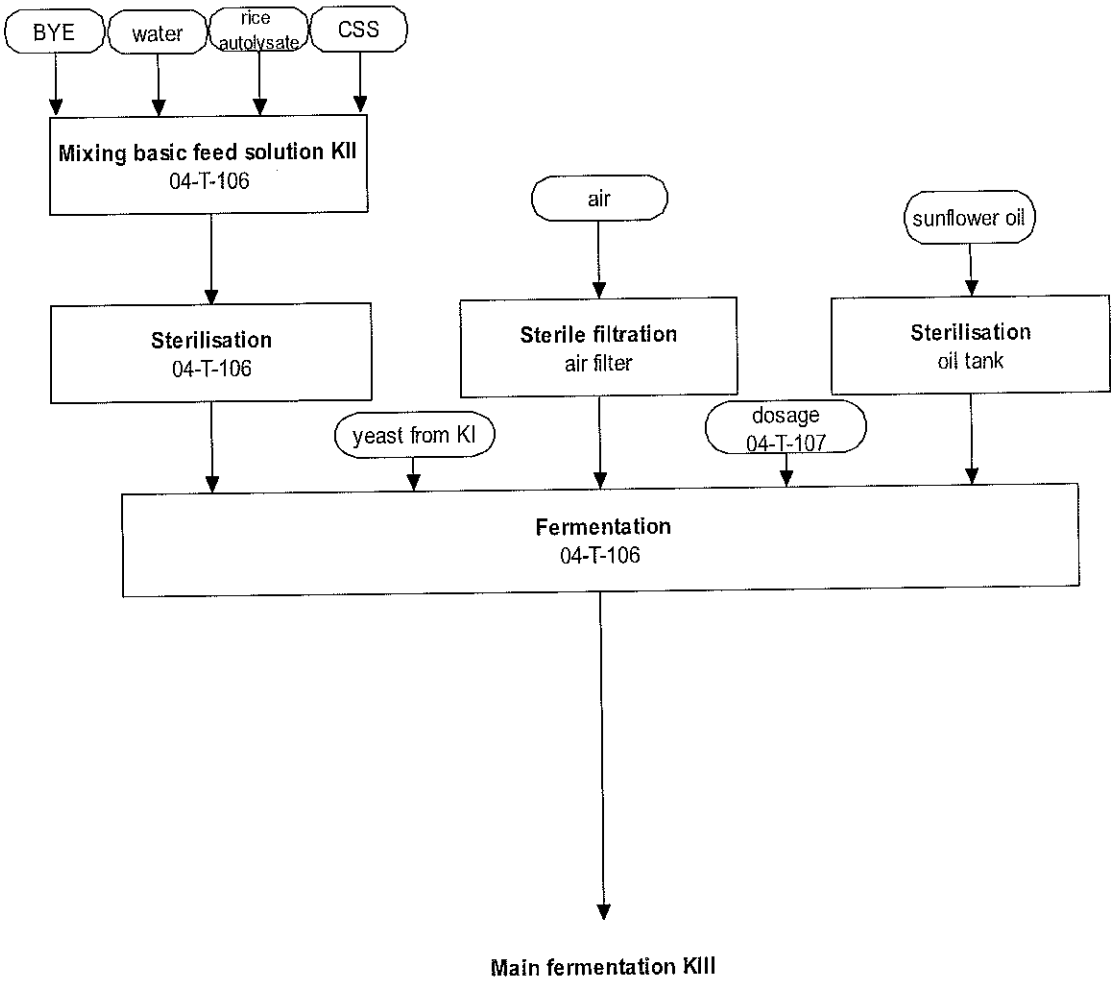


## Flow sheet 3: Prefermentation KI Yeast



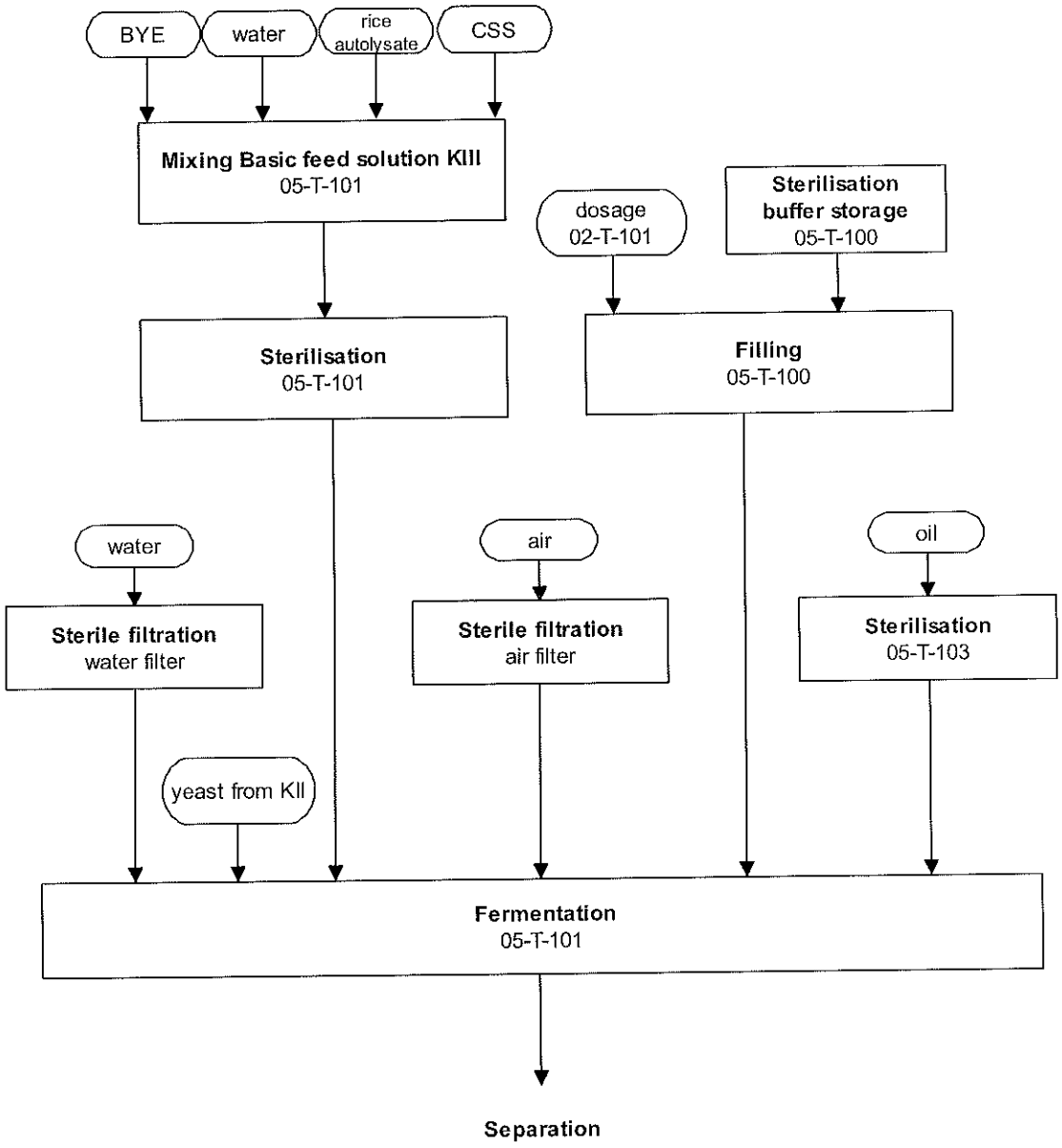

BYE: Brewer's yeast extract
CSS: corn steep syrup

## Flow sheet 4: Prefermentation KII Yeast



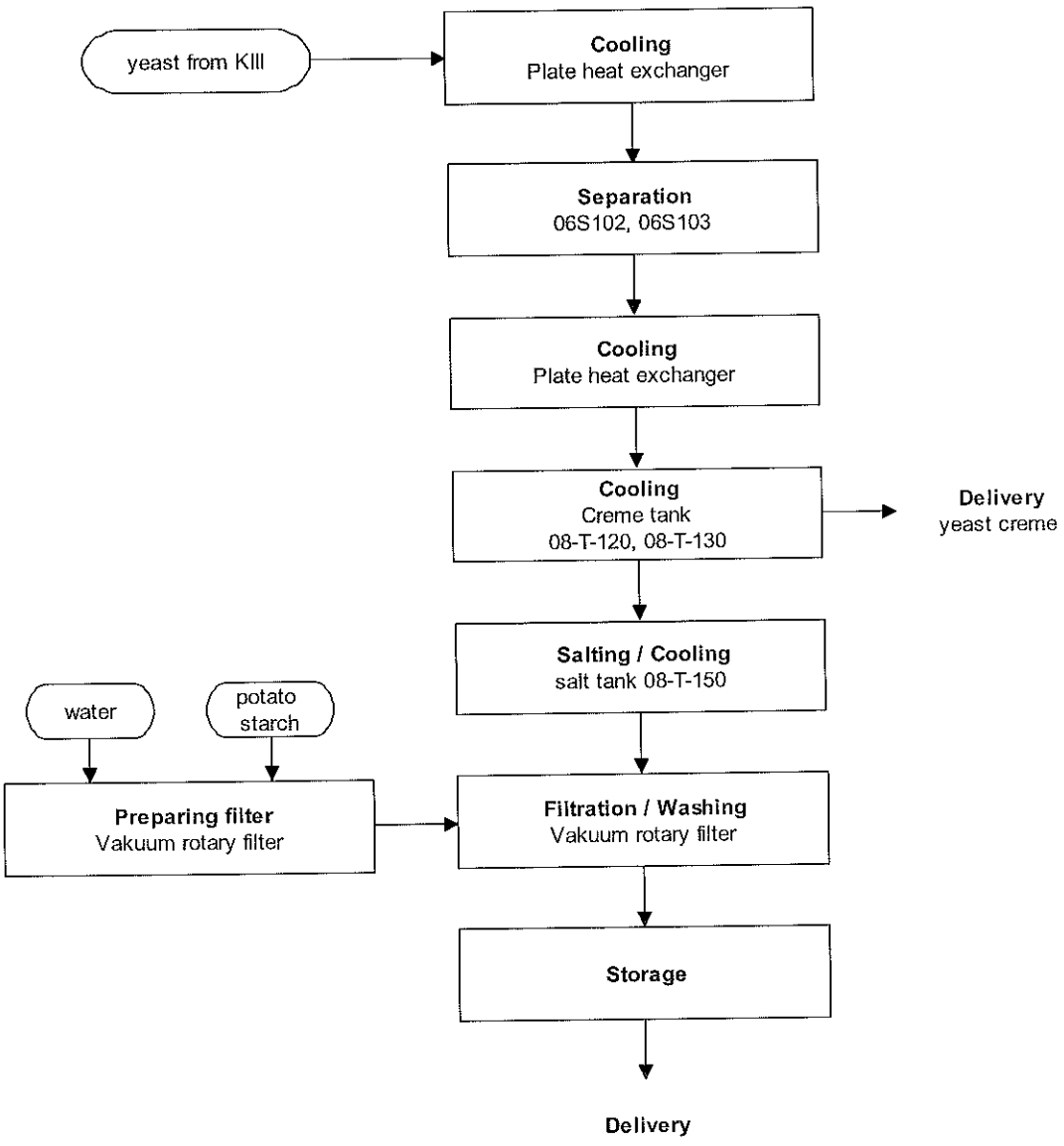

BYE: Brewer's yeast extract
CSS: corn steep syrup

## Flow sheet 5: Main fermentation KIII Yeast

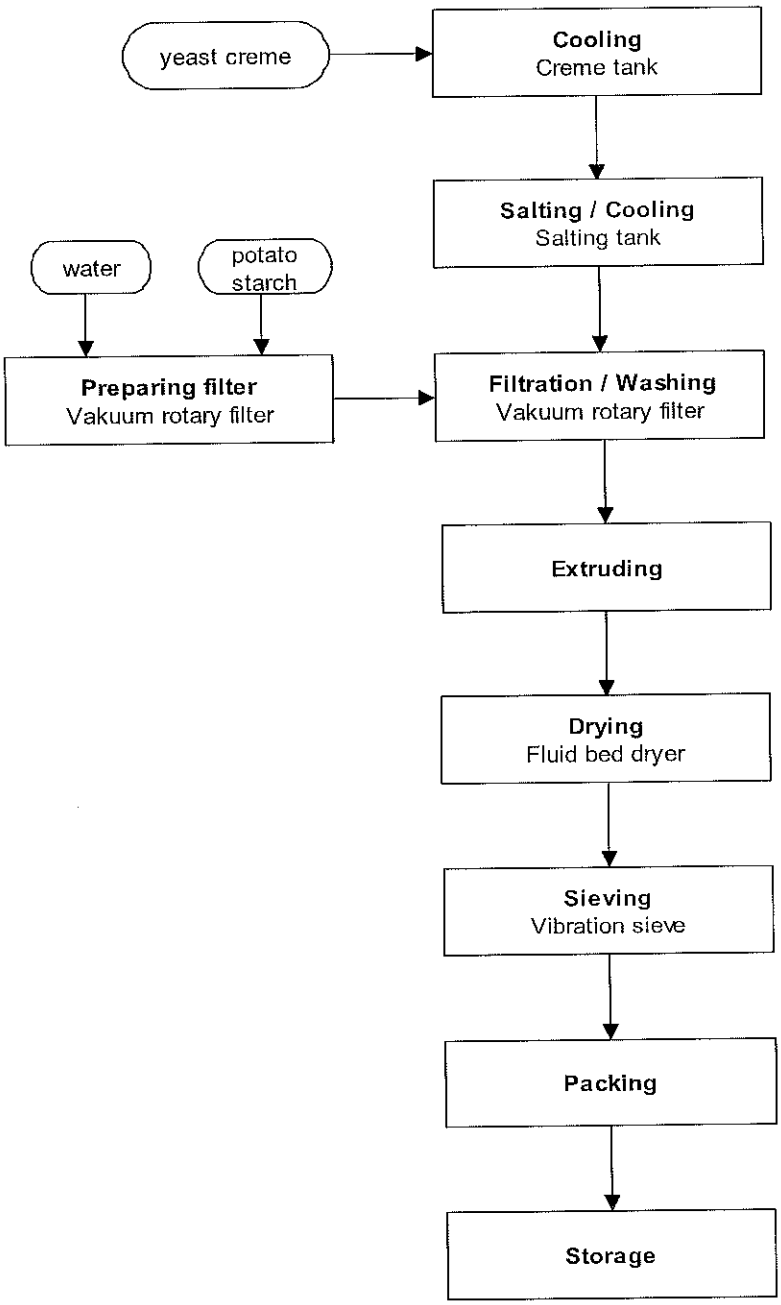



BYE: Brewer's yeast extract
CSS: corn steep syrup

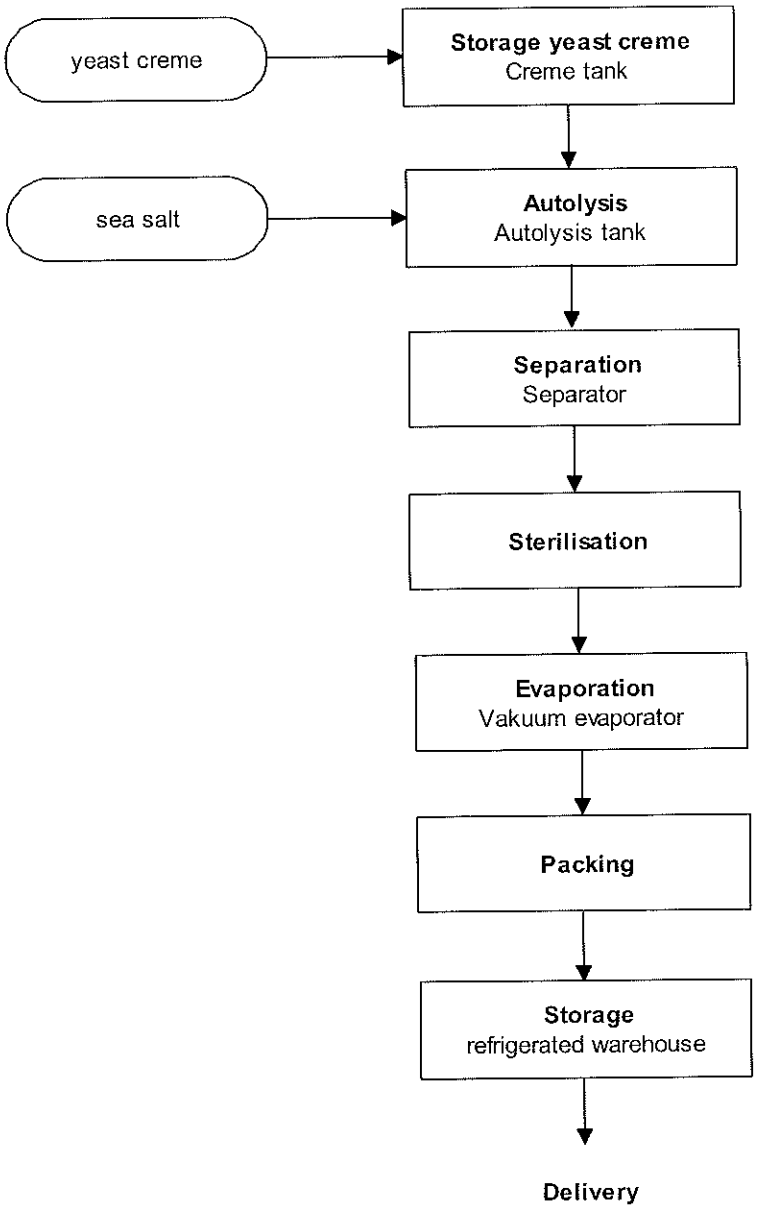
## Flow sheet 6: Downstream Processing



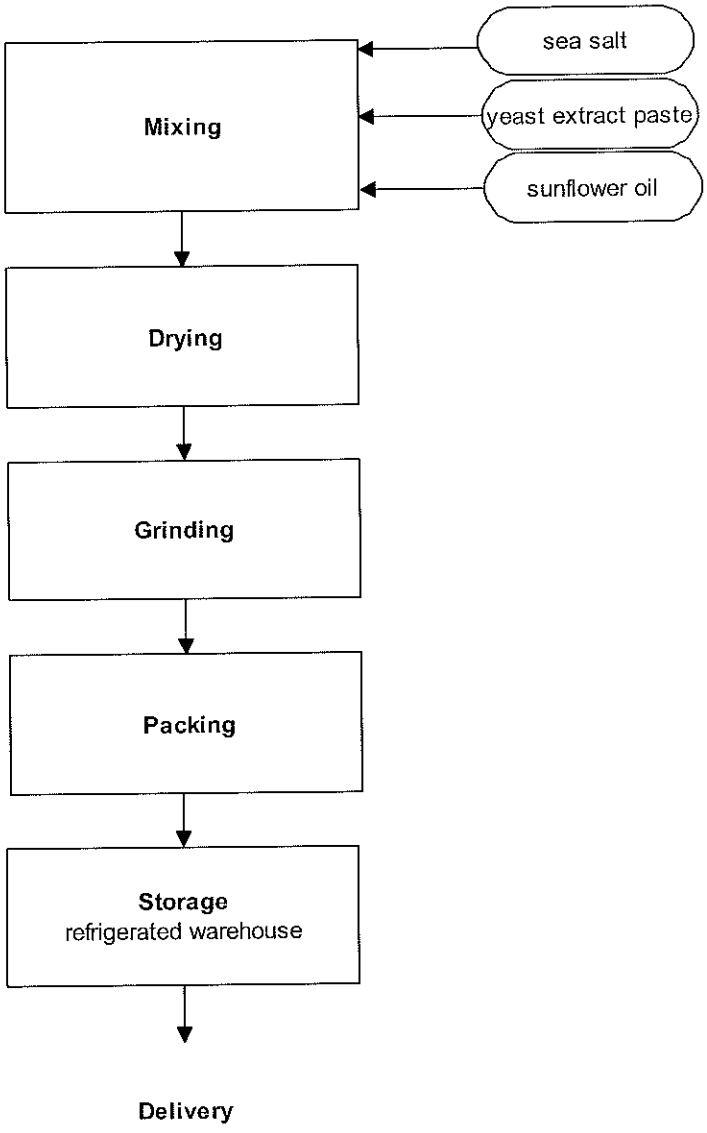
## Flow sheet 10: Downstream for Active Dry Yeast



## Flow sheet 11: Yeast extract



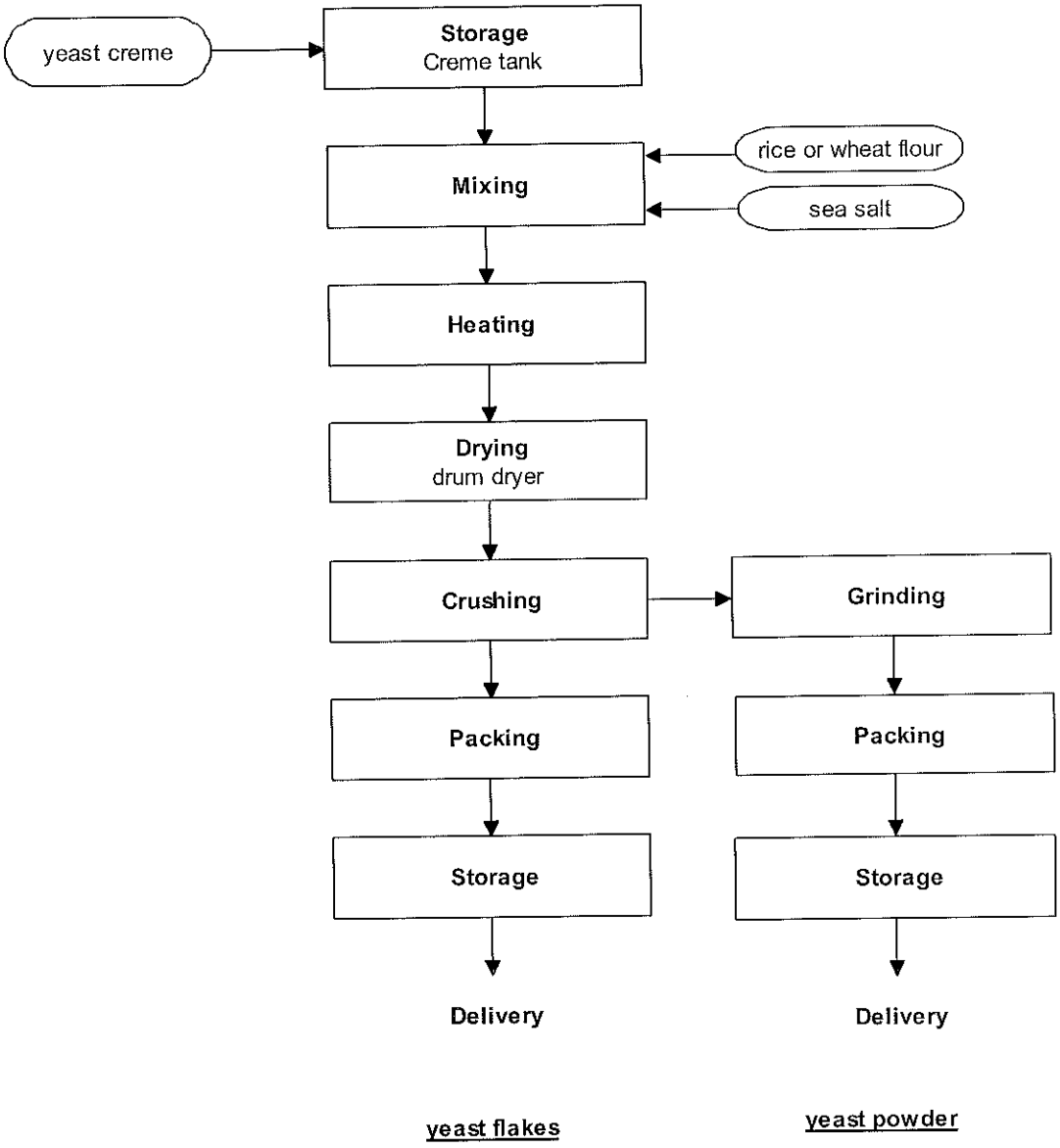
## Flow sheet 12: Yeast extract powder



AGRANO

# Production of organic yeast

## Flow sheet 13: Yeast flakes / Yeast powder



# ATTACHMENT E

AGRANO GmbH & CO. KG

BROCHURE DESCRIBING

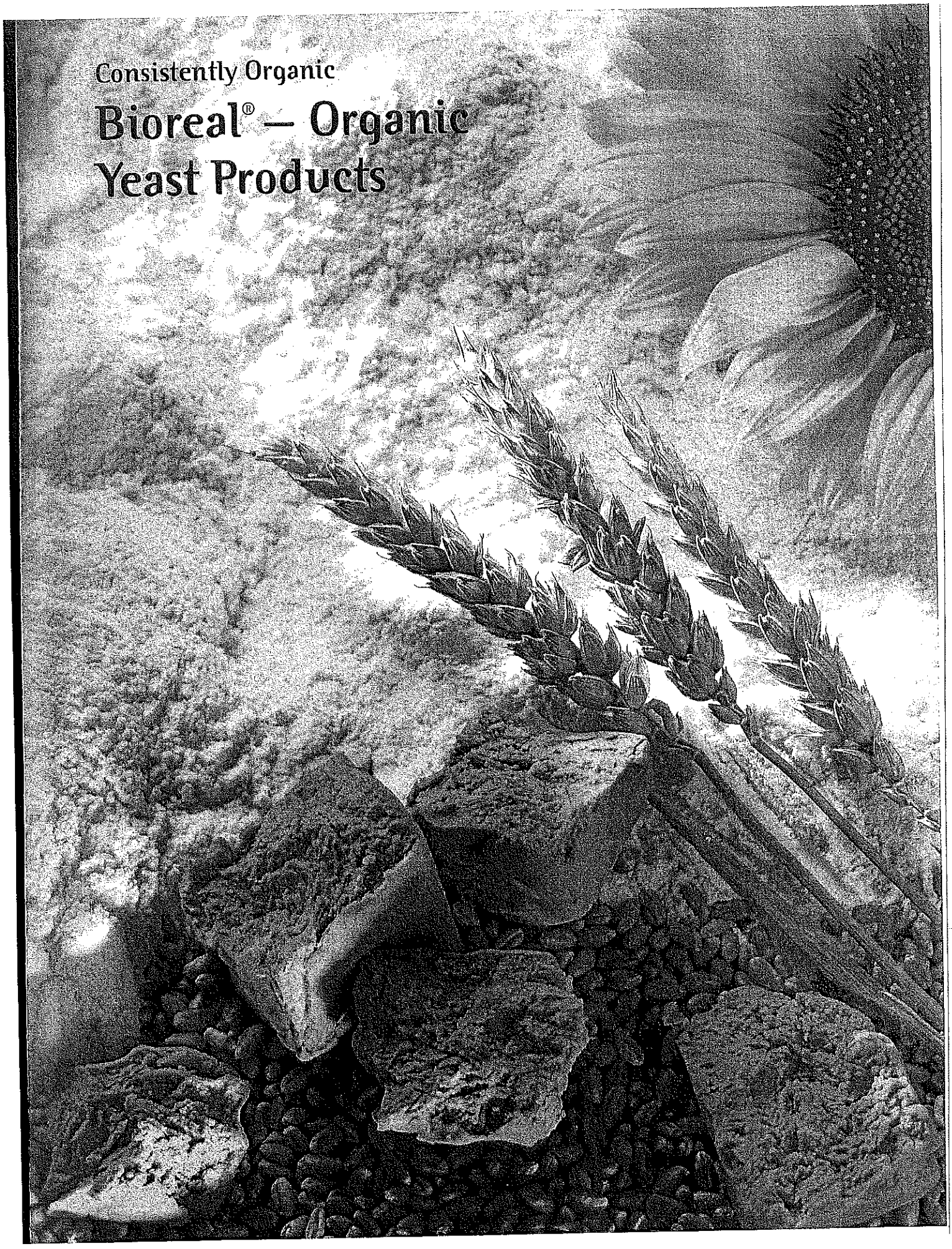
BIOREAL® ORGANIC YEAST PRODUCTS.

INCLUDING TABLE

COMPARING

INPUTS IN ORGANIC YEAST PRODUCTION

COMPARED TO CONVENTIONAL PRODUCTION


Consistently Organic
Bioreal® – Organic
Yeast Products

Organic and GMO-free

# Bioreal® Organic Yeas

# For the Environment

### Conventional Yeast Production

Molasses, a cheap by-product of sugar production, has been used in yeast production since the grain shortages of World War I. Conventional yeast production utilises chemical nitrogen sources such as ammonia, ammonium salts and lyes, plus a variety of acids (including sulphuric acid), synthetic vitamins and growth substances. Conventional yeast requires several rinsing stages after fermentation, to remove unpleasant tastes and odours. The resulting wastewater is heavily contaminated and requires complex purification processing.

### Bioreal® Organic Yeast – the Better Way

Selected yeast strains and lactic acid bacteria cultures are bred in a wholly organic nutrient solution made from organic grain, pure spring water and enzymes. All micro-organisms and raw materials are guaranteed GMO-free.

The fermentation process uses no chemicals, and organic sunflower oil is used as an antifoaming agent. Bioreal® Organic Yeast requires no rinsing. Since all plant equipment is steam-cleaned and disinfectants are unnecessary, even the wastewater from full plant cleaning is free from contamination. The fermentation medium also forms the basis for further organic products such as drinks.

| Production | Conventional yeast | Bioreal® yeast products |
|---|---|---|
| Sugar source | Molasses (primarily) | Organically farmed grain |
| Nitrogen source | Ammonia ($NH_3$), ammonium salts | Organically farmed grain, brewer's yeast |
| pH regulator | Acids (e.g. sulphuric acid), lyes (e.g. caustic soda lye) | No pH level regulation necessary |
| Processing and growth substances | Synthetic vitamins, mineral salts | Sufficiently present in natural media |
| Antifoaming agent | Synthetic antifoaming agent | Organically farmed sunflower oil |
| Rinsing | Two times | Unnecessary |
| Waste water | Disposal difficult | Raw material for further products |

Source: Reiff, F.; Kautzmann, R.; Lüers, H.; Lindemann, M.; Die Hefen "Technologie der Hefen"

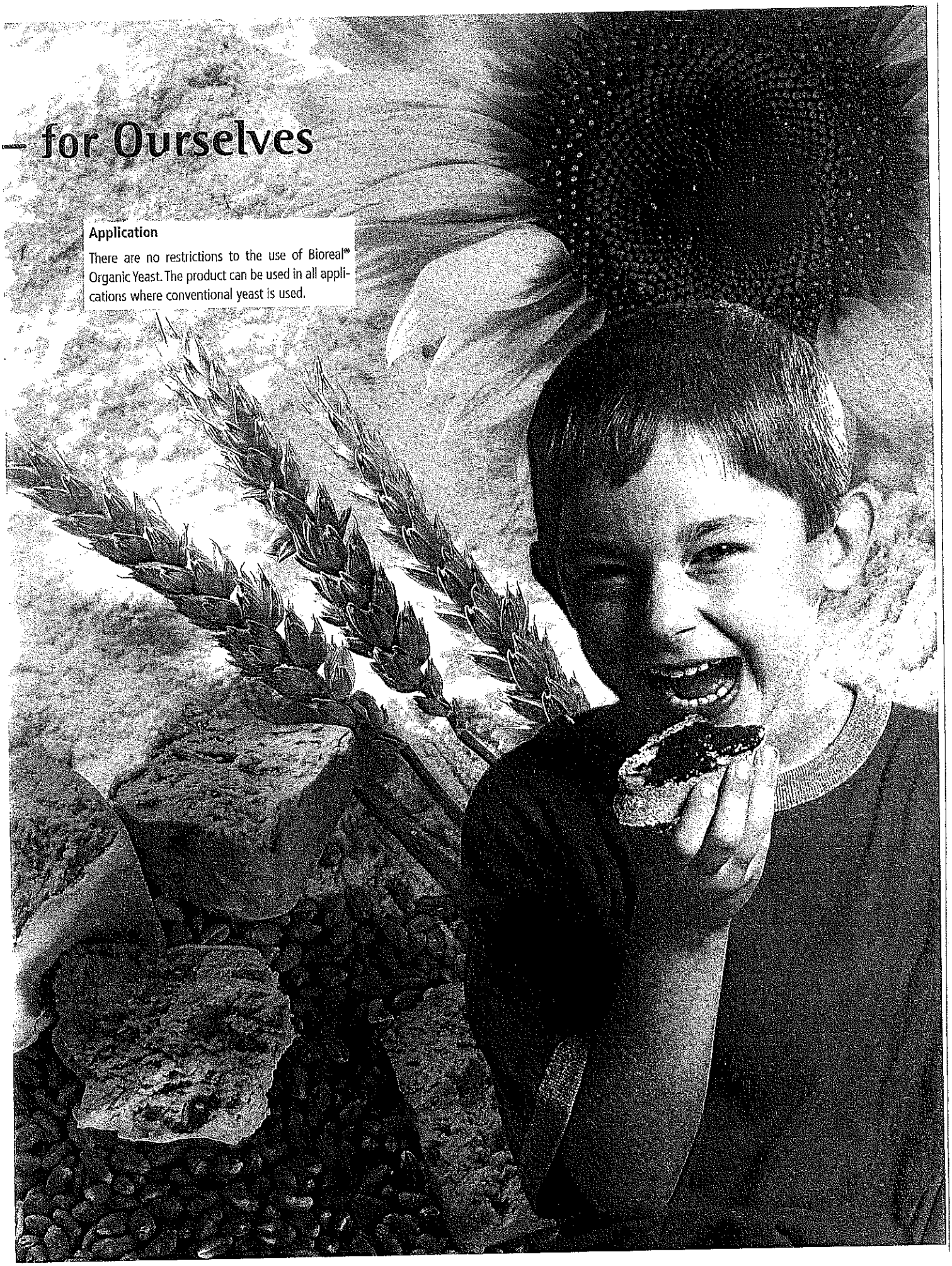
### Benefits

The Bioreal® production process is complex – but our environment is worth the effort. The exceptional care and environmental consideration involved in Bioreal® Organic Yeast production also has its price – but the results will outperform all your expectations:

- Use Bioreal® Organic Yeast in producing and marketing organic bakery products and other organic products such as soups, from 100% organic ingredients
- Guaranteed GMO-free
- No chemical additives
- Consistent quality – consistent success
- Bioreal® Organic Yeast is an ideal campaign focus for a successful sales promotion. Backed up by our free advertising material and with additional material costs totalling less than half a eurocent per roll, it's a highly effective method of upgrading image and increasing sales
- Highlight your use of Bioreal® Organic Yeast as a prime sales pitch!
- Your customers will reward your commitment to environmental protection

Don't forget: Customers will gladly pay more if they know that they are making a contribution towards healthier food and a better environment.

# – for Ourselves

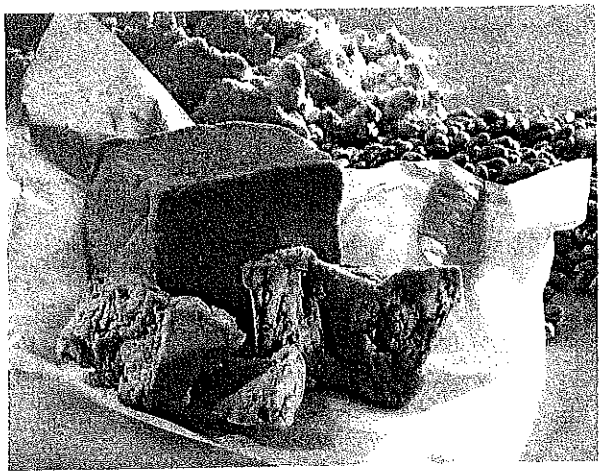


**Application**

There are no restrictions to the use of Bioreal® Organic Yeast. The product can be used in all applications where conventional yeast is used.

## Consistent Quality – Consistent Success

# 1001 Uses for Bioreal®



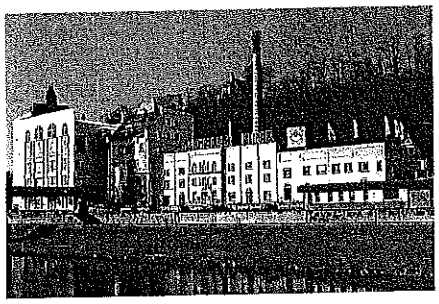
**A little about the past of a product with a great future.**

Swiss company Agrano first commissioned research to develop a purely organic yeast at the start of the 1980s.

Identifying a clear need for this kind of product, Agrano set up its own organic laboratory and, with assistance from universities and colleges, succeeded in achieving its goal: the development of a globally unique product. This product was Bioreal®, an organic yeast now protected by four patents, and produced using a method that is still unrivalled throughout the world.

To enable Bioreal® to be tested in the marketplace, production outside of laboratory conditions started in 1995 in Riegel near Freiburg, Germany. After only a short time, this pilot plant could no longer cope with the soaring demand for the product, and a new industrial production plant was established that today supplies Bioreal® products to the market.

| **Bioreal® is available as** | Product No. |
|---|---|
| Bioreal® Powdered Yeast | 25000.20.0 |
| Bioreal® Wheat Yeast Flakes | 25100.30.0 |
| Bioreal® Yeast Autolysate Flakes | 25107.30.0 |
| Bioreal® Honey Yeast Flakes | 25133.30.0 |
| Bioreal® Yeast Autolysate Paste | 26211.20.0 |
| Bioreal® Yeast Extract Paste | 26213.25.0 |
| Bioreal® Yeast Extract Powder | 26215.30.0 |
| Bioreal® Chewy Yeast Tablets | 27301.02.0 |
| Bioreal® Flavour Enhancer | 28000.25.0 |
| Bioreal® Active Dry Yeast | 31000.00.0 |
| Bioreal® Fresh Yeast | 37800.12.0 |
| Bioreal® Yeast Cube, 42 g | 38900.24.0 |
| Bioreal® Vegetable Bouillon | 40001.01.0 |
| Bioreal® Grill Spice | 41100.25.0 |
| Frucera (Yeast Fruit Drink) | 43000.01.0 |
| Bioreal® Fungicide ASM | 98380.10.0 |
| Bioreal® Ferment | 98852.10.0 |
| Bioreal® Direct | 98900.10.0 |
| Bioreal® Levain actif | 99157.10.1 |



Bioreal® production in Riegel near Freiburg

ORGANIC YEAST PRODUCTS
BIOREAL

We speak organic!
marroquin international organic commodity services, Inc.
Ph: 831-423-3442
Fax: 831-423-3432
www.marroquin-organics.com

Agrano GmbH & Co. KG, Hauptstraße 1–3, D-79359 Riegel am Kaiserstuhl
Telephone +49 (0) 7642 67 263, fax +49 (0) 7642 67 261, agrano@wmccomputer.de, www.bioreal.ch