



Naturland Processing Standards

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Naturland - Verband für ökologischen Landbau e. V.
(Naturland - Registered Association for Organic Agriculture)
Kleinhaderner Weg 1, 82166 Gräfelfing, Germany
Phone: +49 (0)89/89 80 82-0, fax: +49 (0)89/89 80 82-90
E-mail: naturland@naturland.de
www.naturland.de

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Preface

Introduction

Certified organic agriculture, as practised in accordance with the written standards of the Naturland Association, has become an established concept. A comparison of the first draft of the "Standards for Organic Agriculture" passed in 1982 after the association was founded with the currently valid version will reveal two aspects of this modern form of land cultivation: on the one hand its dynamism and potential for development and on the other the stability and consistency of this modern form of agriculture and the processing of its produce. The development of standards and their implementation are the core mission of any certified association for organic agriculture. Standards have to be proven to be workable. They have to be adapted to changing conditions and be extended to cover new areas. The growth of Naturland and its organisations since the association's establishment is a reflection of the success of its work and confirms that this form of cultivation has gained wide acceptance and appreciation among farmers, food producers and consumers.

Standards for specific areas

The Naturland standards existed long before the EU passed its first legal regulations on organic agriculture. Even today the consistent development of our standards provides major impetus; they incorporate ideas that are taken seriously by the legislators. As they stand today, Naturland's standards are not limited solely to the specific method of cultivation described in detail in its standards on plant production and animal husbandry. For some years now, standards have been developed to cover many specific areas which require special guidelines, such as horticulture and viticulture, bee-keeping, harvesting of wild grown products, and aquaculture. In the same measure that the standards have evolved to cover various forms of cultivation, they also incorporate the next stage - the processing of this produce. The production and processing of food, such as bread and bakery products, milk and dairy products, beer and meat, etc. are described in specific standards for different categories of food produce. Whilst foodstuffs are the original sphere of interests, standards have also been drawn up to cover other areas of cultivation, such as organic forestry and timber processing.

Adherence to the elementary principles

To ensure that Naturland's standards develop consistently, it is essential that the fundamental principles of organic agriculture are adhered to. It is also crucial to withstand hasty and short-lived trends and any temptation to sacrifice elementary principles for the sake of immediate success. Standards can only provide a framework, since organic agriculture cannot function on the basis of mere regulations. It is realised by consensus on a common aim. Nevertheless, exact and binding rules are necessary in practice, whilst leaving enough flexibility for adaptation to the particular requirements of each agricultural operation.

The experts - farmers, consumers, processors and scientists - who contribute to the development of Naturland's standards have always offered new solutions to the problems posed. The framework of Naturland's standards is dictated by the core fundamental principles of certified organic agriculture: the obligation to treat the elementary basics of our lives with prudence and responsibility. A common starting-point, sustained management, the active protection of nature and the climate, safekeeping and preservation of the soil, air and water and the protection of the consumers are at the heart of all Naturland's standards. Mutual tolerance, respectful interaction with others and the acceptance of social responsibility are part of the framework and general approach.

Naturland's standards - the basis for certification

Standards will only endure and make a lasting impact if they can be clearly monitored and be put into consistent practice. Any decisions involved have to be seen to be made impartially and on neutral, unbiased terms. This is guaranteed by calling on the services of independent and autonomous committees - standards committee, inspection body and certification committee - as well as by the composition of the committees consisting of diverse interest groups such as scientists, agriculturists and consumers. Independent inspection procedures and the consistent application of Naturland's standards form the basis of the production of high quality products cultivated in a balance with nature and the environment. This quality is visibly documented by the Naturland logo.

Naturland's quality management - national and international

For producers, processors and consumers, certification by Naturland stands for a reliable quality management system, for the dependability of the organically grown produce, from its cultivation to the finished product.

Naturland has been accredited to the international norm ISO/IEC 17065 since 1998. This accreditation confirms that certification is performed to defined norms.

Part C. General Processing Standards

I. Goals

The goal when processing organic agricultural produce as understood under the Naturland standards is to manufacture products attaining a high organic and social quality standard, also with respect to their nutritional physiology. For this reason the processing methods used need to undergo continuous improvements in the light of new scientific findings and amendments to principles of the Naturland standards. Risk technologies, such as the use of genetic engineering or nanotechnology, have to be excluded from processing; new technologies must be scrutinized for possible risks. Consumers are to be protected from deception and fraud by the highest possible degree of transparency.

II. Area of application

These standards are binding on all operations and companies that have signed a sublicense agreement with Naturland Zeichen GmbH (hereinafter referred to as "contractual partner"). They apply to all forms of further processing of raw agricultural goods, generally in conjunction with the respective processing standards applicable to any specific group¹. The current version of the standards as passed by the bodies of the Naturland association is at all times the applicable one.

In addition, the statutory regulations apply, in particular Council Regulations (EC) No. 834/2007 and 889/2008 governing organic agriculture and related amending ordinances, and the laws governing food and non-food articles (LFGB, the German Food and Feed Code) and ordinances governing food labelling (LMKV – Lebensmittelkennzeichnungsverordnung) and information (LMIV - Lebensmittelinformationsverordnung; European Food Information Regulation).

Naturland reserves the right to amend these standards. Any amendments made are in keeping with practical experience and the contractual partners are informed in good time of the amendments. Contractual partners are obliged to consult Naturland if they have questions or doubts in relation to the standards and certification.

III. Contracts

Contractual partners who have concluded a sublicense agreement are obliged to comply with the processing standards and, where applicable, with the processing standards for specific groups of products, from the very beginning (The standards for specific groups of products are available from Naturland e.V., Kleinhaderner Weg 1, 82166 Gräfelfing, Germany, or by making a request by email to naturland@naturland.de, or can be downloaded from www.naturland.de).

Besides this, the sublicense agreement also governs the use of the Naturland trademark (Naturland logo).

IV. Inspection and Certification

Compliance with the Naturland standards and the statutory provisions is checked regularly at least once a year by authorised agents of Naturland, who makes pre-arranged and/or unannounced visits to the operations, where they perform inspections. The inspectors have to be granted full access to and rights of inspection of all relevant areas of the operation. All documents concerning production have to be produced and information provided on request. Where a third party is appointed to operate on behalf of the contractual partner (e. g. treatment, storage, processing, transport), provisions must be made (such as the conclusion of a sub-contractor agreement) to ensure that the Naturland standards are implemented and that Naturland may monitor them for compliance with its standards.

In its annual deed of certification (including a Naturland certificate) the Naturland certification committee confirms that the contractual partner has complied with the Naturland standards. If the contractual partner infringes current Naturland standards, penalties may be imposed.

It is standard practice for complaints in connection with matters within Naturland's sphere of responsibility to be addressed to the head offices of Naturland in Gräfelfing, Germany.

¹ If no separate processing standards for specific groups of products have been produced for any particular processed products, then these will be certified on the basis of the general section of the Naturland processing standards.

V. Product identification/labelling

1. Processed products

The endorsement of foodstuffs, fodder and articles for daily use by making a reference to Naturland, to certification by Naturland or by applying the Naturland trademark is solely permitted on the basis of a valid sublicensing agreement and a valid Naturland certificate.

In addition to fulfilling statutory requirements, the following must be observed when labelling products certified by Naturland:

- Full declaration: All the ingredients of each product must be listed completely (even in the case of compound ingredients) in the order of their weight as a percentage of the total weight.
- In the case of herbs and spices, the general term may be used if their weight does not exceed 2% of the weight of the product.
- The use of iodised table salt has to be indicated clearly.
- Food additives must be listed with their complete designation.

Contractual partners (manufacturers) who have concluded contracts with other businesses as suppliers or sub-contractors are advised to use the following wording to ensure transparency of information towards the customer: "Manufactured by on behalf of".

2. Raw materials and ingredients

All raw materials and ingredients certified by Naturland must be labelled clearly and unambiguously with the word NATURLAND or bear the Naturland logo.

VI. General regulations and other predominant (production) provisions

1. Sustainable management

Organic agriculture is particularly committed to the principle of sustainable management. Besides accepting social responsibility and dedication to the economic efficiency of production units, it particularly implies the respectful treatment of nature and the environment and careful use of natural resources.

Natural ecosystems and their activities are to be maintained, and any impact made on them to be kept to the minimum possible.

The biological diversity of the operating unit is to be maintained and to be encouraged as far as possible.

Energy should be used as efficiently as possible and renewable energy resources should be used for preference.

Water is a valuable natural commodity, the protection and sustainable use of which are of crucial importance. Natural water resources should be used carefully and in a sustainable manner.

Whenever it is impossible to avoid creating waste, it should be disposed of in an eco-friendly manner or recycled. Organic waste should be recycled and preferably composted.

Preference should be given to using raw materials and products produced in neighbouring regions.

2. Non-employment of GMO and GMO derivatives

Genetically modified organisms (GMOs) and their derivatives are incompatible with organic production. Products produced according to the Naturland standards must therefore be manufactured throughout the whole of their production and value chain without the use of genetically modified organisms (GMOs) and GMO derivatives².

² A "GMO derivative" is any substance produced from or by means of GMOs but not containing any GMOs itself. "The use of GMOs and GMO derivatives" means their use as a foodstuff, an ingredient of foodstuffs (including additives and flavouring), processing additives (including extraction solvents), animal feed, compound feed, the raw materials of animal feed, fodder additives, processing additives for animal feed, certain products for animal feed, pesticides, fertilisers, soil ameliorators, seed, vegetative propagation material and animals.

For the purposes of these standards, the following definitions apply: 1. organism: any biological unit capable of reproduction or passing on genetic material. 2. genetically modified organism (GMO): an organism, the genetic material of which has been modified in such a way as is not possible in a natural manner by cross-breeding and/or natural recombination.

The definitions given under sec. 2 of Directive 2001/18/EC of the European Parliament and of the Council, and the exclusion criteria for genetic engineering of the eco-regulations Council Regulation (EC) No. 834/2007 and Commission Regulation (EC) No. 889/2008 apply.

Even the unintentional contamination of products certified by Naturland with genetically modified organisms may also lead to certification being denied.

3. Non-use of nanomaterials

By “nanomaterials”, Naturland means: substances which have been consciously and deliberately designed, technically manufactured or produced by human inducement (anthropogenic) with the intention to obtain very specific characteristics (e. g. shape, surface properties or chemical properties) at the nanoscale (approx. 1-300 nm in at least one dimension) such as only possible at the nanoscale. Particles with larger diameters may come under this definition in cases where there is evidence of effects specific to the nanoscale at this size.

Particles accidentally generated at the nanoscale, which can occur in the course of traditional processing methods (such as, for example, homogenisation, grinding, foaming, freezing) and particles at the nanoscale that occur as natural environmental elements (e. g. volcanic or airborne particles) or in foodstuffs (e. g. monosaccharides, amino acids or fatty acids) are excluded from this definition.

The environmental effects of nanomaterials and their impact on human beings are so far not sufficiently known. For this reason products grown and processed and certified by Naturland must be manufactured without the application of anthropogenic nanomaterials. Nanomaterials should also be avoided in packaging. They are only permissible if the nanomaterials are firmly integrated in the packaging material. Nanomaterials in layers or coatings which are in direct contact with products certified to the Naturland standards must not be used.

4. Ingredients from agricultural and non-agricultural origin

4.1 List of priorities

Products labelled with the Naturland trademark, bearing reference to Naturland or to certification by Naturland, contain raw goods, ingredients, food additives and processing additives from agricultural sources (hereinafter referred to as primary substances) which have been certified by Naturland. If primary substances certified by Naturland are not available in the right quality or in sufficient quantity, application may be made to use primary substances from other sources from the following **list of priorities**.

- a. The highest priority is accorded to the use of primary substances certified by Naturland.
- b. Primary substances from certifiers whose certification is recognised by Naturland as being of an equivalent standard may be used after receiving written approval from the Naturland certification committee
- c. If the primary substances cited under a. and b. are not available, raw goods recertified³ by Naturland and primary substances from other certifiers may only be used after receiving written approval from the Naturland certification committee (for a limited period).
- d. If the primary substances cited under a., b. and c. are not available, organically produced primary substances may be employed for a limited period where sufficient justification exists and then only after receiving written approval from the Naturland admissions committee, provided these primary substances at least comply with the statutory requirements for organic products under currently valid national legislation (e. g. EU directive, NOP) of the country in which the goods are to be put on the market. However, the manufacturer is obliged to replace these primary substances with primary substances certified by Naturland as quickly as possible.
- e. Conventional primary substances may only be used after receiving prior approval from the Naturland certification committee and even then only for max. 5% (not including water and salt) of the final product, on condition that they are not available from organic sources and that the primary substances have not been genetically modified.

The proportion of the primary substances is calculated on the basis of their proportionate weight at the time they are used when manufacturing the foodstuff.

³ Recertification means the admission of raw goods or of any ingredient for a limited time or in a limited quantity on the basis of documents provided by third parties (inspection reports) which were not produced originally by order of Naturland.

Naturland makes regular evaluations of what primary substances are available in what quantities. Contractual partners should address any questions as to the availability of raw goods certified by Naturland to Naturland.

4.2 Flavouring

The general use of flavouring is not permitted. Natural flavouring may only be used in individual cases after receiving approval from the Naturland certification committee and providing the processing standards for specific groups of products are observed.

4.3 Water and salt

Water must be of drinking water quality; only table salt or iodised table salt free of anti-caking agents or containing the anti-caking agent E 170 (calcium carbonate) may be used.

4.4 Cultures of micro-organisms

Wherever available, the micro-organisms are to be grown on organic substrata or substrata which comply with the requirements of these standards.

4.5 Enzymes

The general use of enzymes is not permitted. Enzymes may only be used in individual cases after receiving approval from the Naturland certification committee and providing the processing standards for specific groups of products are observed.

4.6 Food additives

The general use of food additives is not permitted. Food additives may only be used in individual cases after receiving approval from the Naturland certification committee and providing the processing standards for specific groups of products are observed.

4.7 Mineral nutrients, trace elements, vitamins

The general use of mineral nutrients, trace elements and vitamins is not permitted. Mineral nutrients, trace elements and vitamins may only be used in individual cases after receiving approval from the Naturland certification committee and providing the processing standards for specific groups of products are observed.

4.8 Permissible processing additives

The general use of processing additives is not permitted. Processing additives may only be used in individual cases after receiving approval from the Naturland certification committee and providing the processing standards for specific groups of products are observed.

5. Processing procedures

Only such equipment and procedures may be used which do not have any harmful or detrimental effect on the health of the consumer in the foodstuff, and which guarantee the least impact on the environment and such resources as water, air and energy sources. Besides this, the processing methods may not be detrimental to the health of those working in the production facility.

5.1 Permissible processing procedures

- mechanical, physical and biological procedures
- curing
- extraction (solely by using the following extraction media of foodstuff quality: water, organic ethyl alcohol, organic vegetable oils and organic animal fats, organic vinegar, CO₂, nitrogen, organic acids upon approval).
- precipitation
- filtration (only with asbestos-free filtration materials, provided the product quality is not impaired by filtration. Filtration techniques that are associated with a chemical reaction and by means of which the molecular structure of the foodstuff is modified are subject to approval.).

5.2 Prohibited processing procedures

- The use of microwaves for the preparation of products certified by Naturland is not permitted
- The use of ionising rays to treat foodstuffs or fodder or the primary substances used in foodstuffs or fodder is prohibited.

The processor has to ensure that such substances and procedures are used neither directly (raw goods, food additives, processing additives) nor indirectly (in semi-finished products) for products certified by Naturland.

Further rulings with regard to processing methods are to be found in the corresponding processing standards applicable to specific groups of products.

6. Quality assurance

Partners of Naturland are obliged to institute quality management systems in their businesses in order to guarantee the uninterrupted traceability of the products manufactured and the safety of these products. In addition, businesses certified by Naturland undertake the following:

- to hold regular instruction courses for their workers (at least once a year, with an additional introductory course for new employees)
- to take appropriate measures to avoid contamination with prohibited substances and agents which could impair the quality of the organic produce. Where reasonable suspicion exists that the product quality is substantially impaired by contamination with prohibited substances, Naturland has to be informed. Naturland may require an analysis to be made to detect the level of contamination and the source of contamination, and instigate further measures. Naturland recommends that processors and wholesalers make spot checks of organically grown products to check for contaminants, as a supplementary quality assurance measure.

Partners of Naturland who manufacture conventional produce or products certified to the EU eco-regulation besides the products certified by Naturland are required to observe the following:

- The individual processing stages have to be carried out in one block for each sequence, and have to be separated spatially or in time from similar processing stages for conventional products or EU organic products.
- Before processing products certified by Naturland, all machines, tools etc. have to be cleaned thoroughly to exclude the possibility of any mixing of conventional or EU organic with products certified by Naturland or of contamination with substances which are prohibited under these standards.
- No parallel products may be included in the product range, i. e. the range produced in accordance with the Naturland standards has to be distinguished in a clear and comprehensible way from the rest of the range (conventional products and products which are certified to the EU eco regulation), in the product designation, design and/or packaging.
- If genetically modified ingredients, additives or processing additives are used in the conventional area, Naturland has to be informed and appropriate additional quality assurance measures (traceability, analysis etc.) taken to exclude any risk of possible contamination.

7. Documentation

Businesses certified by Naturland must be able to present the following documents in their current version (and keep older versions in their archives):

- product overview (complete list of all products produced in this facility)
- list of ingredients of each of the products certified by Naturland with details of the quantity and certified quality of each primary substance.
- list of suppliers with a declaration of all primary substances and their certification
- overview of the quality assurance system including the results of analyses
- list of training sessions performed on the topic of organic production and Naturland standards
- list of the packaging materials used
- list of the cleansing agents and pesticides used
- list of the processing methods used (e. g. in the form of a flow chart)
- list of the production facilities, stores, machines and devices and their functions
- production diary

- complaint management records⁴

8. Packaging

The choice of the correct packaging for foodstuffs certified by Naturland is based on conformity with the statutory requirements, including those of the EU eco regulation.

Since sustainable management is the aim striven for throughout the whole production chain of foodstuffs certified by Naturland, special regard should be paid to the sparing use of raw materials and to minimising the impact on the environment in production, use and disposal of packaging materials when choosing the most suitable form of packaging. The role of packaging, therefore, should be restricted to that of a means of fulfilling hygienic requirements and preserving the condition and sensory quality of the products. The packaging material used must not impair the product quality (e. g. through substance migration of printing inks or emollients). Packaging material that contains, for example, synthetic pesticides, preservatives or disinfectants, or has come into contact with such substances, may not be used.

When choosing the most suitable packaging for products certified by Naturland, the following criteria should be observed:

- The packaging should be manufactured in an eco-friendly manner and similarly disposable or recyclable.
- The size and weight of the packaging should be kept to a minimum. The goal is to have as little packaging as possible.
- Returnable packaging should only not be used if this is not possible or reasonable e. g. because of inefficient transport distances.
- Preference for packaging with a high proportion of recycled and/or renewable raw goods should be given over packaging made of fossil or exhaustible raw materials such as metal or petroleum-based plastics.
- The possibility of re-using the packaging should be aimed for, e. g. as a drinking glass, storage container or alternative fuel.
- The use of bioplastics is desirable. However, genetically modified raw goods must not be used in its production. Proof by the manufacturer of the packaging or by the supplier of the fact that no genetically modified organisms (GMOs) or their derivatives were used in the production of the packaging is to be given in the form of a declaration of compliance to be submitted during organic inspection.
- The printing inks chosen should be free of harmful solvents.
- No packaging containing chlorine, metal or aluminium should be used.
- Modified atmosphere packaging using a mixture of oxygen, carbon dioxide and nitrogen is permitted.

Irradiation (both electrical and ionising) of packaging to make the products more durable is not permitted under the Naturland standards.

Cork treated with chlorine is not permissible.

When choosing suitable packaging, the guideline issued by the German Federation of the Organic Food Industry (BÖLW) "Nachhaltige Verpackung von Bio-Lebensmitteln – Ein Leitfaden für Unternehmen"⁵ can be very helpful. It can be downloaded from Naturland's homepage (www.naturland.de).

9. Storage, bottling, bagging and transport

- All products according to these standards as well as the used primary substances are to be stored and transported in such a way as to keep any reduction of their quality or impairment of the environment to a minimum.
- Storage under special conditions (controlled atmosphere, temperature control and humidity regulation as well as drying the stored material) is permitted.
- Storage facilities, containers and silos which contain residues of, for example, GMO storage products, synthetic fungicides, preservatives and disinfectants, may not be used.

⁴ The operator must follow up on complaints addressed to him by third parties and which are related to requirements made by Naturland with respect to certification in an appropriate manner and must document the complaints as well as any action taken.

⁵ Only available in German.

- Products certified by Naturland must be clearly and unmistakably labelled during storage and transport; this applies especially to businesses which also store, process and transport products certified under the EU eco regulation and/or conventional products, besides products certified by Naturland.
- During storage, raw goods and ingredients certified by Naturland must be spatially separated from conventional and EU organic raw goods.

Any possibility of primary substances not certified by Naturland being admixed or mixed up with Naturland primary substances must be excluded.

10. Cleaning and hygiene

Every processor must ensure that he for his part has undertaken everything in his power to prevent the products being contaminated or polluted with cleaning agents (particularly with quaternary ammonium compounds). Naturland reserves the right to proscribe certain cleaning agents and procedures. Cleaning methods and the substances used therein must be recorded in a comprehensible manner for inspection purposes.

The Naturland Betriebsmittelliste⁶ (list of tools and materials) can be helpful when deciding on a suitable cleaning agent. This can be ordered from Naturland. In cases of doubt, the cleaning methods and substances have to be checked with Naturland.

11. Pest control

Preventive measures are to be used carefully and comprehensively in order to prevent the occurrence of pests. These should be documented by monitoring. If pest control measures are unavoidable, mechanical and physical, biological resp. biotechnological methods are to be preferred; permissible pesticides are listed in appendix 3 to these standards.

The application of chemical storage protection substances, especially the use of ethylene oxide, methyl bromide, aluminium phosphide and hexachlorocyclohexane (HCH; Lindane) is prohibited.

Where gassing measures are necessary with other measures than listed in appendix 3, approval by Naturland is to be obtained in advance. The application must include details of the substances to be applied, the waiting period scheduled and the date on which the measure is to be carried out.

Enterprises specialising in pest control must be informed of the Naturland standards and must guarantee in writing that the Naturland standards on pest control will be complied with. The application form for pest control is available from Naturland on request.

If pest control measures are applied, products manufactured to the Naturland standards must at all events be protected from direct or indirect contact with prohibited substances.

If prohibited substances or methods are applied directly to the products which are manufactured according to the Naturland standards, the products in question may no longer be endorsed with a reference to the Naturland certification or the Naturland trademark.

⁶ Only available in German.

VII. Social responsibility

The holistic claim of Naturland standards also includes the social treatment of the people who work and live on the operations.

1. Human rights

The basic rights of the people living and working on Naturland operations are respected as described in national regulations or the International Labour Organisation Conventions and Recommendations (ILO)⁷, the UN conventions on children's rights⁸ and the United Nations Declaration on the Rights of Indigenous Peoples⁹, should these be more comprehensive.

A product created under conditions violating basic human rights, under gross violation of social justice or infringing indigenous land and water rights can not be traded as a product certified by Naturland.

2. Freedom to accept or reject employment

The operations commit themselves to exclude forced labour or any type of involuntary work. The operation shall not retain any part of workers' salary, benefits, property, or documents in order to force workers to remain on the operation.

3. Freedom of association, access to trade unions

All workers have the freedom of association and collective bargaining.

No one shall be discriminated against because of his or her membership in a trade union.

4. Equal treatment and opportunities

No discrimination on the basis of race, creed, sex, or political opinion or membership shall be tolerated. All workers irrespective of their sex, skin colour or religion receive the same pay and face the same opportunities for work of the same nature and same degree of responsibility.

5. Children's rights

No children shall be employed on operations. Children may work on the farms of their own families or a neighbouring farm provided that:

- the work is not hazardous and endangers neither the health nor the safety of the children
- the work jeopardises neither the educational nor the moral, social or physical development of the children
- the children are supervised by adults while working or have been given permission by a parent or legal guardian

6. Health and safety

All workers, employees and their families shall have access to drinking water, food, accommodation and basic medical care.

The employer is responsible for safety, health and hygiene at the workplace. If necessary, this implies holding training courses for employees to raise their awareness of any dangers at their workplace and of the contents of hygiene standards. Operations with more than 10 workers have to draw up a policy on safety at work and make these available to all employees.

7. Employment conditions

Workers for the purpose of these standards are, besides the permanent workers, also seasonal workers and sub-contracted workers.

All operations commit themselves to meet the following requirements¹⁰:

⁷ <http://www.ilo.org/declaration/lang--en/index.htm>

⁸ <http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>

⁹ http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

¹⁰ Naturland may determine that in any one country the legal control of employment conditions the opportunities for further education offered publicly suffices to ensure compliance with these standards.

7.1 Contracts

All workers receive a written contract of employment describing the basic conditions of employment.¹¹ Working conditions and contracts have to be documented by the employer to be verified at any time. The employment contract shall at least define the following: job description, scope and limits of the job, and type as well as amount of remuneration. The employment conditions of all workers have at least to comply with respective higher requirements of national regulations and ILO standards.

7.2 Equal treatment

The different kinds of employment shall in no case result in the unequal treatment of any workers; all workers enjoy the same rights and working conditions including social benefits and other privileges for work of the same nature and same degree of responsibility (see point IV.5).

7.3 Wages

Workers shall be paid at least the official national minimum wage currently applicable or the relevant industry standard in processing operations or the wages approved on the basis of collective bargaining, whichever is the higher. Workers shall be paid in cash, or in any mode they prefer.

7.4 Payment in kind

Workers may if they choose receive part of their wages in kind for board, lodging or other services offered by the operation. The value attributed to such deductions shall be fair and reasonable. A compulsory reduction of the minimum wage by the employer for such services is not permitted.

7.5 Working hours

To permit flexibility and overtime in the peak season (e.g. harvest) it is necessary to define an annual limit of working hours or to conclude a mutual agreement on work in peak periods. Such an agreement has to be in line with current national labour legislation and negotiated agreements.

7.6 Social benefits

The employer ensures a basic coverage for maternity, sickness and retirement. Operations with more than 10 workers need to have a policy on wages and social benefits, and this information should be made available to all the employees.

7.7 Further education

The unit offers its employees the possibility of further education and professional training.

¹¹ Legally binding contracts (in this particular case not necessarily in writing) are required even for workers not registered. Furthermore they have to be informed of their rights.

Part D. Processing standards for specific groups of products

I. Processing standards for meat and meat products

The processing standards for meat and meat products are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing meat and meat products.

1. Area of application

This chapter in the standards covers meat and meat products. For products which have meat and meat produce as an ingredient, these standards apply to the meat and meat produce contained therein.

Part D.XVII. (Processing Standards for Transport and Slaughtering) is applicable to the transport and slaughtering of livestock.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that have been selected in accordance with the priority list, Naturland standard (see Part C. VI. 4.1) are permitted.

Besides these, the following regulations apply:

2.1 Flavourings

- Organic flavouring extracts (permission to use them must be obtained from Naturland)

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of microorganisms

All cultures of micro-organisms commonly used in processing of meat and meat products are permitted, wherever possible grown on organic substrata.

2.4 Enzymes

The use of enzymes is prohibited.

2.5 Food additives

- lactic acid (E 270) (only for semi-finished cured sausages)
- sodium citrate (E 331) (as an auxiliary product for the processing of meat that has dropped in temperature since slaughter and to avoid blood coagulation)
- smoke from untreated and native wood and branches, with use of spices as well
- rosemary extract (E 392) from organic production
- sodium nitrite (E 250)/ as nitrite curing salt:

The use of nitrite curing salt must be labelled clearly in products containing sodium nitrite. Sodium nitrite as curing salt is permitted for cooked and uncooked meat products under the following conditions:

- The amount of nitrite curing salt added (with or without iodine) is limited to 80 mg sodium nitrite/kg of sausage meat in uncooked sausages and to 40 mg sodium nitrite/kg of sausage meat in cooked sausages (relative to the total amount of sausage meat).
- In the production of uncooked sausages which need to mature for more than four weeks at temperatures below 18° C, the use of potassium nitrate (E 252) (saltpetre) at a maximum rate of 80 mg/kg is permissible.
- To exploit the effect of the nitrite to the full, the nitrite curing salt can be used in combination with ascorbic acid (E 300) or sodium ascorbate (E 301) (300-500 mg/kg free ascorbic acid)¹². The advantage derived from using ascorbic acid resp. sodium ascorbate is that the

¹² In justified individual cases the use of ascorbic acid (E 300) without in combination with nitrite curing salt is permissible upon application.

sausage turns red more evenly and quickly, which means less nitrite can be used, thus leaving a lower level of nitrite residue in the final product.

- The use of iso-ascorbic acid (E 315) or sodium iso-ascorbate (E 316).
- The restrictions imposed by the German Additives Regulation (ZZuIV) in the currently valid version have to be observed. Furthermore, the use of nitrite curing salt in products intended for frying or where it is known that they are often fried (e. g. bacon, gammon, luncheon meat) is prohibited.

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

- carbon dioxide (E 290)
- nitrogen (N₂) (E 941)

3. Permissible processing methods

All methods that are generally used for the treatment of meat and the production and preservation of meat and meat products, with the following exceptions:

4. Prohibited processing methods

- black smoking
- use of 'mechanically recovered meat' (MRM)
- production of formed meat ("ham") with the aid of protein-solvent processing additives (e. g. enzymes)
- pressure resp. high pressure treatment with oxygen

5. Labelling

The use of iodised table salt, alcohol and gelatine, and especially of nitrite curing salt must be labelled.

Meat and meat products sold in a speciality shop as loose goods have to be labelled clearly and precisely for the customer. Where goods are sold as loose products, measures must be taken to ensure that the customer can learn about all the ingredients (composition) used, at the point of sale.

II. Processing standards for milk and dairy products

The processing standards for milk and dairy products are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing milk and dairy products.

1. Area of application

The products covered by this chapter of the standards are all milk and dairy products, butter and cheese.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that have been selected in accordance with the priority list in Naturland's standards (see Part C. VI. 4.1) are permitted.

Besides these, the following regulations apply.

2.1 Flavouring

The use of flavouring has to be approved. Permission by Naturland only for products containing fruit will be based on a list of permissible criteria.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

All cultures commonly used for leavening and maturing in the production of dairy products, butter and cheese, where milk that is home-made should be used for the breeding and keeping of starter cultures. The use of water with nutrient solution is permitted for breeding.

2.4 Enzymes

- rennin and rennin substitutes (free of preservatives)¹³
- lactase for the production of lactose free dairy products

2.5 Food additives

For dairy produce:

- pectin (E 440i), non-amidated
- locust bean gum (E 410) from organic production
- guar gum (E 412) from organic production
- agar agar (E 406) from organic production
- lactic acid (E 270)

For cheese:

- smoke from untreated natural woods and branches
- sodium hydrogen carbonate (E 500) or calcium carbonate (E 170) (only for acid-curd cheese)
- calcium chloride (E 509) (for the production of hard cheese, sliced cheese, semi-hard sliced cheese and soft cheese)
- trisodium citrate (E 331) (for the production of boiled cheese and processed cheese)

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

The use of processing additives is prohibited.

¹³ During organic inspection, proof has to be produced guaranteeing the use of GM-free rennin substitutes.

3. Permissible processing methods

All methods that are generally used for the processing of milk, dairy products, butter and cheese, Exceptions are the processing methods listed under item 4.

4. Prohibited processing methods

- Sterilising (except for the production of coffee cream products)
- ultra-filtering for volume reduction over 50% from the base/ raw product
- manufacture of cheese analogues

5. Labelling

- The list of ingredients has to declare all the ingredients, including those used in articles containing fruit (e.g. sugar and flavouring).
- The use of iodised salt has to be explicitly shown on the label.
- Milk for consumption may only be declared as “not homogenised” if homogenised no more than 15%, measured with the homogenisation pipette (NIZO-method).
- Milk and dairy products sold in a speciality shop as loose goods have to be labelled clearly and precisely for the customer. Where the products are sold as loose goods, measures must be taken to ensure that the customer can learn about all the ingredients (composition) used, at the point of sale.

III. Processing standards for bread and bakery products

The processing standards for bread and bakery products are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing bread and bakery products.

1. Area of application

This chapter in the standards covers cakes and pastries as well as bread and biscuits.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland's standards (see Part C. VI. 4.1) are permitted.

Besides these, the following regulations apply.

2.1 Flavourings

The use of flavourings is prohibited.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

- leaven made on site using natural leaven as a starter culture. Because of its high nutritional value (e.g. in breaking down inositol), the use of domestically-produced leaven as a starter culture is to be preferred.
- baking enzymes on the basis of grains, honey and if applicable leguminous flour from organic production
- yeast from organic production

2.4 Enzymes

The use of enzymes is prohibited.

2.5 Food additives

- tartar sour baking powder on the basis of:
baking soda, sodium hydrogen carbonate (E 500),
sodium tartar (E 335) and potassium tartar (tartar) (E 336)
- potash (potassium carbonate) (E 501)
- stag horn meal (mixtures of ammonium hydrogen carbonate, ammonium carbonate (both E 503) and ammonium carbonate)
- food gelatine without additives from organic production (exclusively for cream-like masses)
- agar (E 406) from organic production
- pectin (E 440i), non-amidated
- locust bean gum (E 410) from organic production and guar gum (E 412) from organic production, both only for gluten-free bakery products
- native, unmodified soya lecithin (E 322) from organic production
- native, unmodified sunflower lecithin (E 322)
- sodium hydroxide (E 524) (for surface treatment of lye bakery products)

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

Separating substances/separating wax composed of the following substances:

- beeswax (E 901) from organic production, carnauba wax (E 903) from organic production
- vegetable oils from organic production

3. Permissible processing methods

All general processing and production methods for bread and bakery products using the primary substances listed and the auxiliary products for processing

4. Labelling

- The list of ingredients must in particular clearly declare the use of iodised table salt and gelatine.
- Naturland recommends the additional declaration of the type of flour.
- The label "wholemeal" is only allowed to be used for products containing 100% wholemeal.
- Bread and bakery products sold in a speciality shop as loose goods have to be labelled clearly and precisely for the customer. Where products are sold as loose goods, measures must be taken to ensure that the customer can learn about all the ingredients (composition) used, at the point of sale.

IV. Processing standards for cereals, cereal products and noodles

The processing standards for cereals, cereal products and noodles are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing cereals, cereal products and noodles.

1. Area of application

The following groups of products fall under this chapter of the standards:

- cereals, ground cereals, flake cereals and products thereof (e. g. native starch, pre-gelatinised starch, vital gluten, malt)
- noodles

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland's standards (see Part C. VI. 4.1) are permitted.

Besides these, the following regulations apply.

2.1 Flavourings

The use of flavourings is prohibited.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

Cultures of micro-organisms are permitted if cultivated on organic substrata, if available.

2.4 Enzymes

The use of enzymes is only permitted for the saccharification of cereals and starches:

- for sweetening: alpha amylase, cellulase, glucoamylase
- for inversion: xylose(glucose)-isomerase

2.5 Food additives

The use of food additives for the production or processing of cereals, cereal products and noodles as per these standards is prohibited.

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

- nitrogen (N₂) (E 941)
- carbon dioxide (CO₂) (E 290)
- sodium carbonate (Na₂CO₃ – soda) (E 500) for the regulation of the pH value
- calcium hydroxide (Ca(OH)₂) (E 526) for the regulation of the pH value of saccharification

3. Permissible processing methods

All common methods for cleaning and grinding cereals, for the further processing of ground cereal products as well as the production and processing of cereal products and noodles, with the exception of the methods listed under item 4.

4. Prohibited processing methods

- production of chemical and enzyme-converted starch

5. Labelling

- Where iodised table salt is used, this has to be clearly shown on the label.
- Pasta may only be labelled as egg-free if no part of the egg is used in their production, not even in the form of egg powder. Where eggs are used in the production of pasta, the label should state where the whole egg or just the yoke or the whites were used.
- The label 'wholemeal' is only allowed to be used for products containing 100% wholemeal.
- Where products are sold as loose goods, measures should be taken to ensure that the customer can learn about all the ingredients (composition) used, at the point of sale.

V. Processing standards for feed

The processing standards for feed are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing feed.

1. Area of application

The following groups of products fall under this chapter of the standards:
compound fodder, supplementary fodder, complete fodder and feed materials.

2. Definitions

Feed materials:

vegetable or animal products (e.g. powdered milk), in natural condition, fresh or preserved, as well as by-products of its processing; apart from this organic and inorganic substances which are meant for animal nutrition by feeding, whether as such or in processed form, for production of compound feeding stuffs, mineral feed, or as inert carrier for vitamins and premixes.

Compound feeding stuffs:

mixtures of feed materials, which are meant for animal nutrition by feeding as complete feed or as supplementary feed

Complete feed:

mixtures of animal feeding stuffs which can be used in daily ration alone because of its composition. In complete feed at most 30% of the agricultural raw materials is allowed to be from conversion.

Supplementary feed:

mixtures of animal feeding stuffs containing a high content of specific substances which can be used in daily ration only together with other animal feeding stuffs because of its composition.

3. Ingredients of agricultural and non-agricultural origin

- All ingredients of agricultural origin which are certified by Naturland directly are permitted for storage and production. Raw materials and ingredients of accepted organisations which are recognised as equal by Naturland may be used if written approval has been given by Naturland and -depending on endangering potential- with supplementary quality assurance measures (traceability, analysis etc.).
- If the above-mentioned ingredients of agricultural origin are not available, approval have to be applied for by Naturland to use other ingredients by indicating amount and period of time. The priority list (see part C. VI. 4.1) has to be followed. Supplementary quality assurance measures (traceability, analysis etc.) have to be carried out after prior consultation with Naturland.

Conventional ingredients:

Approved components of conventional agricultural production as well as the maximum permissible percentage allowed to be used for each animal species, with the corresponding time restrictions, according to Naturland's standards for feeding, are stated in appendix 2.

One and the same raw material in ecological quality and in conventional quality must not be stored, used or processed in a feeding stuff at the same time.

Both the share of conventional ingredients and the share of ingredients of the business in conversion have to be labelled clearly.

Besides these, the following regulations apply:

- water of drinking water quality
- supplements and additives in animal nutrition according to appendices V and VI of regulation (EC) No 889/2008
 - trace elements and minerals
 - inert carriers of vegetable origin
 - binders and anti-caking agents¹⁴

¹⁴ When using kaolin clay (559), it is necessary to test it beforehand for pollutants.

- antioxidant substances
- vitamins
- enzymes¹⁵
- micro-organisms
- organic acids for conservation
- brewers' yeast

4. Requirements of the processing business

Naturland certified animal feeding stuffs are only allowed to be produced in feeding stuff facilities which produce exclusively organic feeding stuffs.¹⁶

There must not be any possibility of commingling with raw materials or products which are not approved according to these standards. This is valid from delivery (receipt of goods) to finished packaging (storage silos of finished blends, bag filling machines) of raw materials resp. products.

5. Storage and transportation

The alternate transportation and storage of Naturland certified feeding stuff products and other feeding stuff products is only possible after processing, packaging and appropriate labelling has been completed as well as after approval by Naturland. In this connection supplementary quality assurance measures prescribed by Naturland (cleaning of transport containers, documentation etc.) must be carried out.

6. Pest control

It is particularly important to note the regulation mentioned in part C. VI.11. Permissible methods and substances are listed in appendix 3.

7. Quality assurance and checks for harmful substances

The risk of pollution with residues is to be minimised by means of the appropriate inspection procedures and analytical techniques. To do so, a sufficient number of spot surveys must be made, whereby the main emphasis should be on analyses for GMOs and harmful substances. To this end, a binding analysis protocol has to be determined upon in consultation with Naturland.

Businesses which receive feeding stuffs from cob production must have a sufficient state of knowledge about pollution particularly from direct drying and firing with heavy oil, coal/coke or wood chips as regards combustion residue (e.g. Dioxin). An effective analysis must certify the harmlessness of the cob production as regards noxious substances.

8. Labelling

All ingredients of agricultural origin must be listed with their single components. The share of components of organic farming, conversion produce and of conventional production must be indicated clearly on every feeding stuff.

In complete feed with Naturland labelling, at most 30% of the agricultural raw materials is allowed to be from conversion produce.

Supplementary feed with Naturland labelling has to have the following specifications:

share of components of organic farming, conversion produce of organic farming and of conventional farming.

Permitted share of other – Naturland certified – agricultural raw materials which have to be/should be fed additionally and how much of it has to be certified organic raw goods. (Example: "Supplementary feed has to be supplemented with at least the same share of Naturland certified grain.").

¹⁵ Only upon approval by Naturland

¹⁶ One exception is the facilities for the production of feeding stuff for aquaculture. Feed materials, mineral feed or feeding stuffs which are produced on portable hired mixing installations are also not affected.

VI. Processing standards for aquaculture products and products from sustainable capture fishery

The processing standards for aquaculture products and products from sustainable capture fishery are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing aquaculture products and products from sustainable capture fishery.

1. Area of application

The following groups of products fall under this chapter of the standards:

fish, fish products, macroalgae, other seafood and their products. Unicellular organisms (protozoa) are excepted.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland standard (see Part C. VI. 4.1) are permitted.

Besides these, the following regulations apply:

2.1 Flavourings

Organic flavouring extracts (permission to use them must be obtained from Naturland)¹⁷

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

Cultures of micro-organisms are permitted if cultivated on organic substrata, if available.

2.4 Enzymes

The use of enzymes is prohibited.

2.5 Food additives

- smoke from untreated and native wood and branches, with use of spices as well, if available of organic origin
- lactic acid (E 270)
- citric acid (E 330), only permitted for crustaceans and molluscs
- sodium citrate (E 331)

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited

2.7 Permissible processing additives

- nitrogen (N₂) (E 941)
- carbon dioxide (CO₂) (E 290)
- natural, vegetable substances for neutralisation of unwanted components of taste upon written approval by Naturland.

2.8 Prohibited processing additives

- sulphite (e.g. sodium metabisulphite (E 223) for stabilisation of colour)
- phosphate (e.g. used in order to make fish fillets look better)
- carbon monoxide (CO) (e.g. for stabilisation of colour)

¹⁷ Permission will be granted by Naturland on the basis of a list of criteria.

3. Permissible processing methods

All common methods used for the treatment of aquaculture produce and for the production and preservation of the resulting products, with the exceptions listed under item 4.

4. Prohibited processing methods

- the use of so-called "Katenrauch"(smoking process using smoke from the household fireplace with the product to be smoked hanging from the roof)
- "black smoking"
- liquid smoke treatment
- salting by injection

5. Labelling

The use of iodised table salt has to be labelled clearly.

Where products are sold as loose goods, measures should be taken to ensure that the customer can learn about all the ingredients (composition) used at the point of sale.

VII. Processing standards for breweries

The processing standards for breweries are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing brewery products.

1. Area of application

The sole area of application of these standards is beer. It is assumed that the German Purity Law is complied with. As a variant, an application can be made to Naturland to use other cereals and other processing methods e. g. to manufacture gluten-free beers.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland's standards (see Part C. VI. 4.1) are permitted.

Besides this, the following regulations apply:

2.1 Hops

According to the list of priorities, hops are permissible in the form of whole hops or pellet hops (type 45 or type 90).

Hop extracts and other hop products are prohibited.

2.2 Malt

Malt and roasted malt as per the list of priorities are permissible.

2.3 Water

2.3.1 Brewing and malt water

- Breweries producing to Naturland standards should have their own water supply (spring water).
- The water has to fulfil the requirements for drinking water, and – in certain cases after permissible treatment – be low in nitrate (maximum 25 mg/l) and comply with the orientation values for loading substances in natural mineral waters (annex 1a of the "Allgemeinen Verwaltungsvorschrift über die Anerkennung und Nutzungsgenehmigung von natürlichem Mineralwasser" – the German general administrative directive on the recognition and authorisation to use natural mineral water).
- During organic inspection, a current water analysis (no older than 12 months) certifying conformity with requirements is to be produced. If the values are acceptable, the requirement to produce subsequent analyses can be changed to greater intervals upon application to Naturland.
- permissible methods of treatment: filtration methods without chemical conversion, UV radiation, filtration using activated carbon, reverse osmosis, sand filtering to remove iron and manganese and the use of lime milk, where required in combination with gypsum.
- prohibited methods of treatment of brewing and malt water: ozone, chlorine, chlorine dioxide, hydrogen peroxide, demineralisation (anion exchange).

2.3.2 Industrial water and water used for cleaning

- Permissible methods are those listed under 1.3.1. In exceptional cases an application may be made to use other treatment methods where justified.

2.4 Cultures of micro-organisms

- Brewer's yeast without additives, and lactobacilli, must be produced in the brewery's own facility for the cultivation of pure cultures on organic wort made from the brewery's own organic raw materials. Preference is to be given to the brewery's own facility for such cultivation over purchase from other organic breweries.
- The use of guaranteed non-GMO brewer's yeasts and lactobacilli from conventional breweries can only be approved in exceptional cases. Where required, an application must be sent to Naturland given details of the reasons.

2.5 Additives

As per the regulations of the German Purity Law, the use of flavouring, enzymes, food additives, mineral nutrients, trace elements and vitamins is not permitted.

2.6 Permissible processing additives

- asbestos-free filters, siliceous filters (testing for heavy metals in the diatomaceous earth is obligatory), cotton filters (test for content of herbicides and pesticides) and PVC-free membranes for filtering purposes
- brewery's own fermentation carbonic acid
- natural carbonic acid from spring water
- biogenic carbonic acid
- nitrogen (N₂) (E 941)

2.7 Prohibited processing additives

- technical carbonic acid
- polyvinylpyrrolidone (PVPP)
- silica gel

3. Permissible processing methods

- Drying the whole hops may only be done indirectly.
- Flash pasteurisation of beer followed by rapid re-cooling
- Full pasteurisation only for non-alcoholic beer, light beer, mixed beer beverages, malt beer and malt-based soft drinks

4. Prohibited processing methods

- sulphuring of hops and malt
- kiln drying with direct heat
- recycling spent hops, pressed yeast beer and return beer and the artificial acceleration of the wort production
- Fermentation is to be done by traditional means, i. e. cold fermentation and storage of bottom-fermented beers, warm fermentation because of the yeast in top-fermented beers. Rapid fermentation processes such as heat fermentation (over 12°C), pressure fermentation, stir fermentation and the Nathan process, also such rapid fermentation processes as storage at high temperatures.
- processes designed to reduce the alcohol content artificially and to manipulate the taste
- fining using "Farbeier" (a special colour preparation) or roasted malt extract
- measuring the depth of the beer radioactively
- clarification substances (e. g. wood shavings, aluminium foil)
- sterilisation

5. Quality assurance

Malt lots are to be submitted to spot checks for mycotoxins (where appropriate, by the supplier).

Hops are to be submitted to spot checks for possible contamination with copper or pesticides (where appropriate, by the supplier).

VIII. Processing standards for vegetables and fruit

The processing standards for vegetables and fruit are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing vegetables and fruit.

1. Area of application

The following product groups fall under this chapter of the standards:

- vegetable and vegetable products, incl. vegetable juice
- fruit and fruit products, incl. fruit juice
- legumes and legume products

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland standard (see Part C. VI. 4.1) are permitted.

Besides this, the following regulations apply:

2.1 Flavouring

Application must be made of Naturland for permission to use flavourings. Approval is granted by Naturland on the basis of a specific list of criteria.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

- starter cultures (all those common in processing vegetable and fruit)
- yeast extract from organic production

2.4 Enzymes

Application must be made of Naturland in writing for permission to use enzymes. Only if pressing is difficult (e.g. berries, red grapes and the production of syrups, vegetable purees and celery juice) enzymes (amylolytic, pectolytic, proteolytic) may be used; the enzymes have to be inactivated by re-heating afterwards.

2.5 Food additives

- pectin (E 440i), non-amidated
- agar (E 406) from organic production
- locust bean gum (E 410) from organic production
- guar gum (E 412) from organic production
- ascorbic acid (E 300) (only upon approval by Naturland in justified individual cases)
- citric acid (E 330), potassium citrate (E 333) (only after approval by Naturland in justified individual cases)
- lactic acid (E 270) (only to process olives)
- rosemary extract (E 392) from organic production
- smoke from untreated native wood and twigs, with or without the addition of spices (for processing legumes)

2.6 Mineral nutrients, trace elements, vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

- asbestos-free filters such as paper and cotton and inactive diatomaceous earth
- nutritional gelatine from organic production for fining.
- bentonite (E 558) to eliminate protein (only after approval upon application to Naturland)
- carbon dioxide (CO₂) (E 290), nitrogen (N₂) (E 941)

- magnesium chloride (E 511/Nigari) (as an coagulant for leguminous products)
- calcium sulphate (E 516) (as a coagulant for leguminous products)
- potash (E 501) (for the drying process of sultanas)

3. Permissible processing methods

All standards procedures for processing fruit and vegetable using the permissible primary substances and processing additives with the exceptions listed under item 4.

4. Prohibited processing methods

- Production of fruit juices from concentrated fruit juice is prohibited.¹⁸
- Use of ion exchanger or absorbent resin.

5. Labelling

- The use of iodised table salt has to be labelled clearly.
- Vegetable and fruit produce labelled with the Naturland logo and sold in a speciality shop as loose goods of a product range have to be labelled clearly and precisely for the customer.

6. Quality assurance

The use of strains which have been produced by protoplast or cytoplasm fusion or similar methods (at the level of the cell nucleus) is not permitted. Suitable quality assurance measures are to be applied unfailingly particularly where raw goods not certified by Naturland (in compliance with the priorities list) are used.

¹⁸ Exceptions are possible after approval by Naturland if the life cycle assessment is reasonable.

IX. Processing standards for the production of wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits

The processing standards for wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits.

1. Area of application

The following product segments belong to the area of application of these standards:

- wine
- semi-sparkling wine
- sparkling wine
- fruit wine
- wine vinegar
- cleared concentrated grape must/sweet reserve
- liqueur wine
- spirits

2. Ingredients of agricultural and non-agricultural origin

In the production of wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits, only those fruits are allowed which comply with the certification requirements of Naturland's priorities list (see Part C. VI. 4.1).

Besides this, the following regulations apply.

2.1 Oenological treatment substances

- carbonic acid (E 290), nitrogen (E 941), argon (E938)
- purified air and gaseous oxygen
- sulphurous acid, potassium bisulphite and potassium metabisulphite (= potassium pyrosulphite) (ref. critical value for the total sulphur content in the final product of wine in appendix 8)
- GMO-free yeast or dried yeast
- compounds made from yeast cell walls, if possible produced organically and at all events GM-free
- undiluted fresh yeast from organic production
- thiamine hydrochloride
- Di-ammonium phosphate
- charcoal
- copper sulphate (permitted until 31st. July, 2015)
- copper citrate
- citric acid (to stabilise iron)
- L-ascorbic acid
- pectolytic enzymes
- metatartaric acid
- L(+) tartaric acid
- lactic acid
- neutral potassium tartrate (= potassium bitartrate, potassium hydrogen tartrate)
- lactic acid bacteria, potassium bicarbonate, calcium carbonate (only for deacidification)
- potassium alginate
- gum arabic from organic production
- oak chips
- edible gelatine from organic production
- cellulose
- perlite
- silicon dioxide as a jelly or a colloidal solution (silica sol, diatomaceous earth)
- isinglass

Part D.; IX. Processing standards for the production of wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits

- casein and potassium caseinates
- plant proteins from wheat or peas
- tannins
- albumen from organic production
- bentonite

Combination preparations are only permitted if the individual components are known and approved.

2.2 Enrichment

- sucrose (crystallised beet sugar) from organic production
- rectified grape must concentrate from organic production

3. Permissible processing methods

These standards assume that the national laws and regulations governing wine production have been complied with.

All procedures and measures used in processing the fruit and in producing wine, semi-sparkling wine, sparkling wine, fruit wine, wine vinegar, cleared concentrated grape must/sweet reserve, liqueur wine and spirits have to be directed at the following aims:

- manufacture of produce of superior quality
- avoidance of procedures making intensive use of raw materials and energy
- sulphurous acid kept to a minimum
- avoidance of all substances which are harmful to the environment and dangerous to the health in production, use and disposal
- processing and treatment of all organic residues resulting from production in such a way that they do not damage the environment. Marc, yeast and clarification dregs are to be recycled in the course of production as organic fertiliser.

3.1 Only the following processing methods may be used:

- flash pasteurisation
- hot-filling of wine
- centrifuging, filtration (pore size of membrane filter and filter candle max. 0.2 µm)
- thermal treatment
- warming the mash and must to 30° C resp. 70° C
- preparation and storage of sweet reserve
- cold treatment (only to stabilise the cream of tartar)
- aeration

4. Permissible cleansing agents and disinfectants

All cleansing agents and disinfectants containing chlorine are prohibited.

Special attention is to be paid to ecofriendliness in the choice of cleansing agents and disinfectants.

The following agents are permitted for use when cleaning with water, steam or by mechanical means:

- peracetic acid, citric acid, tartaric acid
- H₂O₂
- ozone
- caustic soda
- soft soap
- sulphurous acid
- alcohol
- potassium lye, surfactants

X. Processing standards for edible fats and oils

The processing standards for edible fats and oils are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing edible fats and oils.

1. Area of application

The chapter of the standards covering edible fats and oils covers vegetable fats, animal fats, vegetable oils and animal oils including mixtures of these.

2. Ingredients of agricultural non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland standard (see Part C. VI. 4.1) are permitted.

Besides this, the following regulations apply:

2.1 Flavouring

The use of flavouring is prohibited.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

The use of micro-organisms is prohibited.

2.4 Enzymes

The use of enzymes is prohibited.

2.5 Food additives

The use of additives is prohibited.

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

- Filtration equipment must be free of asbestos, such as paper or cotton filters and non-activated siliceous filters (diatomite filters)
- nitrogen (N₂) (E 941)
- activated carbon (only permitted for palm fat, coconut fat and sunflower seed oil which are destined for further processing)
- citric acid (E 330) (only permitted for deodorised palm fat, coconut fat and sunflower seed oil)
- ethyl alcohol (only permitted to extract oil from raw materials with low oil content (5- 10 %))

3. Permissible processing methods

3.1 Permissible processing methods for vegetable fats and oils

- All common methods for cleaning, peeling and preparation of raw materials, whereby the conditioning/preheating proceeds only up to the maximum run-off temperature (outlet).
- mechanical presses with a run-out temperature of 60° C max.
- Recommendations for the max. run-off temperatures for specific oils:
 - olive oil: 40° C
 - safflower oil and pumpkin seed oil: 50° C
 - oils of sunflower, maize, soy, sesame, cobnut (hazelnut): 60° C
- filtration, decantation, centrifugation

- Permission to use treatment with steam up to a temperature of max. 160° C can be applied for from Naturland in exceptional cases.
- Deodorization (steaming) is permitted for sunflower oil, which is destined for further processing, as well as palm fat and coconut fat.
- de-sliming with citric acid (E 330) only permitted for deodorised palm and coconut fat and sunflower seed oil

3.2 Permissible processing methods for animal fats

- smelting

4. Prohibited processing methods

- leaching with organic chemical solvents
- de-sliming with mineral or organic acids (not valid for palm and coconut fat and sunflower seed oil)
- deacidification
- bleaching/decolourising
- deodorization (over 160° C) (not valid for sunflower oil, which is destined for further processing, as well as palm and coconut fat)
- chemical modification (hydrogenation/hardening, transesterification)

5. Labelling

Edible oils that have been subject to a refining stage or treatment with steam as well may not be labelled as "native". Oils extracted with aid of ethyl alcohol may also not be labelled as "native".

XI. Processing standards for the production of yeast, yeast products as well as leaven and natural fermentation starter

The processing standards for yeast, yeast products, leaven and natural fermentation starter are supplementary to the Naturland standards "Processing - General Section", including the appendices. These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing yeast, yeast products, leaven and natural fermentation starter.

1. Area of application

The area of application of these standards covers yeast (e.g. baker's yeast, brewer's yeast, active dry yeast) and yeast products (e.g. yeast extract and yeast autolysis) as well as leaven and natural fermentation starter.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin that are selected following the list of priorities, Naturland standard (see Part C. VI. 4.1) are permitted.

Besides this, the following regulations apply:

2.1 Flavouring

The use of flavouring is prohibited.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

Cultures of micro-organisms and autolysis, cultivated on organic substrata, if available. The proportion of conventional yeast in the final product must not exceed 5%.

2.4 Enzymes

Permission may be granted upon application to use enzymes to break down organic carbon and nitrogen sources.

2.5 Food additives

- soya lecithin (E 322) from organic production as emulsifier for active dry yeast
- sunflower lecithin (E 322) as emulsifier for active dry yeast

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited.

2.7 Permissible processing additives

- filtration aids of organic production (e.g. potato starch)
- stationary textile filters
- anti foaming agent of organic production (e.g. potato starch)
- citric acid (E 330) for the regulation of the pH-value
- sodium carbonate (Na_2CO_3 – soda) (E 500) for the regulation of the pH value

3. Permissible processing methods

- fermentation
- skimming only mechanically or with permitted processing aids
- filtration using filtration aids of organic production (e.g. potato starch)
- thermolysis, plasmolysis, autolysis (for production of yeast extract)
- drying for oat flakes and active dry yeast

4. Prohibited processing methods

Part D.; XII. Processing standards for the production of yeast, yeast products as well as leaven and natural fermentation starter

The production of yeast using inorganic sources of nitrogen .e.g. ammonium carbonate is prohibited.

5. Labelling

The use of iodised table salt has to be labelled clearly.

XII. Processing standards for microalgae and microalgae products for human consumption

The processing standards for microalgae and microalgae products are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing microalgae and microalgae products.

1. Area of application

The area of application of this standard covers microalgae (e.g. spirulina, chlorella) and microalgae products for human consumption.

2. Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural production are permissible which meet the certification requirements of the list of priorities shown in Naturland's standards (see Part C. VI. 4.1).

Besides this, the following regulations apply:

2.1 Flavouring

The use of enzymes is prohibited.

2.2 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

2.3 Cultures of micro-organisms

Cultures of micro-organisms, cultivated on organic substrata, if available.

2.4 Enzymes

The use of enzymes is prohibited.

2.5 Compacting aids and coating agents

- calcium carbonate (E 170)

2.6 Mineral nutrients, trace elements and vitamins

The use of mineral nutrients, trace elements and vitamins is prohibited. Mineral nutrients from natural sources (e. g. haptophytes) are excepted.

3. Permissible processing methods

- filtering, provided permission granted by Naturland
- mechanical and/or thermal drying. The drying process must be made using a heat exchanger which prevents direct contact with the flames or with harmful smoke and gases.

4. Quality assurance

Corresponding analyses of the final product must be conducted to ensure that it meets the Naturland quality criteria for microalgae. The processor/dealer must be able to provide corresponding analytical results for every lot of microalgae supplied (where applicable also those provided by manufacturer/previous suppliers/direct importers) to show they comply with the Naturland requirements.

5. Labelling

The use of iodised table salt must be clearly indicated.

XIII. Processing standards for textiles

The processing standards for textiles are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing textiles.

1. Area of application

The area of application of this standard covers the processing products of all natural fibres, e.g. sewing thread, fabric and garments.

2. Contents of agricultural and non-agricultural origin

All natural fibres from agricultural production are permissible, provided they comply with the certification requirements of the priorities list C. VI. 4.1.

At least 95% of the final product must consist of natural fibres (except for buttons, buckles, zips and similar notions).

Besides this, the following regulations apply:

Generally speaking, natural, renewable raw goods are to be used. This also applies to accessories and other items necessary in processing. PVC/PU and nickel are prohibited. Metals (e. g. buttons) must be free from nickel and chromium. They may also not be electro-plated with chromium or nickel. Accessories and other items made from these raw goods must be within the limits for contaminants set by Naturland as per appendix 6.

Requirements for accessories:

sewing thread	natural fibres and polyester-core fibres with a cotton sheath
embroidery yarn/linings/inner pockets/shoulder pads/labels/inlays/interfacing/seam bindings/hatbands/cords	of natural fibres
appliqué	on the basis of natural materials
elastic bands and yarns	natural and synthetic materials permissible
edgings	of natural fibres. In underwear, tapes and lacy borders may contain elastane.
buttons, buckles	of renewable raw goods, and of metals. Metal buttons must be free of chromium and nickel.
zips	tape of natural fibres and teeth with slider of chrome and nickel free metal or of 100% recycled polyester. Fine zips and/or those subject to considerable tension may be made of polyester tapes and have plastic teeth (not PVC).
reinforcements and trimmings	of natural raw materials and of metals free of chromium and nickel.
other accessories not listed	of natural fibres

3. Permissible processing agents

All the substances and compounds applied must fulfil the requirements listed below with respect to toxicology and degradability/eliminability. The assessment of the degree of toxicity is based on DIN safety standards.

4. Prohibited processing agents

As a rule, all substances and compounds are prohibited which are also prohibited under recognised international or national legislation.¹⁹

In particular, processing agents composed of the following substances and auxiliary substances containing the following are prohibited:

- heavy metals
- azo dyes, pigments and other auxiliary agents releasing carcinogenic arylamines compounds
- aromatic and halogenated solvents
- halogenated plastics (e.g. PVC)
- endocrine disruptors
- plasticizers as PAH, phthalates, Bisphenol A and all plasticizers with endocrine disrupting potential
- complexing agents and active detergent substances (EDTA, DTPA, NTA, all AP and APEOs, LAS, α -MES)
- formaldehyde and other short-chain aldehydes
- chlorophenols (such as TCP, PCP)
- short-chain chlorinated paraffins (SCCPs, C₁₀₋₁₃)
- chlorinated benzenes
- fungicides and biocides
- per- and polyfluorinated compounds
- quaternary ammonium compounds
- organotin compounds (DBT, MBT, TBT, DOT, TPhT)
- genetically modified organisms (GMOs) and their derivatives (including enzymes produced with the aid of GMOs)
- brominated and chlorinated flame retardants
- permanent AOX in primary effluent (if greater than 1% of the weight of any input)

Toxicity requirements and risk phrases in all processing stages:

substance group	criteria
other toxic substances	<p>The use of chemical substances and compounds is prohibited which are classified with any of the following hazard statements (in accordance with the codification system of the Global Harmonized System (GHS)²⁰ as published by the United Nations, annex 3): as very toxic (H300, H310, H330), suspected carcinogenic effect (H351), may cause cancer (H350), may cause heritable genetic damage (H340, H341), danger of serious damage to health (H370-372) or impairing fertility (H360, H361).</p> <p>Furthermore all chemical substances and compounds which are classed as very toxic to aquatic organisms (H400, H410), cause long-term adverse effects in the environment (H411) and are dangerous for the ozone layer (EUH 059) in accordance with the codification system of the EU-GHS (Regulation EC 1272/2008), as well as which are in accordance with the risk phrase classification toxic to flora, fauna and soil organisms (R54-56) or may cause long-term adverse effects in the environment (R58).</p> <p>Furthermore chemical substances and compounds which are classified as harmful or possibly causing long-term adverse effect on aquatic organisms (H413 resp. R53).</p>

¹⁹ Substances listed in regulation EC 552/2009 (amending regulation EC 1907/2006 (REACH), annex XVII), and the 'candidate list of substances of very high concern for authorisation' of the European Chemicals Agency (ECHA) are prohibited.

²⁰ For inputs assessed on basis of GHS, where the implementation system does not provide for the codified H-statements, the corresponding hazard classes and categories of GHS, annex 3 apply. For inputs assessed according to the 'risk phrase' classification (Directive 67/548/EEC amended and repealed by Regulation EC 1272/2008) the equivalent risk phrases apply.

oral toxicity (minimum requirements)	LD ₅₀ ²¹ > 2000mg/kg ²²
aquatic toxicity ²³ (minimum requirements)	LC ₅₀ , EC ₅₀ , IC ₅₀ > 1mg/l for bacteria, fish, daphnia, algae
relationship of biodegradability/eliminability (%) ²⁴ to aquatic toxicity (mg/l)	only permissible if: biodegradability/eliminability < 70% only where water toxicity > 100mg/l biodegradability/eliminability > 70% where water toxicity > 10 mg/l biodegradability/eliminability > 95% where water toxicity > 1 mg/l
bio-accumulative substances	Bio-accumulative ²⁵ and non-biodegradable ²⁶ substances and compounds classified with H413 resp. R53 are prohibited.

Note: the rating of the “aquatic toxicity” and “biodegradability/eliminability” of textile agents need not be performed solely on the basis of valid test data²⁵ for the finished compound but can also be made on the basis of test data on the individual ingredients of the compound. In the case of reactive dyes, the requirement applies to the final product.

5. Permissible processing methods and the chemical substances used in them

- Spinning: wherever paraffin products are applied, they must be recovered in such a way that they account for no more than 0.5% residual oil in the final product.
- Sizing: only with starches and starch derivatives and other natural substances and CMC (carboxymethylcellulose). PVA (polyvinylalcohol) and PAC (polyacrylate) may only be used in combination with natural substances and not exceeding 25%.
- Knitting and weaving: only using oils which do not contain any heavy metals. Other inputs may only consist of natural raw materials.
- bleaching: on the basis of oxygen only (peroxides, ozone)
- Boiling, kierung, washing: washing detergents must not contain phosphates.
- Mercerization: alkaline must be recycled.
- Dyeing: using natural dyes only and such synthetic dyes and agents as meet the above-mentioned requirements and the critical values for residues given in appendices 5 and 6.
- Printing: only using natural dyes and agents and such synthetic dyes, agents and pigments as meet the above-mentioned requirements and the critical values for residues given in appendices 5 and 6.

²¹ Performing new animal tests to determine unknown LD50 values in the course of the assessment procedure for inputs is prohibited. Instead, alternative methods (e.g. Acute Toxicity Estimates (ATE), conclusions on analogy from similar products, validated structure-activity relationships, calculation from available data of substances contained, expert judgment) must be used to determine unknown values.

²² Substances and compounds, such as alkaline and acids, that fail to meet this requirement because of their pH value only, are exempt from this requirement.

²³ Performing new fish and daphnia tests to determine unknown LC50/EC50 values in the course of the assessment procedure for inputs is prohibited. Instead alternative methods to OECD 203 (96hr) and EC50 daphnia, OECD 202 (48hr) (e.g. Acute Toxicity Estimates (ATE), validated structure-activity relationships, conclusion on analogy from similar products, calculation from available data of substances contained, fish egg test IC50 algae, OECD 201 (72hr),

²⁴ Accepted test methods: OECD 301 A, OECD E, ISO 7827, OECD 302A, ISO 9887, OECD 302 B, ISO 9888 or OECD 303A; to meet the 70% level a preparation tested with one of the methods OECD 303A or ISO 11733 a percentage degradation of at least 80% must be shown - or if tested with one of the methods OECD 301 B, ISO 9439, OECD 301 C, OECD 302 C, OECD 301 D, ISO 10707, OECD 301 F, ISO 9408, ISO 10708 or ISO 14593 a percentage degradation of at least 60% must be shown. To meet the 95% level, if tested with any of the mentioned methods a percentage degradation of 95% must be shown. Test duration 28 days with each method.

²⁵ A substance or compound is considered as (potentially) bio-accumulative, if BCF (= bio-concentration factor) ≥ 500 or, if absent, $\log K_{ow}$ (= logarithm of the n-octanol-water partition coefficient) ≥ 4 .

²⁶ Testing requirement: >70% OECD 301A (28d) or equivalent testing method according to footnote 25, except test methods related to eliminability (OECD 302). In those cases where only BOD and COD data are available the input is considered 'rapidly degradable' when the ratio of BOD5/COD is ≥ 0.5 .

All other mechanical, thermal and physical methods of processing fibres are permissible, in so far as natural additives and/or GMO-free enzymes are used. Synthetic additives are only permitted as softening agents and in milling and felting textiles, in so far as they comply with the above-mentioned requirements.

6. Prohibited processing methods

- ammonia treatment
- chlorination of wools
- optical brightening
- plastisol printing methods using aromatic solvents, phthalates and chlorinated plastics (e.g. PVC)

7. Environmental management

Processing plants must have a written environmental policy including the following measures:

- minimisation and monitoring of waste and pollution
- procedures to be followed in the case of waste and pollution incidents
- documentation of staff training in the conservation of water and energy, the proper and minimal use of chemicals and their correct disposal

Wet-processing plants must record their use of chemicals, their energy and water consumption and procedures for wastewater treatment and the disposal of effluent sludge.

8. Treatment of effluent and environmental requirements

All wet processing facilities for pre-treatment, dyeing and finishing, with direct or indirect wastewater, must at least have access to a two-phase purification plant. The correct operation of these plants must be monitored and documented by analyses (sediment quantities, wastewater temperature, wastewater pH, TOC, BOD, COD and residues). Effluent analyses must be performed regularly at normal operating capacity and the results recorded.

Waste water from wet processing plants must have an annual average COD content of less than 20 g/kg of processed textile agents if it is to be discharged into surface waters. If the effluent is treated on site and discharged directly into surface waters, the following values must be adhered to: pH value of 6 – 9, temperature lower than 35° C.

9. Quality testing and pollution analysis

Textiles produced according to these standards must comply with the following technical quality parameters:

parameter	test method	criteria
rubbing fastness, dry	DIN 54021 ISO 105x12	3 – 4
rubbing fastness, wet	DIN 54021 ISO 105x12	2
perspiration fastness, alkaline and acid	DIN 54020 ISO 105 E04	3 – 4
light fastness	DIN 54004 ISO 105 B02	3 – 4
shrinkage values when wet knitted/hosiery woven	DIN 53920 ISO 6330	max. 8% max. 3%
saliva fastness	LMBG B 82.10-1	“fast” for babies’ and children’s clothing
washing fastness when washed at 60° C	DIN 54010 ISO 105 C03	3 – 4
Washing fastness of animal fibre material and blends thereof when washed at 30°C	ISO 105 C06 A1S without use of steels balls	3 – 4

Quality testing consists of analysing residue by taking samples from regular production. The number of spot checks per year depends on the volume of production and Naturland's requirements. Samples may be taken from the incoming goods or the finished goods, depending on the stage of processing. The aim is to distribute the checks evenly over the whole flow of goods and to check all possible discharge routes for contamination. The critical values for contaminants in organic textiles and in other components and accessories have to correspond to those set out in appendices 5 and 6. The expenses are to be borne by the processor. Naturland has to be informed if the critical values are exceeded.

10. Documentation and accountability

In addition to the requirements listed in section C VI. 7., a fully-documented quality management system must be introduced to cover the whole supply chain (from the production of the natural fibres through each of the processing stages to the final product and the marketing agent legally responsible for the product). In this way every stage of production and all measures taken are described and recorded. Naturland must be notified before any change in supplier, processing stages, auxiliary substances and processors is made, and the changes must be approved by Naturland.

11. Labelling

The proportion of natural fibres in the final product must be shown.
It is not possible to label Naturland textiles as being products "organic – in conversion".

XIV. Processing standards for cosmetic products

The processing standards for cosmetic products are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing cosmetic products.

1. Area of application

The following fall within the field of application of these standards:

- Cosmetic products as defined by the EU cosmetic regulation 1223/2009 in the currently valid version.
- Cosmetic products claiming both natural origins and a manufacturing process based on organic principles.

2. Definitions

Cosmetic products

(As defined by the EU cosmetic regulation 1223/2009 in the currently valid version)

"A „cosmetic product means any substance or mixture intended to be placed in contact with the external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance, protecting them, keeping them in good condition or correcting body odours."

Ingredients of agricultural origin

All ingredients produced from plants or animals and/or processed products made from these agricultural ingredients, which are produced in accordance with processing procedures in these standards.

Ingredients of organic origin

Any product produced from vegetable or animal ingredients or wild collection/harvest and complying with the requirements of organic production, i. e. any product complying with the requirements of Naturland's standards and – wherever necessary – regulation (EC) No 834/2007 (ref. also "Labelling" below).

3. Ingredients of agricultural and non-agricultural origin

All ingredients from agricultural production are allowed which comply with the requirements of the priority list contained in Naturland's standards (ref. Part C. VI. 4.1). You may use ingredients of animal origin as long as they are produced by animals but are not a part of the animal.

All ingredients meet the requirements of the European Council Directive for cosmetic products.

Besides this, the following regulations apply:

3.1 Water

- water of drinking water quality (hygienic standard: CFU lower than 100/ml)
- water obtained by osmosis, distilled water, sea water

Filtering and softening of water is allowed.

3.2 Minerals

The use of minerals, which are listed in appendix 7, is allowed.

3.3 Preservatives²⁷

- benzoic acid and its salts
- benzyl alcohol
- dehydroacetic acid and its salts
- salicylic acid and its salts

²⁷ The use of preservatives is allowed as long as no effective natural alternatives are accessible, to ensure the consumers' safety or product stability.

- sorbic acid and its salts

The use of preservatives has to be shown with a label stating “preserved with....”.

3.4 The following ingredients are not allowed:

- synthetic dyes
- synthetic perfumes
- synthetic antioxidants
- synthetic emollients
- synthetic oils and fats
- synthetic silicones
- synthetic UVA and UVB filters.

3.5 Nanoparticles

The use of anthropogenic nanoparticles of a defined particle size at the nanoscale (approx. 1 – 300 nm in at least one dimension) is not permitted.

4. Permissible processing methods

4.1 Permissible processing methods for mineral ingredients

- washing
- steam cleaning
- ultra heat treatment
- drying
- other mechanical cleaning methods

4.2 Permissible physical processing methods

- extraction with water or with a third solvent of plant origin like ethyl alcohol, glycerine, vegetable oils and carbon dioxide (CO₂) absorption (on an inert support that conforms to Naturland’s standards)
- bleaching, deodorising (on an inert support that conforms to Naturland’s standards)
- decoction
- freezing
- grinding
- centrifuging
- settling and decanting
- drying (by evaporation/naturally in the sun)
- deterpensation (if fractionated distillation with steam)
- distillation, expression or extraction (steam)
- filtration and purification (ultra filtration, dialysis, crystallisation, ion exchange)
- infusion
- lyophilization
- blending
- percolation
- roasting
- pressure
- sifting
- sterilisation by means of UV
- sterilisation with thermal treatment (at a temperature compatible with the active substances)
- maceration
- ultrasound
- UV treatments
- vacuum

4.3 Permissible chemical processing methods

- Precise modalities like catalysts, solvents comply with Naturland’s standards.
- alkylation
- amidation

- calcination of plant residues
- carbonisation (resins, fatty organic oils)
- condensation and addition
- esterification/trans-esterification
- etherification
- fermentation
- hydratation
- hydrogenation
- hydrolysis
- neutralisation
- oxidisation and reduction
- phosphorylation (permitted only for ingredients for leave-on products)
- saponification
- sulphation/sulphatation

5. Prohibited processing methods

- alkoxylation
- bleaching-deodorisation (on a support of animal origin)
- use of enzymes derived from GMOs
- deterpenation (other than with steam)
- ethoxylation
- irradiation
- sulphonation (as main reaction)
- treatments with ethylene oxide
- treatments using mercury (mercurial soda)
- use of petrochemical solvents (hexane, toluene, benzene, etc.)
- propoxylation
- halogenation.

Prerequisites for chemically processed ingredients of agricultural origin

- compliance with aquatic toxicity of Daphnia: EC₅₀ (48 h) > 100 mg/l
- Chemically processed ingredients must be easily biodegradable according to OECD 302 series (more than 90% in 28 days).
- Furthermore chemical processes must comply with the following principles (Environmental Protection Agency Green Chemistry Programme, USA, 1998): energy economy, high yield, lower waste production, use of alternative catalysts, use of renewable resources, absence of temporary modification (intermediary reactions), non persistent products, no synthetic solvents.

6. Animal testing

Animal testing may not be used in the production, development or testing of the final products and may not be commissioned except where required by law.

7. Documentation and duty of proof

In addition to Part C. VI. 7 of Naturland's standards, the following requirements apply:

In order to ensure traceability throughout the supply chain, a total quality management system – TQM - (starting with the production of the raw materials via the respective processing stages to the final product and distributor) must be introduced, also covering the measures implemented by the operation to comply with the code of good manufacturing practice (GMP). The TQM system describes and records every stage of production and every measure taken. Naturland must be informed of any change in suppliers, processing stages, processing aids and processors, and these changes need to be approved by Naturland, before they are made.

Furthermore you have to establish an environmental management plan which addresses the whole manufacturing process and all the residual products and waste resulting from this. As part of the environmental management plan, you have to establish a waste management plan which addresses your manufacturing waste, including gaseous, liquid and solid waste. The aim of the management plan is to reduce, reuse and recycle waste products on an efficient and rational basis²⁸.

²⁸ The implementation of ISO 14000 or national legislation that already covers this will be accepted.

As a matter of course you must regularly:

- sort and recycle or process your cardboard, glass and paper
- send all your other waste that you cannot recycle to a specialised recycling firm.

8. Cleaning and hygiene

You must use cleaning materials in which the ingredients comply with these standards. In addition, you may use the following disinfection materials:

- alcohol derived from vegetable sources
- iso-propyl alcohol
- amphoteric surfactants
- hydrogen peroxide
- mineral acids and alkalis
- ozon
- formic acid
- peracetic acid
- and any other ingredients listed as accepted in these standards.

9. Labelling

The frame of reference for cosmetic products to be labelled as organic is the ratio of organic ingredients to the total amount of ingredients obtained from plants or animals in the finished product. When calculating the amount of agricultural ingredients employed (W_{AI}), the component water is not included in the calculation.

9.1 Proportions of ingredients in the finished Naturland cosmetic product

Of the ingredients of agricultural origin and/or products processed from these agricultural ingredients, insofar as they have been obtained by physical methods or extraction procedures without the use of synthetic processing aids, 95% must have been certified by Naturland. Where ingredients are not available in Naturland quality, the same rules are applied as for Naturland food products (ref. Part C. VI. 4.1).

Organic quality shall be demonstrated either by certification of the base materials or – in the case of processed ingredients not covered by the organic standards – by the processor producing proof of organic quality. This can take the form, for example, of a declaration by the processor giving details of the measures taken to comply with standards.

9.2 Calculation of ratios

The calculation of the percentages mentioned above is the produce of the weight (W) of the organic ingredients (W_{Orgl}) in relation to the total amount of agricultural ingredients (W_{Agrl}). W_{Agrl} is thereby the sum of organic (W_{Orgl}) and conventional (W_{Convl}) ingredients: $W_{Orgl}/W_{Orgl}+W_{Convl}$.

Emulsifiers are not included in the calculation.

Example of calculation of emulsion:

W_{Orgl} = organic oil 19% + 10% hydrolat 1:4 from organic roses (= 2% roses: without water) + organic alcohol extract 5% + 1% water extract 1:4 (= 0.2% organic ingredients; without water) + organic essential oil 2%.

W_{Convl} = conventional essential oil 1%

Calculation of proportion of organic ingredients in the agricultural ingredients of the final product:

$W_{Orgl}/W_{Orgl}+W_{Convl}$ = 28.2% / 29.2% = 96.58 % organic

Naturland labelling taking water/alcohol extracts (proportion of ingredients in [%]) as an example:

ingredients	proportion of preparation				
	example 1	example 2	example 3	example 4	example 5
organic drug	50.00%		40.00%	25.00%	18.00%
conventional drug		25.00%		10.00%	2.00%

organic alcohol	50.00%	75.00%			20.00%
conventional alcohol				30.00%	
water			60.00%	35.00%	60.00%
proportion of agricultural ingredients (Agrl)	100.00%	100.00%	40.00%	65.00%	40.00%
proportion of organic ingredients (Orgl)	100.00%	75.00%	40.00%	25.00%	38.00%
Naturland labelling possible (Orgl/Agrl)	yes (100%)	no (75%)	yes (100%)	no (38.5%)	yes (95%)

At least 20% of the ingredients of the final product must be organic and certified under these standards.

9.3 Information on ingredients from organic sources

The general Naturland requirements on labelling apply. In particular, substances from organic sources in the list of ingredients must be identified as such and indicated as "ingredients of organic origin".

9.4 Additional information on ingredients and components

If further details are to be given on the ingredients used, so that the consumer is in possession of comprehensive information, the following general statements can be made:

- X% of the total ingredients are derived from plants or animals.
- X% of the ingredients derived from plants or animals are organically produced²⁹.
- X% of the ingredients derived from plants or animals are organically produced in the context of conversion.
- X% of the ingredients are of mineral origin (including water)

²⁹ Where the Naturland logo is applied, the proportion must be at least 95%.

XV. Processing standards for pet food

The processing standards for pet food are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in processing pet food.

1. Area of application

The field of application of this standard is feed (wet or dry food) for pet animals. The term "pet animal" is used in this case for any creatures kept by human beings and not intended for human consumption. The exception to this definition is animals raised for their fur.

The definitions of a "food-producing animal" and "pet" given in art. 3 sec. 2 c) and f) of Regulation (EC) No. 767/2009 are to be observed.

2. Definitions

Feed materials:

vegetable or animal products (e.g. milk powder) in its natural state, either fresh or in a preserved form, as the by-products of processing; additionally, organic or inorganic matter intended as animal feed, either in its original form or processed, for the production of compound feeding stuff, mineral food or as carriers for vitamins and premixed feed.

3. Ingredients from agricultural and non-agricultural production:

Ingredients and feed materials should, for preference, be processed from qualities which are not suitable for human consumption or for which there is little demand as such.

If none of the ingredients listed below is available from agricultural production, approval of all the other ingredients must be applied for from Naturland, stating the quantities and the applicable period. In this case the priorities list (ref. Part C.VI.4.1) is to be observed. Additional quality assurance measures (traceability, chemical analysis etc.) have to be adopted in consultation with Naturland.

Besides this, the following regulations apply:

- All ingredients from agricultural production are permitted which have been certified directly by Naturland and which are suitable for the respective species. In particular, slaughter-house by-products of category K3 from animals for slaughter certified by Naturland may be used, as long as their production and processing is subject to inspection procedures. Raw goods and ingredients from recognised organisations, the certification procedures of which are considered on a par with Naturland's, may be used if Naturland gives permission to do so in writing and, depending on the degree of potential hazard – if additional quality assurance measures (traceability, chemical analysis etc.) are adopted.
- Processed ingredients and feed materials must comply with the respective Naturland processing standards applicable to specific groups of products, the generally applicable legal regulations governing animal feed and the production of meat and meat products, bakery products, products made from cereals, and fruit and vegetables.
- Enzymatically obtained, soluble or insoluble protein hydrolysates from livers, and proteolysates, may be used.

Other ingredients/feed materials

- game from reserves (according to Naturland's standards)
- aquaculture products (according to Naturland's standards)
- products from sustainable fishing (according to Naturland's standards)

3.1 Water and salt

- water in drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170) is permitted as an anti-caking agent

3.2 Feed materials and additives

- Supplementary substances and additives for animal feed as per annexes V and VI of Commission Regulation (EC) 889/2008:
 - mineral and trace elements
 - carriers from vegetable sources
 - binders and anti-caking agents³⁰
 - substances with an antioxidant effect
 - vitamins³¹
 - enzymes³²
 - micro-organisms
 - organic acids for preservation purposes
 - brewer's yeast
- Food additives:
 - agar-agar (E 406) from organic production
 - guar gum (E 412) from organic production
 - locust bean gum (E 410) from organic production
 - native, unmodified soya lecithin (E 322) from organic production
 - native, unmodified sunflower lecithin (E 322)
 - pectin (E 440i), non-amidated
- Taurine (only in cat food)

3.3 Permissible processing additives

- carbon dioxide (CO₂)
- nitrogen (N₂)
- parting agents/parting waxes with the following components:
 - vegetable oils and vegetable fats from organic production
 - separating waxes (beeswax (E 901) from organic production, carnauba wax (E 903) from organic production)
 - cereal flours from organic production
 - butter from organic production
 - soya lecithin from organic production
 - sunflower lecithin

4. Permissible processing methods

All standard methods of production and processing using permissible ingredients and processing additives, except for processes prohibited in the Naturland standards for specific groups of products.

5. Pest control

Special attention should be paid to the regulation under part C. VI. 11. Permissible procedures and substances are listed in annex 3.

6. Labelling

All ingredients from agricultural sources must be listed to show their individual components. The rules governing the labelling of organically produced foodstuffs as per art. 23 of Council Regulation (EC) 834/2007 apply.

³⁰ Where kaolinite clay (559) is used, it has to be tested beforehand for harmful substances.

³¹ Notwithstanding annex VI of Commission Regulation (EC) No. 889/2008, nature identical synthetic vitamins are permissible for all types of pet animals.

³² Upon approval by Naturland.

XVI. Standards for the production and provision of food and beverages in communal catering establishments

The processing standards for the production and provision of food and beverages in communal catering establishments are supplementary to the Naturland standards "Processing - General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in the production and provision of food and beverages in communal catering establishments.

1. Area of application

These standards apply to communal catering establishments and to the food and beverages provided by these establishments.

2. Added value for communal catering establishments

By adopting certification to Naturland standards for the communal catering industry, it becomes possible to apply the Naturland logo to ingredients, components or complete dishes on menus, and use it at events and on information sheets. Certified partners of Naturland can present themselves as such with the aid of advertising media and partnership signs.

In this way, catering establishments can advertise their use of top-grade Naturland products, whether procured from agricultural sources or from a processor. Such endorsements allow the consumer to make a conscious decision to choose organic produce not only for domestic consumption but also when eating out.

3. Definitions

3.1 Communal catering establishments

Collective term for all catering establishments. These include, for example, works canteens, clinics and nursing homes, schools and student unions, hotels and restaurants, food trucks as well as franchise and chain restaurants.

3.2 Meal (also dish or course).

A "dish" is food prepared usually from several components.

Examples of what is meant are carrot soup, chocolate pudding or goulash. A set menu is a series of dishes consisting of at least three courses, i. e. appetiser, main dish and dessert.

3.3 Constituents of meals (individually prepared constituents which go to make up any dish)

A constituent is defined as any part of a dish which is prepared separately from other constituents of the same dish and is a portion distinguishable to the eye of the consumer (guest). Standard constituents are meat and fish or carbohydrate side dishes such as potatoes and rice, but also composed constituents like sauces and dressings.

3.4 Beverages (hot or cold drinks requiring preparation)

Examples of prepared cold drinks are mixed drinks such as cocktails and milk shakes. Example of prepared hot drinks are white coffee, tea and latte macchiato.

3.5 Ingredients

This term is used to describe and define a raw material or an ingredient clearly and verifiably for the consumer or guest and as a technical aspect of inspection procedures.

Ingredients can be, for example, boiled eggs, flour, potatoes or a spice mixture.

4. General requirements

Naturland partners running communal catering or managing restaurants and hotels

- always focus, whenever possible, on the fresh preparation of the meals and on using the gentlest method of preparation

Part D.; XVI. Processing standards for the production and provision of food and beverages in communal catering establishments

- should enter into a fixed partnership with at least one Naturland producer (e. g. long term cooperation, activities/informative events for guests, etc.)
- always offer vegetarian meals besides meals with meat
- aspire to the continuous expansion of the range of organic products and give preference to organic products (ingredients) which are certified by Naturland or the certification of which is approved as equivalent to certification by Naturland.

5. Requirements for the food and beverages provided

At least one component in Naturland quality is purchased and used all year round or in connection with a particular event.

There is no obligation to provide meals or constituents of meals consisting solely of ingredients certified by Naturland.

5.1 Requirements for meals, constituents of meals and beverages which are labelled with a reference to Naturland

5.1.1 Ingredients of agricultural and non-agricultural origin

All ingredients of agricultural origin are permissible which meet the certification requirements of the list of priorities contained in Naturland's standards (ref. Part C. VI. 4.1).

Besides this, the following regulations apply:

5.1.2 Flavourings

In addition to the flavourings listed as permissible in the processing standards applicable to specific groups of products, D.I.-XI., for each product group, the following flavourings are generally permissible for the production of meals, constituents of meals and beverages:

- Organic flavouring extracts (permission to use them must be obtained from Naturland)

5.1.3 Water and salt

- water of drinking water quality
- table salt, iodised table salt (calcium carbonate (E 170)) is permitted as anti-caking agent)

5.1.4 Cultures of micro-organisms

Besides the cultures of micro-organisms listed in the processing standards for specific groups of products, D.I.-XI., permissible for each group of products, no other cultures of micro-organisms are permissible for the production of meals, constituents of meals and beverages.

5.1.5 Enzymes

Besides the enzymes listed in the processing standards for specific groups of products, D.I.-XI., permissible for each group of products, no other enzymes are permissible for the production of meals, constituents of meals and beverages.

5.1.6 Food additives

Besides the food additives listed in the processing standards for specific groups of products, D.I.-XI., permissible for each group of products, the following food additives are generally permissible for the production of meals, constituents of meals and beverages:

- food gelatine without additives (exclusively for cream-like masses) from organic production
- pectin (E 440i), non-amidated
- agar agar (E 406) from organic production

5.1.7 Mineral nutrients, trace elements, vitamins

The use of mineral nutrients, trace elements and vitamins is not permissible.

5.1.8 Permissible processing additives

Besides the processing additives listed in the processing standards for specific groups of products, D.I.-XI., for each group of products, the following processing additives are generally permissible for the production of meals, constituents of meals and beverages:

- carbon dioxide (E 290)
- nitrogen (N₂) (E 941)

6. Permissible processing methods

All standard catering methods used in production, preparation and conservation. Permission to use microwaves must be obtained from Naturland.

7. Labelling

If iodised salt is used, this must be clearly indicated.

Besides indicating meals, components of meals and beverages certified by Naturland, it is possible to label "ingredients of one type" and "agricultural source materials", where purchased solely in Naturland quality, as products certified by Naturland. Declaration of Naturland quality will in this case in principle be of a general nature.

Examples of declarations of the type "ingredients of one type" are:

- "We use solely spices certified by Naturland."
- "Our couscous is solely in Naturland quality."
- "Our boiled eggs have all been bought from Naturland farms."
- "We use only vegetables and lettuces in Naturland quality."
- "We only use milk certified by Naturland."
- "All our beef comes from Naturland farms."

XVII. Processing standards for transport and slaughtering

The processing standards for transport and slaughtering are supplementary to the Naturland standards "Processing – General Section", including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in transport and slaughtering.

1. Area of application

The area of application of these standards covers the transport, the necessary measures to be taken prior to slaughtering, and prerequisites for and the process of slaughtering animals³³, the meat of which is to be marketed employing the Naturland logo or with reference to Naturland or to the Naturland standards. The area of application ends with the carcass being removed from the cold storage rooms.

All processing stages following slaughtering are governed by Part D. I. (Processing standards for meat and meat products).

In Germany, all currently valid legal provisions with respect to transport and slaughtering remain unaffected by these standards. In other countries (i. e. except for Germany) the contents are to be implemented with no change in the substance, where applicable by way of comparable law in the respective country.

2. Principle

Special attention is to be paid to the animals' welfare at every stage from loading to slaughtering. In particular stress, pain and fear in the animals are to be prevented or kept to a minimum wherever possible and the treatment of the animals as well as their loading and unloading must be as gentle as possible at all times. Every animal and every group of animals must be identifiable during the transport and slaughtering processes at all times.

3. Transport regulations

3.1 General transport regulations

Preference is to be given to transporting carcasses rather than live animals.

The distances between the farm and the slaughterhouse are to be kept short and preference is to be given to local slaughterhouses. Transportation time should be no longer than 4 hours and the distance covered no more than 200 km. Transport starts with the loading of the first animal at the first farm and ends with the unloading of the last animal at the slaughterhouse. The total period may not exceed 8 hours. Exceptions to this rule may be granted upon application in individual cases (e. g. if no slaughterhouse corresponding to the Naturland standards can be reached within this distance or time period).

All appointed agents responsible for the transport³⁴ are required to be able to produce a valid certificate of competence.

The customer of the transport is responsible for ensuring

- that the carrier³⁵ is able to produce a **declaration of commitment** to compliance with the Naturland standards on the transport of animals destined for slaughter. The declaration can be downloaded from the Naturland website (www.naturland.de).
- that an **accompanying document** be completed for every journey³⁶ which specifies all the relevant times (start of loading, departure from farm/farms, arrival at slaughterhouse, end of unloading) besides the species and number of animals loaded. If any unforeseen problems in relation to

³³ Except for fish. The slaughtering of fish is covered in the Naturland Standards for Organic Aquaculture.

³⁴ This includes loading and unloading. The declaration of commitment signed by the person responsible is required to cover these two operations too. In the case of farmers who transport the livestock themselves over a maximum distance of 50 km, the expertise acquired in an appropriate professional training suffices.

³⁵ If the farmer him- or herself transports the animals, he or she is obliged to complete the corresponding declaration of commitment and to keep it with the inspection documents/farm documents. If one and the same carrier repeatedly or regularly is appointed, the carrier is only required to complete the declaration of commitment once.

³⁶ A sample of an accompanying document for transport can be downloaded from the Naturland website (www.naturland.de). If the relevant information can be found on other paperwork, e. g. on a delivery note, then this latter form of documentation is permissible.

the transportation occur, particularly incidents having an influence on the transportation time and/or dead or injured animals, these have to be shown in the accompanying document. This document is to be handed to the slaughterhouse, which then records its receipt.

The use of painful prods is forbidden.

Before loading, the animals have to be given sufficient water to drink. Commercial carriers must be able to provide an emergency plan³⁷ describing procedures to be adopted in the case of accidents, or if the round takes longer than expected or if extreme weather conditions occur. It is recommended that the farmer, too, have such an emergency plan to hand. Account should be taken of the different requirements of the various species of animal and of the climatic conditions. In hot weather, for example, long standing periods are to be avoided, the vehicle to be parked in the shade during any statutory breaks, and the animals to be given sufficient water to drink.

3.2 Requirements of the equipment used in vehicles used to transport livestock

3.2.1 General requirements

The vehicle must have equipment suitable for loading and unloading. These include bedding material, sideguards, strong, flat or adjustable ramps (at least 1.2 m wide) or loading flaps with only slight inclination or a hydraulic lifting platform. Where large animals are to be transported, there must be an escape flap in the front part of the vehicle.

The animals must have enough space. If transportation is expected to last longer than 4 hours or outside temperatures to rise above 24 °C, the extended space requirements stipulated in Appendix 1.1 are to be observed. The floor of the vehicle must be strewn with bedding material which prevents the animals slipping.

Animals from different farms are to be kept separate from one another by means of suitable fixtures and everything possible should be done to ensure that animals from different sections do not get mixed up. Partitions must be firm and stable.

The animals must be protected from adverse weather conditions. The ventilation and the air space is to be adapted to suit the transport conditions and the respective species of animal; the air supply must not be impeded.

Platforms must be so constructed that the safety of the animals is guaranteed. There must be no sharp edges, protrusions, corners, protruding hooks or similar features in the cargo areas.

Adult cattle must have at least 20 cm space above their heads when lifted when they are standing, whilst sheep and pigs must have at least 30 cm space above their heads when they are standing in a normal position.

3.2.2 Provisions for individual species

Lactating animals must be milked before loading if it is expected that it will not be slaughtered before the normal next milking time.

In the case of **pigs**, they should if possible not be fed in the last few hours before transportation.

In the case of **poultry**, the following is to be observed:

- Due care should be exercised when carrying and especially when placing animals in crates to avoid inflicting any injuries. Throwing animals is prohibited. Chicken harvesters are permissible if used correctly. If catching teams are employed, the catching and loading of the birds must be monitored and regulated by the works manager or his or her deputy and the process documented.
- If outer temperatures are greater than 24°C, the truck must be aerated during loading by means of mobile ventilators. Under such conditions, a truck loaded with poultry may only be parked outside the slaughterhouse if additional ventilation of the cargo area is guaranteed.
- If the outer temperature is below 10°C, the movement of the air in the cargo area must be reduced by means of tarpaulin or net windbreakers. This must, however, not impede ventilation.
- The temperature in the transport boxes should be measured and recorded automatically. The measurements should be taken in the front and central areas of the carrier in the summer and in the central and rear areas of the carrier in the winter.

4. Provisions governing slaughtering

³⁷ A sample emergency plan can be downloaded from the Naturland website (www.naturland.de).

4.1 General provisions

The slaughterhouse adheres to a quality management system (including the HACCP concept). This includes standard operating instructions or guides to good practice, in which each activity performed throughout the slaughtering procedure is represented; adherence to these instructions is recorded and checked.

Naturland may impose the condition that the slaughterhouse be obliged to accept external professional advice with respect to housing, herding, stunning and slaughtering, if required.

A person qualified in and responsible for animal welfare and a deputy are to be appointed for every slaughterhouse. This animal welfare officer monitors every stage, from unloading to proper bleeding. He or she has the power to give directions and attends further education courses every year to acquire the latest knowledge.

Every person who is responsible for dealing with live animals at the slaughterhouse is in possession of a certificate of competence. They receive in-house training by the animal welfare officer with particular emphasis on affairs pertaining to animal welfare; the training courses are revised to incorporate the latest information. Courses of instruction on the more stringent requirements when handling organic animals in the slaughtering process are also held regularly.

If there is a disruption at the slaughterhouse or it ceases operations temporarily, there is an emergency plan³⁸ which in particular gives details on how the animals are to be housed and taken care of in order to avoid them having to spend additional time waiting on the vehicles; this plan also determines how the animals might possibly be stunned and slaughtered by other means. If such an event occurs, it is to be documented.

Planning before the actual slaughter is to be conceived in such a way that the waiting periods at the slaughterhouse are kept to a minimum, always observing the necessary rest periods.

If pregnancy is determined at slaughter, the foetuses must be stunned and killed in a professional manner. Any cases of pregnancy past 50% of term are to be documented; both the farmer and Naturland are to be informed of them by the slaughterhouse.

Naturland can also arrange for unannounced spot checks to be made in addition to regular inspection, in order to ensure that these standards are adhered to and implemented.

4.2 Deliver and transfer to the slaughterhouse

Upon arrival at the slaughterhouse, the animals are to be unloaded promptly, and wherever possible within an hour.

Delivery and unloading bays should be roofed over and provide shelter from bad weather.

Unloading should be done at ground level. Ramps and gangways must be non-slip and be equipped with side guards; the side-screens should be completely closed off (this is obligatory in the case of pigs) and there should be no changes in the structure of the walls or floors and no floor-level gutters. Animals which are not in transport boxes are to be unloaded in such a manner that they can leave the vehicle in a manner corresponding to their natural movement patterns.

Poultry crates are to be unloaded with corresponding care. They must not be tipped so far that the birds fall down and/or on top of each other.

Lighting conditions should take consideration of the fact that the animals are being driven from the dark into the light.

The animals are to be driven calmly, gently and without the use of force, making best use of their herd instinct.

Prods may be used to guide the animals. The use of electric prods is prohibited.

Injured animals or animals which can no longer walk must be stunned and killed immediately upon arrival. Operational stunning equipment must be available for this purpose in the delivery bay. If animals are delivered of which the condition of health, nutrition or care give rise to the conclusion that they were kept or transported under dubious conditions, this is to be documented and Naturland to be informed by the slaughterhouse.

4.3 Housing and rest periods before slaughtering

Wherever possible, cattle are to be led to slaughter immediately or housed in a suitable manner.

Pigs demonstrating resting behaviour are lead to slaughter after a rest phase of at least an hour after unloading.

If animals are not slaughtered immediately upon arrival, they have to be housed in an appropriate

³⁸ Exceptions are made for operations classed as small-scale slaughterhouses.

manner. A sufficient number of pens large enough to accommodate them are to be available (ref. minimum dimensions in Appendix 1.2).

Animals which differ from each other in species, gender, age or origin, which could lead to them harming each other, must be kept separately. In the case of pigs, screens preventing them from being able to see the neighbouring group (e. g. in the form of closed sideguards) are required; in the case of other species, this should also be an option wherever possible.

Constructional and/or organisational measures should be taken to prevent cattle from mounting each other.

It must be possible to have immediate access to the animals and to take the appropriate measures.

Housing in pens solely with slatted floors or similar constructions is not permissible if the animals are to be kept there for over 6 hours. The lying areas must be non-slip³⁹. It must be ensured that every animal is properly taken care of. To this end, the pens must be provided with an adequate number of operational drinking troughs. If the animals are to be housed for a period of over 6 hours, they are to be fed as appropriate, so suitable fodder must be kept available. Every animal is allocated its own feeding place.

Sufficient protection from adverse weather conditions and appropriate ventilation (including alarm systems to warn of operational malfunctions) are to be guaranteed. The general condition and state of health of the animals is to be checked each evening and morning.

The facility must provide suitable thermoregulation systems of adequate power and which can be employed whenever needed in a manner designed to meet the particular requirements of each animal species, e. g. litter material such as straw, sprinkler systems or fans if it gets too hot and heaters when it is cold.

Care should be taken to keep the noise level and concentration of noxious gases as low as possible. Noise insulation should be installed between the waiting and slaughtering area; the slaughtering area has to be screened off.

4.4 Slaughter process

4.4.1 Stunning

All animals are to be stunned before slaughter in a careful and professional manner. Slaughter without prior stunning is prohibited⁴⁰. Preference is to be given to irreversible stunning methods.

The stunning area should be as quiet as possible. The animals are not to be unduly alarmed by avoidable loud noises, drafts, bright lights or similar factors.

Every animal – with the exception of stunning by gas or waterbath stunning - must be stunned separately. Stunning several animals ahead of actual need is not permissible.

Every animal is to be checked to see if stunning was successful. If stunning was insufficient, it must be repeated immediately. Working back-up stunning equipment ready for immediate use must be on hand.

Stunning devices and systems are tested and assessed (including documentation) every day before work commences and at least once a year according to a technical maintenance plan. If any anomalies occur, they must be tested and assessed immediately. The equipment has to be checked and cleaned several times a day. All technical data applicable to the stunning method and the slaughtering operation are spot-checked and documented every day to a reasonable degree.

The plants must be constructed in such a way that when downstream slaughtering facilities are stopped, the herding, stunning and bleeding units can be emptied so that there are no more animals in them.

When animals are stunned electrically, the current must first pass through the brain (or at least simultaneously with the body); the electrode setting must be adapted to the animal's size. A device indicating the electrical voltage and current applied in stunning is to hand. Electrical stunning devices indicate the end of the minimum period of current flow by giving an acoustic, optical or mechanical signal. The same applies to a faulty stunning operation. The control and error displays must be in the field of vision of the person performing the stunning operation.

Plants using gas to stun animals must have a viewing window so that the animals can be observed from outside. It must also be possible to open the unit in several places so that operators can inter-

³⁹ If the animal is kept over 12 hours in the pen, it must be provided with sufficient bedding.

⁴⁰ The only cases where stunning is not required are when an animal is shot out in the field in such a way as to cause immediate death.

vene in the case of defects. When a defect occurs, it must be possible to fill the unit quickly with atmospheric air.

When the unit is in operation, the concentrations of gas and exposure times in the various gas phases are continuously checked and recorded. If the concentration of gas falls or if there are interruptions in the gas flow, this must be signalled optically and acoustically, and also when the plant is loaded.

Whatever the stunning method, the number of stunning errors and repeated stunning operations has to be recorded every day, and the causes determined and removed.

Every day the animal welfare officer checks and records the stunning operation performed on slaughtered animals, the number being determined individually for each facility. If deficiencies in the stunning operation are determined, the causes are to be defined and appropriate corrective measures introduced.

4.4.1.1 Cattle and small ruminants

Cattle are restrained in such a way as to allow stunning by means of a captive bolt in a skilled manner. To do so, a device must be installed to enable fixation of the head. The captive bolt pistol is to be held vertically and firmly to the frontal bone.

Where horned sheep or goats are stunned, the pistol is held to the back of the head. In polled sheep, the pistol is held to the skull from above.

If woolly sheep are to be electrically stunned, the electrodes need to be fitted with pins. These must be cleaned after stunning 5 animals (ref. minimum currents and minimum current flow in Appendix 1.3).

4.4.1.2 Pigs

When pigs are stunned electrically, the voltage, current flow, current frequency and size of the tongs must be such as to ensure that the stunning is performed in a skilled manner (ref. minimum voltage and current flow in Appendix 1.3).

In automatic electrical stunning plants, only those animals of the size for which the plant is designed may be herded in.

Entry to the gas stunning chamber must be at ground level, with no thresholds or inclines, and the cradles must not be loaded with more animals than prescribed by the manufacturer. If pigs are not sufficiently stunned by the gas, meaning that stunning needs to be repeated, then this is to be done by capture bolt.

4.4.1.3 Poultry

Gas stunning is the method to be preferred for hens, broilers and turkeys rather than waterbath stunning wherever possible. If several birds are stunned simultaneously using the gas or waterbath stunning methods, the stunning protocol must be checked for compliance with the number of animals allowed to be stunned daily, a specific figure being determined for each individual slaughterhouse. The source of error of any deviancies must be determined and remedied.

Where waterbath stunning is employed, the shackles must be clean, moistened with water before submersion and adapted to the size of the birds.

The birds are to be shackled using both hands, one by one, calmly and carefully, to avoid inflicting any injuries. The shackled birds should all be of the same size so that all the birds' heads are totally submerged in the waterbath up to the shoulder girdle. Submersion in the waterbath is to be performed speedily after shackling (ref. Appendix 1.4). Injured birds may not be shackled but must instead be stunned and killed separately. At suitable intervals the stunning currents, voltage and frequency and possible deviancies must be recorded. The source of error of any deviancies must be determined and remedied. If the conveyor belt has to stop running for more than three minutes, the birds hanging in the shackles must be removed from them speedily.

In the case of head-only electrical stunning with tongs or wall-mounted devices, every bird must be restrained professionally; the electrodes must be clean and are applied on both sides of the head. The devices must be equipped to give an optical or acoustic signal indicating the end of the current flow and with a display showing voltage and current as well as a warning device which emits a signal if the current intensity is faulty (ref. minimum currents and current flow in Appendix 1.4).

If stunning is to be done by capture bolt or a blow to the head, every bird must be expertly restrained. When giving a blow to the head, this must be done with a percussive blow to the head with an appropriate device in such a way that the bird is rendered unconscious by the first blow; in the case of a captive bolt, the device is to be held to the head in such a way that it is certain to hit the brain.

4.4.2 Bleeding

The sticking and bleeding of all animals is to be performed as quickly as possible after stunning, no matter how they were stunned (ref. 'Stun to Stick' intervals in Appendix 1.5). Everything has to be done to ensure that the animal does not regain consciousness prior to or during bleeding. Pigs and cattle must be bled by inserting the sticking knife in the breast.⁴¹ Small ruminants and poultry are to be bled by opening both carotid arteries. Any animals where doubts exist as to the success of stunning and/or faulty bleeding is determined are to be singled out and immediately stunned or stuck again⁴². Operational and functioning standby devices for stunning and bleeding must be readily available. Workers must be capable of recognising when animals have not been bled sufficiently, to reach them and to have enough time to perform another cut or to kill them expertly. If in the case of poultry the conveyor belt stops running, stunned birds are immediately to be bled by hand. Those birds which were stunned earliest are the first to be bled.

It must be possible to check the effectiveness of the bleeding procedure of every animal, if the volume of blood bled out is insufficient⁴³ sticking must be repeated. If automatic devices are used to measure the volume of blood bled out, they are to be checked at least once a day to see that they are operating properly. Spot checks are to be performed as to the volume of blood bled out. If there are any deviations, the errors are to be determined and remedied. The animal welfare officer checks and records the bleeding every day of a specific number of animals determined for each facility. If deficiencies in the bleeding operation are found, the causes are to be determined and suitable corrective measures introduced.

It is necessary to ensure that every animal is dead before further cutting and processing commences. Further slaughter work⁴⁴ may only be continued if tests have been performed to ensure that the animal shows no signs of movement, corneal reflexes or breathing and all its muscles are relaxed.

⁴¹ If this is not possible in exceptional cases with cattle, both carotid arteries must be opened.

⁴² In the case of poultry, this can be done by cutting off the head instead of sticking them again.

⁴³ The volumes of blood bled off and the bleeding times shown in Appendix 1.6 are to be observed.

⁴⁴ This includes also cutting off the head.

Appendices processing

Appendix 1: Transport and slaughtering

1.1 Loading density (in the case of journeys lasting more than 4 hours or at outside temperatures of over 24°C)

The specifications as to available space are based on an expert opinion drafted by the EFSA (European Food Safety Authority) in 2011 resp. the SCAHAW (Scientific Committee on Animal Health and Animal Welfare) issued by the EU in 2002

Cattle

The area is calculated according to the following equation: $A = 0.0315 W^{0.67}$

(A = area, W = live weight)

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
50	0.43
110	0.73
200	1.09
325	1.52
550	1.6
600	1.6
750	1.6
> 750	1.6

Pigs

The area is calculated according to the following equation: $A = 0.0274 W^{0.67}$

(A = area, W = live weight)

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
6	0.09
10	0.13
15	0.17
20	0.20
25	0.24
30	0.27
35	0.30
40	0.32
45	0.35
50	0.38
60	0.43
70	0.47
80	0.52
90	0.56
100	0.60
110	0.64
120	0.68
>120	>0.7

Sheep/goats

The area is calculated according to the following equation: $A = 0.033 W^{0.67}$

(A = area, W = live weight) for unshorn sheep

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
10	0.15
20	0.25

30	0.32
40	0.39
55 kg	0.48
>55 kg	> 0.48

The area is calculated according to the following equation: $A = 0.026 W^{0.67}$
 (A = area, W = live weight) for shorn sheep

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
10	0.12
20	0.19
30	0.25
40	0.31
55 kg	0.38
>55 kg	> 0.38

Poultry

An extra area of 20% is added to the statutorily permissible minimum area:

weight up to (kg)	minimum floor area (in cm ² /kg according to the Naturland standards
1.0	240
1.3	228
1.6	216
2.0	204
3.0	192
4.0	156
5.0	138
10.0	126
15.0	126
30.0	126

Besides the figures supplied for loading density, the following maximum group sizes are to be observed:

cattle up to 100 kg	15 animals
sheep	30 animals

Breeding boars must be transported separately and old sows which were not members of a group should not, wherever possible, be transported with strange sows in one and the same compartment.

1.2 Minimum dimensions lairage

cattle (550 kg live weight)	3 m ² /animal
cattle (700 kg live weight)	4 m ² /animal
cattle (1000 kg live weight)	6 m ² /animal
fattening pig (110 - 120 kg live weight)	0.6 – 0.8 m ² /animal
sows and breeding boars	1.5 m ² /animal

1.3 Electrical stunning of ruminants and pigs

The figures are based on alternating currents of 50 to 100 Hertz (Hz). The minimum current must be maintained at least 4 seconds (except in individual cases explicitly dealt with below).

sheep and goats	In the case of head-only or head-to-body stunning, the current value must be at least 1.0 A.
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cattle	In the case of head-only or head-to-body stunning, the current value must be at least 2.5 A (from an age of 6 months) or at least 1.5 A (below 6 months). Ventricular fibrillation must last at least 10 seconds at least 1.5 A.
pigs (up to 130 kg live weight)	In the case of head-only stunning, the current must be at least 1.3 A.
pigs (over 130 kg live weight)	In the case of head-only stunning, the current must be at least 1.8 – 2.0 A at 50 Hz and 250 V and last at least 4 seconds. After this ventricular fibrillation must be applied.

1.4 Stunning of poultry

waterbath stunning	The time elapsing between shackling and immersion in the waterbath must not take longer than 12 seconds. Where breast comforters or blue lighting are used, the time for hens can be 20 seconds and for turkeys 25 seconds. If a conveyor belt stops running, the birds still shackled must be removed from them after no more than 3 minutes.
	Within the first second, current values of at least 120 mA at up to 199 Hertz (hens) resp. 200 – 400 Hertz 400 mA (turkeys) resp. 60 mA (quails) must be reached and last for at least 4 seconds (hens, turkeys, quails) resp. 8 seconds at 130 mA (ducks, geese).
electrical head-only stunning with tongs or wall devices	At least 240 mA must be reached for 7 seconds for hens, 300 mA for geese, 400 mA for turkeys and 600 mA for ducks.

1.5 Maximum time elapsing between the end of stunning and sticking ('stun to stick' interval)

Species	Stunning method	'stun to stick' interval
pigs	electrical head-only stunning	max. 10 seconds
	electrical head-only and head-to-body stunning	max. 20 seconds when hung up to bleed out max. 10 seconds when bleeding out lying down
	gaseous stunning	max. 20 seconds after ejection resp. max. 30 seconds after immersion in the CO ₂ atmosphere (unless the plant has a licence to use higher CO ₂ concentrations and longer immersion periods)
	capture bolt	max. 20 seconds
cattle	capture bolt	max. 60 seconds, preferably 20 – 60 seconds
	ventricular fibrillation	max. 10 seconds (when bleeding out lying down) 20 Sekunden (when hung up to bleed out)
	head-only electrical stunning	max. 8 seconds
sheep and goats	head-only electrical stunning	max. 8 seconds
	capture bolt (held to back of head)	max. 15 seconds
sheep (polled)	capture bold (held to top of skull)	max. 20 seconds
poultry	electrical waterbath	max. 5 – 7 seconds after leaving the waterbath
	electrical tongs, wall-mounted devices, capture bolt or blow to head	max. 10 seconds

1.6 Volume of blood bled out and bleeding-out time

To be sure that sufficient blood is bled out, the following minimum blood volumes must be measured in the first 30 seconds:

pig (120 kg, when hung up to bleed out)	4 – 4.5 litres (or 2 litres in the first 10 seconds)
cattle (500 kg)	10 litres
cattle (700 kg)	15 litres
sheep (40 kg)	1.5 litres

The following bleeding out times are to be adhered to:

cattle, pigs, sheep and goats	3 minutes minimum, preferably 5 minutes
all species of poultry	3 minutes minimum

Appendix 2: Permissible feeding stuffs

Permissible ingredients of agricultural origin

If feeding stuffs are purchased, they have to be certified by Naturland, resp. they have to be in accordance with a certification approved by Naturland as equal. If unavailability occurs feeding stuffs can be obtained according to following priority:

Origin

- a) The highest priority is accorded to the use of primary substances certified by Naturland.
- b) Primary substances from certifiers whose certification is recognised by Naturland as being of an equivalent standard may be used after receiving written approval from the Naturland certification committee.
- c) If the primary substances cited under a. and b. are not available, raw goods recertified⁴⁵ by Naturland and primary substances from other certifiers may only be used after receiving written approval from the Naturland certification committee (for a limited period).
- d) If the primary substances cited under a., b. and c. are not available, organically produced primary substances may be employed for a limited period where sufficient justification exists and then only after receiving written approval from the Naturland admissions committee, provided these primary substances at least comply with the statutory requirements for organic products under currently valid national legislation (e. g. EU directive, NOP) of the country in which the goods are to be put on the market. However, the manufacturer is obliged to replace these primary substances with primary substances certified by Naturland as quickly as possible and to carry out supplementary quality assurance measures according to specifications of Naturland.
- e) Conventional ingredients⁴⁶

If the origin is not certified by Naturland supplementary quality assurance measures (traceability, analysis etc.) may be required depending on endangering potential.

Permissible ingredients of conventional origin

The share of ingredients of conventional origin in **feeding stuffs** refers to the dry matter of the organic substance.

Cattle, sheep, goats, horses, game (kept in reserves), rabbits:

For the above-mentioned species, no ingredients from conventional agricultural production may be used in the production of compound fodder certified by Naturland⁴⁷.

Pigs and poultry:

The following fodder from conventional sources used to improve the protein concentration in pigs and poultry is permissible within a transition period ending 31st December 2017, limited to 5%⁴⁸.

- sunflower, linseed and rape cake and expeller⁴⁹
- draff and pomace (as far as permissible under direct (EC) 889/2008)
- potato protein
- dairy produce
- maize and wheat gluten feed and shoots
- seaweed meal
- vegetable protein extracts (only for young stock)
- spices and herbs and molasses, max. 1% of the feed ration (dry matter/DM)
- for feeding young stock only: fishmeal/oil from trimmings of wild fish processed for human consumption of sustainable fishery

⁴⁵ Recertification means the admission of raw goods or of any ingredient for a limited time or in a limited quantity on the basis of documents provided by third parties (inspection reports) which were not produced originally by order of Naturland.

⁴⁶ Specifications of EU regulations concerning the purchase of products with conventional origin have to be observed

⁴⁷ with the exception of generally permitted complementary substances and additives for all species (see below)

⁴⁸ These percentages refer to the organic proportion of dry matter in the agriculturally produced fodder and are calculated on an annual basis.

⁴⁹ Chemical extraction (e. g. using hexane) is prohibited.

Limited to poultry:

- eggs and egg products

Aquaculture species:

- seaweed and seaweed extracts
- natural pigments (e.g. in the form of Phaffia yeast or microorganisms)⁵⁰
- natural antioxidants such as tocopherol (only after approval by Naturland)
- fishmeal/-oil (for the culture of carnivorous species with higher protein requirements). The following basic principles apply:
 - fishmeal/-oil is assessed as ingredient of non-agricultural origin in the calculation
 - Requirements (origin, amount per ration) regarding the fishmeal/-oil used as feed are stipulated in Naturland's standards on organic aquaculture.
- histidine obtained by natural fermentation (only for salmonids as per the Naturland standards for organic aquaculture)

⁵⁰ Its use must be limited to the degree of pigmentation found in the natural state. Shrimp shells from conventional aquaculture are not permissible.

Appendix 3: Pest control measures

Mechanical-physical, biological resp. biotechnological measures

- the encouragement and application of the natural enemies of pathogenic agents and crop pests (e.g. predatory mites, hatching wasps (ichneumon wasp))
- insect traps (e.g. sexual pheromones, coloured attractants)
- mechanical repellents (e.g. traps, impacting, sieving)
- repellents (deterrents and expellants of animal or plant origin)
- thermal measures (e.g. heat treatments of rooms)

Agents against animal pests

- micro-organisms (virus, fungus and bacteria preparations, e.g. *Bacillus thuringiensis*)
- preparations of *Azadirachta indica* (neem)
- pyrethrum extract from *Chrysanthemum cinerariaefolium* (synthetic pyrethroids and synergists are prohibited)
- gassing with inert gases (CO₂ or N₂), also under pressure
- quassia from *Quassia amara*
- oil emulsions (without synthetic chemical insecticides) on the basis of plant oils
- rodenticides (e.g. coumarin derivatives) in a form which cannot be displaced (food bait in appropriate bait boxes)
- food bait gel (in appropriate bait boxes) to eliminate ants and cockroaches
- diatomaceous earth

Others

- ethylene

Appendix 4: Textiles - Abbreviations used

AOX	the sum parameter for adsorbing, organically bound halogens and substances which could cause them to be formed
AP	alkylphenol
APEO	alkylphenolethoxylate
BOD	biochemical oxygen demand
COD	chemical oxygen demand; it designates the amount of oxygen which it takes to oxidise organic substances in water.
DBT	dibutyltin
DOC	dissolved organic carbon
DOT	dioctyltin
DTPA	diethylenetriamine pentaacetic acid
EC 50	effective concentration required for 50% of the organisms tested
EDTA	ethyldiamine tetraacetic acid
LAS	linear alkyl sulfonate
LC 50	lethal concentration 50 (concentration in water having 50% chance of causing death to aquatic life)
LD 50	lethal dose 50 (median concentration of a toxicant that will kill 50% of the test animals within a designated period)
IC 50	median inhibition concentration (concentration that reduces the effect by 50%)
α -MES	α -methane sulphonic acid (C16/18)
MBT	monobutyltin
NTA	nitrilotriacetic acid
OECD	Organisation for Economic Co-operation and Development
PAH	polycyclic aromatic hydrocarbons
PVC	polyvinyl chloride
SCCPs	short-chain chlorinated Paraffins
TBT	tributyltin
TOC	total organic carbon
TPhT	triphenyltin

Appendix 5: Textiles - Critical values for residues in organic textiles

Textiles produced under these standards must correspond to the following chemical quality parameters:

parameter	test method	criteria
chlorophenols (PCP, TeCP)	LFGB 82-02-08 (GC/MS)	< 0.01 mg/kg
o-phenylphenols	extraction, GC/MS	< 1.0 mg/kg
Alkylphenol (ethoxylate) NP, OP, NPEO, OPEO sum parameter	For NP, OP: Extraction, derivatisation, GC/MS or HPLC/MS For NPEO, OPEO: Extraction in methanol, derivatisation, HPLC/MS (test range for NPEO and OPEO: 3-15 moles)	< 20 mg/kg
arylamines with carcinogenic properties (amine-releasing azo dyes (MAK group III 1,2,3) aniline (MAK III, category 4)	EN 14362 - 1 and -3 (HPLC/GCMS)	< 20 mg/kg < 100 mg/kg
AOX	Extraction with boiling water, adsorption on charcoal, AOX-analyser, ISO 9562 i. A.	< 5 mg/kg
disperse dyes (classified as allergenic or carcinogenic)	DIN 54231(LC/MS)	< 30 mg/kg
formaldehyde	Japanese Law 112 or ISO 14184 – 1 i. A.	< 16 mg/kg
glyoxal and other short-chain aldehydes (mono- and dialdehydes up to C ₆)	Extraction (ISO 14184 – 1 i.A.), ISO 17226 – 1 i.A.	< 20 mg/kg
pH	ISO 3071	4.5 – 9.0 (no skin contact) 4.5 – 7.5 (skin contact and baby clothes)
total pesticides, sum parameter	art. 64 LFGB L 00.00-34 (GC/MS);	
all natural fibres (except shorn wool), cert. organic	§ 64 LFGB L 00.00-114 (LC/MS/MS)	< 0.1 mg/kg
short wool, cert. organic		< 0.5 mg/kg
heavy metals	elution DIN EN ISO 105-E04 ISO 17294-2 (ICP/MS)	in eluate: figures in mg/kg with reference to the textile
antimony (Sb)		< 0.2 mg/kg
arsenic (As)		< 0.2 mg/kg
lead (Pb)		< 0.2 mg/kg
cadmium (Cd)		< 0.1 mg/kg
chromium (Cr)		< 1.0 mg/kg
cobalt (Co)		< 1.0 mg/kg
copper (Cu)		< 25 mg/kg
nickel (Ni)		< 1.0 mg/kg
mercury (Hg)		< 0.02 mg/kg
selenium (Se)		< 0.2 mg/kg
tin (Sn)		< 2.0 mg/kg
chromium VI (Cr-VI)	Elution DIN EN ISO 105-E04, ISO 11083	< 0.5 mg/kg

heavy metals	EPA 3050 B (ICP/MS)	In digested sample:
cadmium (Cd)		< 45 mg/kg
lead (Pb)		< 50 mg/kg
Organotin compounds (individually)	Extraction in solvent, ISO 17353 (GC/MS) or ISO/TS 16179	TBT, TphT, DBT, DOT: < 0.05 mg/kg MTB: < 0.1 mg/kg
per- and polyfluorinated compounds (PFC), individually: PFOA, PFOS	Extraction in solvent, LC/MS	absent < 0.001 mg/kg
FTOH	Extraction in solvent, GC/MS	< 0.01 mg/kg
phthalates (DINP, DMEP, DNOP, DEHP, DIDP, BBP, DBP, DIBP), sum parameter	DIN EN 15777: 2009-12 (GC/MS)	< 100 mg/kg
Polycyclic Aromatic Hydrocarbons (PAH): Chrysene, Benzo[a]anthracen, Benzo[b]fluoranthene, Benzo[j]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Benzo[e]pyrene, Dibenzo[a,h]anthracene, Naphthalin, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Indeno[1,23-cd]pyrene, Benzo[g,h,i]perylene, sum parameter individually	ISO 18287 or ZEK 01.2-08 (GC/MS)	< 10mg/kg < 1 mg/kg

Appendix 6: Textiles - Critical values for residues in additional materials and accessories

Textiles produced under these standards must correspond to the following chemical quality parameters:

parameter	test method	criteria
arylamines with carcinogenic properties (amine-releasing azo dyes; MAK group III 1,2,3)	EN 14362 - 1 and -3 (HPLC/GCMS)	< 20 mg/kg
disperse dyes (classified as allergenic or carcinogenic)	DIN 54231 (LC/MS)	< 30 mg/kg
formaldehyde	Japanese Law 112; or ISO 14184 – 1 i. A.	< 300 mg/kg (no skin contact) < 75 mg/kg (skin contact) < 16 mg/kg (baby clothes)
Glyoxal and other short-chain aldehydes (mono- and dialdehydes up to C ₆)	extraction, (ISO 14184 – 1 i.A.)	< 300 mg/kg (no skin contact) < 75 mg/kg (skin contact) < 20 mg/kg (baby clothes)
pH	ISO 3071	4.5 – 9.0 (no skin contact) 4.5 – 7.5 (skin contact and baby clothes)
chlorophenols (PCP, TeCP)	LFGB 82-02-08 (GC/MS)	< 0.05 mg/kg
total pesticides, sum parameter	§ 64 LFGB L 00.00-34 (GC/MS);	
all natural fibres (except shorn wool)	§ 64 LFGB L 00.00-114 (LC/MS/MS)	< 0.5 mg/kg
shorn wool		< 1.0 mg/kg
heavy metals	elution DIN EN ISO 105-E04, ISO 17294-2 (ICP/MS)	in eluate: figures in mg/kg referring to additional material or accessory
arsenic (As)		< 0.2 mg/kg
lead (Pb)		< 0.2 mg/kg
cadmium (Cd)		< 0.1 mg/kg
chromium (Cr)		< 1.0 mg/kg
cobalt (Co)		< 1.0 mg/kg
copper (Cu)		< 50 mg/kg ⁵¹
nickel (Ni)		< 1.0 mg/kg
mercury (Hg)		< 0.02 mg/kg
chromium VI (Cr-VI)	elution DIN EN ISO 105-E04, ISO 11083	< 0.5 mg/kg
heavy metals	EPA 3050 B (ICP/MS)	In digested sample:
cadmium (Cd)		< 45 mg/kg
lead (Pb)		< 50 mg/kg
nickel release	EN 12472, EN 1811	< 0.5µg/cm ² /week
organotin compounds (individually)	Extraction in solvent, ISO 17353 (GC/MS) or ISO/TS 16179	TBT, TphT, DBT, DOT: < 0.05 mg/kg MBT: < 0.1 mg/kg
phthalates (DINP, DMEP, DNOP, DEHP, DIDP, BBP, DBP, DIBP), sum parameter	DIN EN 15777: 2009-12 (GC/MS)	< 100 mg/kg
Polycyclic Aromatic Hydro-	ISO 18287 or ZEK 01.2-08	

⁵¹ Criterion not applicable to non-biotic material (such as metals)

<p>carbons (PAH): Chrysene, Benzo[a]anthracen, Ben-zo[b]fluoranthene, Ben- zo(j)fluoranthene, Ben- zo[k]fluoranthene, Ben- zo[a]pyrene, Ben-zo(e)pyrene, Dibenz[a,h]anthracene, Naphthalin, Acenaphthylene, Acenaphthene, Fluorene, Phe- nanthrene, Anthracene, Fluor- an-thene, Pyrene, In- deno[1,2,3-cd]pyrene, Ben- zo[g,h,i]perylene, sum parameter individually</p>	<p>(GC/MS)</p>	<p>< 10mg/kg < 1 mg/kg</p>
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<p>Further parameters rele- vant for specific materials used in accessories</p>	<p>test method</p>	<p>criteria</p>
<p>Polyester fibres: antimony (Sb)</p>	<p>Elution DIN EN ISO 105- E04, ISO 17294-2 (ICP/MS)</p>	<p>< 20 mg/kg</p>

Appendix 7: Permissible ingredients for cosmetics of mineral origin

The usage of ingredients of mineral origin is allowed for the specific uses listed or for general purposes if no specific uses are listed.

Substance (Chemical name and/or INCI Name)	Examples of occurrence in nature
aluminium hydroxide	bauxite (gibbsite, hydrargillite)
aluminium oxide	corundum, clay
aluminium sulphate	alunogen, naturally occurring in volcanoes
manganese violet CI 77742	derived from the breakdown of bat guano
ammonium sulphate	
bismuth oxychloride CI 77163	bismoclite
calcium aluminium borosilicate	tourmalines
calcium carbonate CI 77220	sediment rocks, calcite, aragonite, vaterite; main component in marble, chalk, dolomite
calcium sulphate	gypsum
chromium oxides CI 77289 CI 77288	guyanait, grimaldiit, bracewellit, eskolaite
copper oxide	
copper sulphate	weathering product, sulphidic copper ore, chalcantite
calcium hydrogenorthophosphate/ dicalcium phosphate dehydrate	limitation of use: only in oral cavity hygiene product
hydrated Silica	quartz sand
iron hydroxide	
iron oxides CI 77480 CI 77491 CI 77492 CI 77499	bernalit, feroxygit ferrihydrite, goethite lepidocrocit
iron sulphate	
ultramarines CI 77007	gemstone (lapis lazuli)
magnesium aluminium silicate/silicic acid, aluminium magnesium salt	
magnesium carbonate CI 77713	magnesite, dolomite
magnesium chloride	
magnesium hydroxide	
magnesium oxide CI 77711	
magnesium silicate (silicic acid, magnesium salt)	talc, sepiolite, minerals of the serpentine group
magnesium sulphate	kieserite
trimanganese bis orthophosphate CI 77745	
manganese sulphate	
mica CI 77019	annite, phlogopite, muscovite
potassium carbonate	in ash, in inland waters (Dead Sea, Lop Nor desert)
potassium chloride	sylvite, carnallite, kainite
potassium hydroxide	
potassium sulphate	
Prussian Blue CI 77510	kafehydrocyanite

silica	quartz sand
silver chloride	silver ores, often together with lead-copper and zinc ores as sulphides, sulphates or oxides
silver oxide	silver ores, often together with lead-copper and zinc ores as sulphides, sulphates or oxides
silver sulphate	silver ores, often together with lead-copper and zinc ores as sulphides, sulphates or oxides
sodium bicarbonate	natron, mineral nahcolith
sodium borate	borax
sodium carbonate	soda (various crystal forms), in soda lakes
sodium chloride	
sodium hydroxide	
sodium magnesium silicate	
sodium metasilicate/disodium metasilicate	
sodium silicate	
sodium sulphate	glauber salt; in mineral waters; mineral thenardite
titanium dioxide CI 77891	anatas, brookite, rutile
tin oxide CI 77861	cassiterite in alluvial deposits
zinc carbonate CI 77950	smithsonite
zinc oxide CI 77947	wulfingit, sweetit, ashoverit
zinc sulphate	goslarite

Appendix 8: Critical values for the total sulphur content in the end product of wine

wine category (under EU Reg. 606/2009)	SO ₂ critical value (conventional)	SO ₂ critical value for bio or organic wine
white wine, rosé wine [annex I B sec. A no. 1 letter b (residual sugar* < 5 g/l)]	200 mg/l	150 mg/l residual sugar < 2 g/l 170 mg/l residual sugar > 2 g/l and < 5 g/l
white wine, rosé wine [annex I B sec. A no. 2 letter b (residual sugar* ≥ 5 g/l)]	250 mg/l	220 mg/l
wines acc. to annex I B sec. A no. 2 letter c (list of the countries, e. g. late vintage (Spätlese) ≥ 5 g/l residual sugar*) paragraph 2 c paragraph 2 d paragraph 2 e paragraph 4 – weather conditions**	300 mg/l 350 mg/l 400 mg/l + 50 mg/l	270 mg/l 320 mg/l 370 mg/l (same as in CMO + 50 mg/l)
liqueur wine [annex I B sec. (residual sugar* < 5 g/l)]	150 mg/l	120 mg/l
liqueur wine [annex I B sec. B (residual sugar* ≥ 5 g/l)]	200 mg/l	170 mg/l
champagne, sekt, sparkling wine [annex I B sec. C paragraph 1a paragraph 1b paragraph 2 – weather conditions**]	185 mg/l 235 mg/l + 40 mg/l	155 mg/l 205 mg/l + 40 mg/l
red wine [annex I B sec. A no. 1 letter a (residual sugar* < 5 g/l)]	150 mg/l	100 mg/l residual sugar < 2 g/l 120 mg/l residual sugar > 2 g/l und < 5 g/l
red wine [annex I B sec. A no. 2 letter a (residual sugar* ≥ 5 g/l)]	200 mg/l	170 mg/l
* residual sugar = sum of glucose and fructose ** as specified under art. 113 (2) of EU Reg. No. 479/2008		