

BT-09

Ver 0.1

Storage and Transshipment





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BT-09: Storage and Transshipment

1. Preamble

This document aims at specifying the measures to be taken in determining the sequence of the products in storage and/or transshipment installations. The cleaning methods to be applied are described, as well as the way in which an installation, wherein a prohibited product was transshipped or stored, can be declared reusable for storage or transshipment of animal feed or of 'by-products for reprocessing'.

2. Scope

The requirements of this document are specific to the **GMP-Feed Chain Alliance** Rules and apply to any **GMP-certified** companies certified for FCA that carry out the storage and the transshipment of animal feed or 'by-products for reprocessing', in bulk, either for their own account or for the account of third parties.

This document also applies to reusable solid packaging (barrels, reservoirs, containers, etc.).

It is not allowed to recycle flexible packaging (such as big bags) in livestock farming for reuse.

Except for a potential specific provision, the requirements in this document do not apply to the storage and the transshipment of animal by-products not intended for human consumption or to animal feed or 'by-products for reprocessing' containing those by-products.

Example

The company stores cereals for the account of third parties. It has a drier at its disposal for cereals that present such a humidity level that their preservation could be jeopardized. Parallel to this activity, the company sells mineral feeding stuffs in bags and lick blocks.

As a result, this document must be applied in its entirety for cereals in bulk, however not for mineral feeding stuffs in bags and lick blocks.

3. Principle for sequence and cleaning regimes

3.1. Principle

When two consecutive bulk products are stored or transshipped in the same installation, it may be necessary to apply in between both operations an adequate cleaning regime, to prevent contamination of the second product by the first product.

This principle is always applicable as soon as the second product is an animal feed or a 'by-product for reprocessing'.

The sequence of the stored/handled products and the cleaning performed must be registered.

Any storage area must be identified individually. Any complete empty status message of a storage area must be registered. It is recommended to perform yearly a complete emptying of the storage area.



Contamination

A contamination of animal feed may also arise from neighboring stored materials (e.g. contamination by the air or by wheels of vehicles).

The company must evaluate this type of contamination in its HACCP-plan and take the measures necessary to prevent it.

3.2. Potential Situations

The following three cases are likely to occur:

1. The product sequence does not include a contamination risk for the animal feed or the 'by-products for reprocessing', nor for the follow-up of traceability (same product of one and the same lot); no cleaning is required.
2. The product sequence constitutes a risk for the follow-up of traceability (the next product does not form part of the same lot) or a contamination risk, but these risks can be controlled by applying an adequate cleaning regime. This may be a dry cleaning or a cleaning with water. Depending on the product previously stored, the use of a detergent or a disinfectant may be required.
3. The product sequence constitutes such a risk that it can only be controlled by applying an exceptional measure. It is preferable not to store or transship these products in **GMP-certified** installations **certified for FCA** and to consider them as products prohibited for storage or transshipment in these installations.

Remarks:

- The cleaning regime to be applied does not depend on the volume concerned. It may concern a tank of several dozens of m³ as well as a cubitainer of 1000 liters. The cleaning regime is determined in function of the product previously stored or transshipped in that tank.
- In case the company does not have any knowledge of the nature of the last product previously stored or transshipped in the installation (e.g. acquisition of an exploitation site), it will be considered as a prohibited product. In this case, prior to any use, the reallocation procedure must be applied (see point 5).
- It is important to consider all possible steps of transshipment. It is possible that many different materials might pass through the same weighing system or in the same fork-lift bin.



Derogation from the cleaning principle

The **GMP-FCA** company is allowed to derogate from specific prescriptions from the cleaning regime for either organizational reasons or because of the incompatibility with the material (material not supporting wet cleaning, corrosion risk, presence of electrical installations, etc.). Any derogation from this document is to be justified and recorded. The substitution measure applied must offer similar guarantees. On the occasion of the audit, this substitution measure will be evaluated by the certification body. However, the derogation is not to be applied for prohibited products.

E.g. for installations that serve exclusively for transshipment (redlers, band conveyors, lifting machinery, etc.), the "empty" function operating term, determined and applied after each transit, may be considered, when correctly justified and registered, as a substitution measure.



3.3. Cleaning Regimes

3.3.1. Absence of cleaning

When the subsequent animal feed or 'by-product for reprocessing' (to be stored) is composed of the same product, arising from the same lot and destined for the same instructing party, it is possible to derogate from the cleaning prescriptions, unless otherwise agreed (e.g. with the customer).

3.3.2. Cleaning regime a (dry cleaning)

If the previously stored or transshipped product is a dry and "neutral" product, a dry cleaning is sufficient.

For a dry cleaning the installation is cleaned, after unloading, by vacuuming, blowing or sweeping. Preference is given to vacuuming, since it does not spread the dirt. The cleaning of areas difficult to access will, if necessary, be followed by manual cleaning, with a brush or similar. Should the result, after this type of cleaning, still be unsatisfactory, then proceed to a wet cleaning process (see next point).

3.3.3. Cleaning regime B (cleaning with water) or C (cleaning with water + detergent)

If the previously stored or transshipped product is a liquid, moist or viscous product or contains a possible physical and/or chemical risk, then cleaning with water (with or without detergent) is necessary.

The general cleaning procedure is as follows:

- eliminate residues of the previous product as much as possible without using any water (not applicable to liquid products);
- « pre-washing » with cold clear (if necessary hot) water and clean areas difficult to access manually ;
- High pressure cleaning (possibly with the use of a detergent) ;
- rinsing with (hot (approximately 60°C)) water when recommended by the detergent supplier ;
- Dry when necessary or use only when the installation is dry.

When possible use a high pressure water jet with a flat spray nozzle, below a minimum 25 bar pressure or more if necessary.

The detergent must be adapted in view of the nature of the previous product (water soluble, fatty product, etc.) and must be used in accordance with the detergent supplier's operating instructions.

The cleaning of areas difficult to access must be cleaned separately by suitable means, such as brushes.

For cleaning, it is important that the waste water can flow away. When necessary (e.g. storage or transshipment of dry products), the installation or the storage space will be used only when completely dry.

A few recommendations

Protein-rich or fatty products require the use of detergents. Moreover, for fats water with a higher temperature is needed. However, the temperature must not exceed 60 degrees Celsius in order to prevent coagulation of the proteins which then might stick to the walls.

For the removal of chemicals (e.g. some chemically composed artificial manure), preferably hot water is to be used, with a temperature of 60 degrees Celsius or more, in order to enhance the solubility of the chemical product.

3.3.4. **Cleaning regime D (cleaning with water + detergent + disinfection)**

Generally, this treatment will only be effective after prior cleaning with water and a detergent (as described above). Any other way of disinfecting (e.g. dry) may only be applied if its effectiveness has been established. In all present cases, only the legally authorized products will be allowed for use and only in accordance with the doses mentioned in the application instructions.

List of authorized disinfectants

In Belgium, the Federal Public Service « Public Health, Safety of the Food Chain and Environment » publishes the list of authorized biocides on its website.

The disinfectants are also enumerated in it.

This list can be consulted and/or downloaded from the website of the FPS « Public Health, Safety of the Food Chain and Environment », on the following address: <https://portal.health.fgov.be/>, « Milieu » (Environment), « Chemische stoffen » (Chemical substances), « Biociden » (biocides) and eventually « Lijst van toegelaten biociden » (List of authorized biocides).

It is important to note that this list is regularly updated and that it may be necessary to consult it on a regular basis.

For the animal feed sector, the use of a type 4 product is mandatory, i.e. a disinfectant for surfaces coming into contact with food and animal feed.

It is authorized to use these products for disinfection of material, containers, consumption apparatuses, surfaces or pipelines for production, transport, storage or final consumption of animal feed.

You will find this information in the fourth column of the list. Here figure 4 means that the product concerned is authorized for this use.

Depending on the nature of the biological risk linked to the last stored or transshipped load, the choice of disinfectant will be made.

Criteria will be as follows:

- The material used for the installation and its equipment

- the aimed purpose (bactericide, fungicide and/or virucide functioning of the disinfectant)
- The compatibility of the disinfectant with the nature of the animal feed or of the 'by-products for reprocessing'. Use shall be made of disinfection means that are recognized as suitable for the food sector industry.

The application instructions and the precautionary measures, linked with the disinfectant, must be followed. In the food processing industry, it is prescribed that one must at all times rinse after having disinfected. In order to prevent the risk of residues, it is recommended to apply this prescription also to the company's installations, unless demonstrated that residues are not of any risk. In some cases, the elimination of the disinfectant may result in the development of surviving bacteria, if the surface remains wet too long.

4. List of authorised and prohibited previous products and related cleaning regimes

4.1. Products mentioned in table 1

Table 1 mentions those products that are allowed to be stored or transshipped prior to an animal feed or a 'by-product for reprocessing' as well as the minimum cleaning regime to be applied in that case. It also mentions a certain number of products are currently present in animal feed companies.

The company is free to decide any time upon applying a more complete cleaning regime.

Products stored or transshipped prior to an animal feed or a 'by-product for reprocessing'	Minimum cleaning required
dry animal feed	A
dry foodstuffs	A
untreated seeds, sound, genuine and of merchantable quality	A
moist animal feed (< 75 % DM)	B
liquid animal feed (except for oils)	B
moist foodstuffs (< 75 % DM)	B
liquid foodstuffs (except for oils)	B
Solid mineral fuels (anthracite (hard coal), eggs coal, briquettes manufactured from coal, cokes (of coal, of lignite or of peat) (Cas-number : 65996-77-2), coking coal, coal (bituminous), coal and coal agglomerates (hard coal, steam coal), brown coal and brown coal briquettes, semi-coke (of coal, of lignite or of peat))	B
(solid and liquid) chemical fertilizers	B
oils and fats of vegetable origin	C


Products stored or transshipped prior to an animal feed or a 'by-product for reprocessing'	Minimum cleaning required
By-products for reprocessing originating from a food business (only if the reprocessing sheet ¹ of the « by-product for reprocessing » does not specify the cleaning to be operated)	D
Materials with perceivable signs of decay (e.g. abnormal odor)	D
Materials contaminated with salmonella or other pathogens	D
Sanitized (bulk) manure products (without salmonella, free of enterobacteriaceae, aerobic bacteria count < 1 000 CFU/gram product handled, that have had a treatment inhibiting spore and toxin formation and originate from the from the competent authority recognized biogas or compost installation or recognized technical company in conformity with Regulation (EC) Nr. 1069/2009 and Regulation (EU) Nr. 142/2011)	D
Pitch coke (distilled from coal or other mineral tars)	Prohibited for storage or transshipment 
Petroleum cokes (CAS-numbers : 64741-79-3 and 64743-05-1)	
Untreated food residue ("swill")	
Seeds treated with toxic substances	
Technical fats (including recycled deep-frying oil)	
Lubricating oil	
Mineral-oil (including quakerol)	

Table 1 : List of prohibited and authorized previous products (and minimum cleaning regimes)

4.2. Products not mentioned in table 1

If the company wishes to store or transship, prior to an animal feed or a 'by-product for reprocessing', a product not mentioned in table 1, then it must perform a risk analysis specifically for the storage or transshipment of this product.

In function of this analysis, the company can:

- either not authorize the storage or transshipment of this product prior to storage or transshipment of an animal feed or a 'by-product for reprocessing' ;
- Or authorize the storage or transshipment, on the condition that a cleaning adapted to the product characteristics will be performed.

In this case, the product parameters to be taken into consideration for determining the cleaning regime are:

- its dry, hygroscopic, humid or liquid nature ;
- its solubility in water or in fat ;

¹ in the sense of document 'BT-07: Food Businesses'



- its color ;
- its odor ;
- etc.

5. Admission procedure for the installation after storage or transshipment of a prohibited product

After storage or transshipment of a prohibited product, the installation may, under certain circumstances, under the here below minimum stringent conditions, be re-allocated for the storage or transshipment of animal feed and/or 'by-products for reprocessing'.

A cleaning with water (and detergent), possibly with a disinfectant, and specific to the nature of the previously stored or transshipped product, must be carried out in accordance with a protocol previously detailed by the company.

The control of this measure can be done in two ways.

5.1. Procedure A: Visual control by an external body, approved by OVOCOM vzw/asbl

- assessment of the installation by an OVOCOM (vzw/asbl) approved (GMP FCA) certification body or inspection body (OVC04-Rules), after the abovementioned cleaning and disinfecting, at the company's expense;
- to that end, the certification or inspection body verifies, by making use of the traceability documents, which of the previous operations related to storage and transshipment and to cleanings and disinfections took place ;
- The installation is then visually checked for any further residues, especially in places that are difficult to clean. Depending on previously stored or transshipped products and on the results of the visual inspection, the certification or inspection body can proceed with further hygienic measures using ATP measurements or agar stamps, at the company's expense ;
- Delivery, by the certification or inspection body, of an attestation, stating that the installation can be re-allocated for storage and transshipment of animal feed and/or 'by-products for reprocessing'.

5.2. Procedure B: Analysis of the rinse water

- assessment of the installation, after the abovementioned cleaning and disinfecting, by the company;
- After storage or transshipment of merely an animal or vegetable material, can for this control the use be made of ATP measurements. The result of these measurements must be situated below the level of 1000 rlu/20 cm² (RLU = *Relative Light Units*);
- In any other cases, an analysis of the last rinse water must be performed by a laboratory satisfying the requirements of document 'BT-11: Sampling and analyses'. This rinse water must be taken by the company and transmitted to the laboratory. The installation can be re-allocated for storage or transshipment of animal feed or of 'by-products for reprocessing'; when the analysis result demonstrates that the last rinse water meets the drinking water standard.

This analysis is at least performed on the parameters to be analyzed during routine controls, as laid down in the federal legislation pointing out the quality of water intended for human consumption².

² Belgian Royal Decree of 14 January 2002 on the quality of water intended for human consumption which is packaged or which is used in food processing establishments in the manufacture and/or commercial preparation of food products (and modif.)

These parameters are systematically analyzed when performing a standard analysis of the potability of water. They are part of a global package offered by the laboratories. This kind of “serial” analyses cost generally less than the analysis of some of the parameters taken separately.

These minimum parameters are the following:

- total bacterial count at 22°C and at 37°C
- Coliform bacteria
- Escherichia coli (E. Coli)
- Ammonium
- Color
- Electrical conductivity
- Hydrogen ion concentration (PH)
- Nitrate
- Nitrite
- Odor
- Taste
- Turbidity.

However, it may appear that these minimum parameters are not sufficient and that complementary parameters are more relevant to be analyzed. To that end, the company shall refer to its risk analysis.

On the occasion of the audit, the certification body will evaluate the risk analysis, the parameters needing to undergo a complementary analysis and the measures taken.



Important remarks

The control shall take place prior to any renewed use of the installation for animal feed. This type of control is thus completely independent of the audit. It can be operated by any OVOCOM approved body (cfr. www.ovocom.be).

The control shall take place repeatedly, on the occasion of each storage or transshipment of a prohibited product in the installation. Prior to any use for animal feed or ‘by-products for reprocessing’, the certification or inspection body controls the installation. By no means can the body approve of a specific cleaning protocol that would subsequently be applied, without a control of the installation by the body).