

Appendix: Requirements for transport sequence, cleaning and disinfection

This Appendix includes:

- i. requirements for the determination of the correct transport sequence in relation to transported feed;
- ii. basic principles for different cleaning regimes;
- iii. requirements for the release of loading compartments after the transport of forbidden loads.

i. Transport sequence in relation to transported feed

Transport sequence

Only products listed in the International Database for Transport of Feed (IDTF) with one of the cleaning regimes A, B, C or D are allowed as previous loads before feed transported by road transport and transport by rail. For transport by inland waterway and short sea shipping vessels, the product list from Appendix 1 in GMP+ B4.3 / TS 3.3 *Inland waterway transport and short sea shipping of feed*, applies. In the event of transport by sea going vessel, the company responsible for arranging the transport of feed must draw up criteria with respect to previous loads on the basis of risk assessment.

International Database Transport (of) Feed (IDTF)

The IDTF contains the requirements relating to transport sequence and the cleaning and disinfection regimes for a large amount of products. The IDTF can be consulted via <https://www.icrt-idth.com/>. The list with established cleaning and disinfection regimes may change over time. The changes are published in GMP+ newsletter. A request for (re-) classification of products with one of the cleaning regimes may be submitted to GMP+ International (<https://www.icrt-idth.com/procedures/>).

Cleaning regimes

The basic principles for different cleaning regimes can be found in chapter 2, below. The established cleaning regimes are to be considered as a minimum requirement. If the loading compartment is not clean after the cleaning operation in question -- then additional cleaning must take place.

Release procedure

Products which are not listed in the IDTF database or in Appendix 1 in GMP+ B4.3 / TS 3.3 *Inland waterway transport and short sea shipping of feed* with one of the cleaning categories regimes A, B, C or D are forbidden as loads for means of transport in which feed is also carried. The company responsible for the transport of feed must be able to show that in the past no forbidden loads were transported. After transport of a forbidden load, the loading compartment in question may only be used for transport of feed after a release of the means of transport:

- by an independent loading compartment inspector, or
- in accordance with a documented procedure authorised by the competent authority. See for this *Procedure for the acceptance of loading compartments after the transport of forbidden loads*.

ii. Cleaning and Disinfection regimes

Four basic principles can be distinguished with respect to cleaning and disinfection:

- A. Dry cleaning
- B. Cleaning with water
- C. Cleaning with water and a food grade cleansing agent
- D. Disinfection after one of the previous cleaning regimes (A, B or C).

Cleaning regime A (dry cleaning)

Application:

- After the transport of dry 'neutral' products, before the first transport of feed.

The general cleaning regime is as follows:

- a. clean the means of transport by suction, blowing out or sweeping
- b. manual cleaning of places which are difficult to reach
- c. if there are still remains after dry cleaning then use additional wet cleaning.

Helpful tip:

When dry cleaning, it is worth remembering that generally there is a preference for suction, as this cleaning method ensures no spreading of dust or dirt.

Cleaning regime B (cleaning with water)

Application:

- After the transport of products with cleaning regime B, before the first transport of feed.
- After the transport of, for instance, damp or sticky substances or possibly harmful chemicals.
- Companies carrying out transport using bulk tankers must wet clean these tankers at least once every three months unless it can be demonstrated that there are no remains present in the bulk tanker.

The general cleaning regime is as follows:

- a) remove residue from the previous load as much and as dry as possible
- b) pre-rinse with cold water, or warm if necessary, and pay attention to difficult places;
- c) manual cleaning;
- d) high-pressure cleaning with water;
- e) dry through ventilation or hot air dryer.

+ Helpful tip:

If you are cleaning open vehicles, it is usually best to use a high-pressure cleaner with a flat nozzle with at least 25 bar pressure or higher. If you need to remove chemicals (for example chemical fertilizers), warm water (at least 60°C), is best in order to dissolve the chemicals more easily. It is worth remembering that places that are difficult to reach can if necessary be cleaned separately with additional means, such as brushes. It is important to remember that the water must be able to be drained off.

Cleaning regime C (cleaning with water and cleansing agent)

Application:

- After the transport of a load containing protein or grease, before the first transport of feed.
- Only food grade cleansing agent may be used.

The general cleaning regime is as follows:

- a. remove residue from the previous load as much and as dry as possible
- b. pre-rinse with hot water (max. 60 °C) and clean difficult places by hand
- c. foam or gel with a cleaning agent for tippers or open wagons or flush with CIP cleaning agent at 80 °C in the event of tank cleaning
- d. rinse with water at approx. 60°C
- e. if necessary dry through ventilation or hot air dryer.

+ Helpful tip:

A raised water temperature is required to remove fats more easily. This may however not be higher than 60 degrees Celsius to prevent the protein from coagulating and thereby sticking to surfaces. To facilitate the removal of protein and greases it is advisable to use a medium to strong alkaline cleansing agent, using the dosage prescribed by the manufacturer.

In open systems it is best to use a foaming degreasing agent. In the case of tank cleaning with spray balls, no foaming agents may be used. It is then better to use a so-called Cleaning in Place (CIP) agent at a high temperature. In specific cases, such as the removal of calcareous substances, an acid cleansing agent is preferable.

Cleaning regime D (cleaning and disinfection)

Application:

- After the transport of products with cleaning regime D, before the first transport of feed.
- When preceding loads are microbiologically unacceptable (detectable signs of decay)
- When it is known that loads carry micro-organisms that cause disease, such as Salmonella.
- Only legally-permitted food grade disinfectants may be used.
- Another form of disinfection (for example dry) may only be applied if its effectiveness has been established.

The general cleaning regime is as follows:

- a. cleaning in accordance with cleaning regime A, B or C
- b. disinfection with a disinfectant at a dosage indicated in the instructions for use.
- c. If necessary wet rinsing
- d. if necessary dry through ventilation or hot air dryer.

Helpful tip:

It is helpful to be aware of the different types of cleaning and disinfectant products. A distinction can be made between disinfectants tested for bactericidal and fungicidal effect and those tested for bactericidal, fungicidal and virucidal effect. The latter may only be used in the livestock sector. For feed transport vehicles, use of a disinfectant approved for the food industry is the only other alternative.

Keep in mind that the use of a combined cleansing and disinfecting agent containing active chlorine is only possible when it is used on smooth surfaces that are easy to clean, such as stainless steel.

In all other cases it's really better to clean first and then disinfect afterwards. In that case, it is advisable to use disinfectants containing active chlorine, when disinfecting open vehicles.

However, using cleaning agents containing chlorine is not advisable on materials which corrode easily -- or after an acid cleansing -- due to the possibility of toxic chlorine gases forming. In that case, quaternary ammonium compounds may be used as an alternative (except for tank cleaning with spray balls due to foam forming). The advantage of quaternary ammonium compounds is that they stick better and therefore work longer. The disadvantage is that they are more difficult to remove.

For closed tankers, you can consider using acetic acid. Its advantage is that it is activated less by residues than active chlorine is. However, it does have a penetrating odour and also harms rubber -- two disadvantages. Remember that disinfectants must be given at least five minutes to take effect.

It really is advisable to rinse after disinfection, in order to avoid the risk of residues, unless it can be demonstrated that residues do not constitute a risk. Also good to remember: in some cases, removing the disinfectant can lead to the development of surviving bacteria if the surface remains wet for too long.

You can carry out various extra checks to assess how effective the cleaning and/or disinfection method you have used was:

- ATP (Adenosine Tri Phosphate) is present in all animal and vegetable cells and can thus be used as an indicator for the extent of biological contamination left on surfaces. The application of ATP is not useful in most cases of transport of chemicals.
- Agar stamps can be used in order to verify the effectiveness of a particular disinfection technique in use.
- HPLC and Mass Spectrometry (MS) may be used for checking on chemical residues and pesticides.
- Microscopic screening methods laid down in Regulation (EC) No 152/2009 may be used for checking on components of animal origin.