



**GMP Transport protocol for Raw material ingredients**  
**as prescribed by the**  
**Animal Feed Manufactures Association (AFMA)\***

- Adapted from the GMP standard for road transport in the animal feed sector (GMP07;12-11-2003), Productschap Diervoeders (Den Haag, Nederland), April 2003

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**November 2010**

**1. Target group**

The target group for this document is all road transporters transporting raw materials (RM) for the animal feed manufacturing industry, either directly to feed manufacturing facilities or the storage facilities for later transport to animal feeds manufacturing facilities.

**2. Monitoring**

The monitoring of this system will be done by AFMA members. In future AFMA will strive to include upstream companies such as companies transporting to silos and other bulk storage facilities that receive RM by road for later use in the animal feed industry.

Transport companies are rated as follows:

**3. Rating of Transport Companies**

AFMA members should do audits of all their transport companies on a regular basis. AFMA members must submit a list of companies to AFMA on a monthly basis. The list will contain names of companies in categories A & B (see below). Transport Companies will have to request/demand audits from AFMA members to maintain their status. An AFMA member shall do such an audit within 30 days from a request by a transport company (delivering to his premises).

**A - Compliant**

A transport company that has been registered and that meets the minimum requirements of this document.

**B - Unclassified:**

A transport company that is new in the animal feed industry that have been registered but does not yet have a record, or a supplier that have been registered but whose last Audit by an AFMA member was longer than a period of 12 months. (Companies can only be unclassified for a 3 months period).

**C - Non Compliant:**

A transport company that does not comply with the criteria of this document after 3 months of being unclassified or after having been complaint and then becoming non-compliant. After being classified as non-compliant, a company remain in this category for a minimum period of 3 months after which it may apply to be unclassified again.

**4. Criteria for Audit by the AFMA members**

Refer to Appendix D

**5. Procedures to be developed by the Transport Contractor.**

Refer to Appendix C

All procedures must be documented and all these documents will be part of the transporters "GMP Transport file". A copy of this file must be available in each vehicle at all times. This document provides examples and some "ready to use" worksheets that might be of assistance. The procedure will indicate the following information:

1. Step by step work instruction.
2. Reference of worksheets to be used and completed.

3. Frequency that procedures need to be carried out.
  4. Responsibilities of employees/drivers.
  5. Products and equipment to be used.
  6. Standards which must be defined.
  7. Preventative measures and corrective action procedures if a non-conformance is found.
- a) Procedure to avoid contamination of products if undesirable substances have been transported.
1. Determine procedures required based on the guidelines below:
    - i. For bulk transport, the previous loads must be recorded by the driver in a consignment note held in the vehicle and a cleaning procedure must be established, complying with the requirements and supplementary standards for cleaning (and disinfection) of the vehicles.
    - ii. The general requirement is that the load compartment must be clean and dry: free of residues and, odours from previous loads. The driver must visually check this before each consignment of raw materials.
    - iii. The cleaning and disinfection actions for each bulk load must be noted and initialled (signed) in the consignment note by the driver and the responsible person at the cleaning facility. The result of the cleaning and disinfection actions must be checked visually and recorded in the consignment note, along with the preceding loads and the cleaning and disinfection actions.
  2. Appendix B gives an example of a log book. Transport companies do not need to use a log book *per se* but all information (since day of registration of vehicle) in the examples log book must be available on request. The driver will at least have the information of the previous load on hand at any time.
- b) Procedure to avoid load contamination through water (rain) and bird droppings.
1. After load has been loaded, it must be secured from outside influences like water (rain) and bird droppings.
  2. Loads must be covered by a clean tarpaulin and tied down if not transported in a Tautliner type vehicle or a closed container.
  3. Ensure that tarpaulins and/or containers are 100% effective in keeping out potential contaminants. Tarpaulins must not have holes or tears in them and containers must not be damaged in any way.
- c) Procedure for the Hygienic operation of truck.
1. Trucks must be cleaned of all contaminants and kept in a hygienic condition. Refer to the guidelines below:
    - i. Transportation shall be such that basic quality can be maintained with regard to hygiene. This must be ensured particularly when types of goods

other than raw materials, finished feed and premixes, with different microbiological quality are transported. A procedure must be established in which it is stated how this will be controlled.

- ii. In the event that rainwater or bird droppings contaminate a vehicle a procedure must be drawn up to deal with this eventuality. Actions taken and the results thereof must be recorded. Load compartments must be covered even if the compartments are empty to prevent rain penetration and bird droppings. If covering of the load compartments is not possible, the compartments must be cleaned (even through hosing) and wiped dry before the next cargo is loaded. Sheets used to cover the compartments must be clean and dry.
  - iii. The outside of the truck, including the chassis, must be free of visible traces of previous cargoes, prior to the transport of raw materials, finished feed and premixes.
  - iv. Bulk compartments which have held contaminated consignments (contaminated with undesirable substances/products and/or pathogenic organisms) must be cleaned in such a way that it is not possible for subsequent consignments to become contaminated. A procedure of this must be established for this eventuality and must be available.
- d) Procedure for the cleaning and disinfecting of trucks prior to loading.
1. Before loading bulk compartments, the product category of preceding loads must be determined. There must be compliance with requirements for cleaning and disinfection as well as sequence of consignments as set out in **Appendix C** of this standard.
  2. Four main categories of preceding loads are distinguished:
    - i. **PROHIBITED** - Very high risk material (Prohibited for transport for animal feed industry) - (REFER TO APPENDIX G).
    - ii. **HIGH RISK** - Microbiologically contaminated material.
    - iii. **MEDIUM RISK** - Material with a physical and/or chemical risk.
    - iv. **LOW RISK** - Neutral materials.
  3. Transporters must be able to demonstrate that no very high risk loads from category 1 (**PROHIBITED**) have been transported in a compartment in the past. Following the transport of a prohibited load, no raw materials and premixes may be transported.
  4. Disinfection must always take place following the transportation of products from category 2 (**HIGH RISK**), prior to the next shipment.
  5. In other cases, it must be verified whether, since the previous wet cleaning, products from category 3 (**MEDIUM RISK**) have been transported. If this is the case, cleaning with water must take place.

6. Prior to every animal feed material consignment, a visual check must be carried out as to whether the load compartment is clean, which means completely emptied and free of material residue and odour from previous loads, and dry or dried to ensure that the next load will be dry.
7. Basic principles of cleaning and disinfection. Cleaning and disinfection must take place as per one of the procedures:
  - i. Dry cleaning **(CLEANING REGIME A).**
  - ii. Cleaning with water **(CLEANING REGIME B).**
  - iii. Cleaning with water + cleaning agent **(CLEANING REGIME C).**

Disinfection immediately or after one of the previous cleaning regimes (A, B or C). Disinfection (D) is only necessary if preceding loads are microbiologically unacceptable (detectable signs of decay), or if it is known that they carry micro-organisms that cause disease, such as salmonella.

#### 1. *Cleaning regime A (Dry cleaning)*

In the case of transport of dry “neutral” **LOW RISK** substances only, dry cleaning may be sufficient and beneficial both practically and microbiologically. Dry cleaning involves the vehicle being cleaned after unloading by vacuum, blowing or sweeping. Vacuuming is preferred as it does not spread the dirt. Places that are difficult to reach should if necessary be brushed or otherwise cleaned by hand. If the result is unsatisfactory after dry cleaning, wet cleaning will have to follow.

#### *Cleaning regime B (Cleaning with water)*

Cleaning with water is necessary after transport of, for instance, damp or sticky substances or possibly harmful chemicals. With open vehicles it is best to use a high pressure hose, with a flat nozzle with at least 25 bar pressure, or higher if necessary. If chemicals need to be removed, (e.g. chemical fertilizers) warm water should be used at a temperature of at least 60°C, to dissolve the chemicals more easily. Areas that are difficult to reach should if necessary be cleaned separately with additional means such as brushing. It is important that the water is thoroughly drained. Depending on the nature of the next load, drying can take place either by leaving the vehicle to dry with adequate ventilation or by a hot air blower.

#### **The general cleaning regime is as follows:**

- a. Remove as much residues from the previous load as possible by Dry cleaning.
- b. Pre-rinse with cold water, or warm water if necessary, and clean difficult places by hand.

- c. High-pressure cleaning with warm water (>60°C).
- d. Dry by ventilation or hot air blower.

*Cleaning regime C (Cleaning with water and cleaning agent)*

For loads containing protein or grease, it is necessary to use a cleaning agent. High water temperature is needed. The maximum temperature should not exceed temperatures above 60°C as it will cause the protein to coagulate and therefore stick to the surfaces. To facilitate the removal of protein and greases, it is advisable to use a medium to strong alkaline cleaning 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 agent may be used. It is better to use a Cleaning In Place (CIP) agent for spray balls at a high temperature. In specific cases, such as the removal of calcareous substances, an acid cleaning is preferable.

**The general cleaning procedure is as follows:**

- a. Remove as much residues from the previous load as possible by Dry cleaning.
- b. Pre-rinse with warm water (max 60°C) and clean difficult places by hand.
- c. Apply foam or gel cleaning agent in the case of open vehicles or rinse with CIP cleaning agent at 80°C in case of tanker cleaning.
- d. Rinse with warm water approximately 60°C.
- e. If necessary, dry through ventilation or hot air dryer.

*Cleaning regime D (Cleaning with water and cleaning agent and disinfection)*

If disinfection is necessary from a microbiological point of view this can, in most cases, only be carried out effectively after cleaning with water and a cleaning agent as indicated in Cleaning regime C. The dry form of disinfection may only be applied if its efficacy has been established. Only SABS approved disinfectants may be used in the indicated dosage.

A distinction can be made between disinfectants tested for bacterial and fungicidal effect and those tested for bacterial, fungicidal and virucidal effect. The latter may only be used in the livestock sector. For feed material transport vehicles, use of a disinfectant approved for the food industry is the only alternative.

The use of a combined cleaning and disinfecting agent containing active chlorine is only possible on smooth surfaces that are easy to clean, such as stainless steel. In all other cases it is better to clean first and then disinfect, in which case, for the disinfection of open vehicles, disinfectants containing active chlorine are advised. In some case it is not advisable to use agents containing chlorine, such as for materials which corrode easily or after an acid cleaning to avoid the formation of toxic chlorine gases. In this case quaternary ammonium compound may be used, except for tank cleaning with spray balls due to foam forming. Their advantage is that they adhere better and therefore work longer. The disadvantage is that they are more difficult to remove.

For closed tankers, the use of asceic acid can be considered. Its advantage is that it is inactivated less by residues than active chlorine. The penetrating odour and the harmful effects on rubber are a disadvantage. Disinfectants must be given a contact time of at least 5 minutes to take effect. In some cases, removing the disinfectant can lead to the development of surviving bacteria if the surface remains wet for too long.

Development of basic principles (for cleaning and disinfection) and validation

The transporter must develop a cleaning protocol for each vehicle. This must describe in detail how the various cleaning regimes are carried out, depending on the previous load. The cleaning protocol must pay specific attention to the places that are difficult to clean, such as pipes, hoses, cracks, pumps, blind corners etc. These points of attention must be discussed for each type of vehicle in the protocol, including which parts should be disassembled before cleaning.

Each cleaning protocol drawn up for a certain transport space must be checked for effectiveness (validation). Then the cleaning protocol can be adopted as the official cleaning method for each similarly constructed transport space.

e) Procedure for Pre-Loading inspection of vehicles.

After each cleaning regime, a visual inspection must be carried out. The result of this inspection must be recorded in the logbook, together with the record of the transported loads and the applied intervening cleaning regimes with the cleaning and disinfecting agents used.

f) Logging of Data

A business undertaking the bulk transport of raw materials, finished feed and premixes must have the necessary approved documents in place to show that the cleaning between successive bulk consignments has been successful.

The document shall be in triplicate. One copy shall remain with the business undertaking the transport, one copy with the supplier of the raw materials, finished feed and premixes and one copy with the client receiving the raw materials, finished feed and premixes.

g) Driver and loaders hygiene and training

Drivers that transport raw materials in the industry must be trained in respect of the requirements of AFMA regarding the transportation of products to its members. Drivers must understand the basic principles of bio security, biological contamination and personal hygiene. This also applies to personnel offloading raw materials. Record of training must be kept and may be required for audit purposes. Drivers must at all times adhere to these standards and ensure that the standards and procedures as set out above are enforced.

h) Reliability

Transport company will ensure that his vehicles are always roadworthy and in a good condition, without any oil leaks, never overloaded and always reliable. A procedure to ensure the above must be implemented. If for whatever reason a vehicle develops an oil leak, steps must be taken to avoid contamination of client premises or of product with oil. A procedure to avoid contamination must be documented.

**6. Procedure for inspection and testing.**

a) Inspection after each cleaning

After each cleaning regime at least a visual inspection must be carried out. The result of this inspection must be recorded in the logbook, together with the record of the transported loads and the applied intervening cleaning regimes including the cleaning and disinfecting agents used.

A procedure for a visual inspection must be drawn up. Areas for inspection must include at least:

- Footboards, pedals, boots
- Cabin
- Top and bottom sides of the bars and the support points for the bars.
- Door hinges, the gaps in the doors and whole door opening
- Grain chute / discharge opening and the gaps in between.
- Rubbers around the doors.
- Under side and upper side of the tarpaulin.
- Load compartment and corners
- Mudguards and chassis

## **Walking Floor vehicles**

- Seams in the floor
- Tail gate and flap
- Headboard
- All the items specified for the tipper

### b) Inspection after animal meal has been transported

After cleaning loads containing animal meal, an inspection must be carried out, in order to check for residues of components of animal origin in animal feed according to the microscopic screening methods laid down in the EC Guideline. Furthermore, additional checks must be carried out in order to assess the effectiveness of the cleaning and/or disinfection method used.

### c) Inspection after any biological product have been transported

ATP (Adenosine Tri Phosphate) measurements can be used to assess cleaning. ATP 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 ATP measurement itself is straightforward and can yield a result within minutes. The result of cleaning will be acceptable if the ATP measurement is no higher than 1000 RLU. (The application of ATP is not useful in most cases of transport of chemicals).

In order to verify the effectiveness of a particular disinfection technique in use, agar stamps can be used, which can determine the numbers of surviving micro-organisms. This technique takes a day to produce results, which means that any necessary adjustments to the disinfection process can only be made afterwards.

For checks on chemical residues and pesticides, more advance measurement methods, such as HPLC and Mass Spectrometry (MS) must be used, with a frequency determined in conjunction with the companies receiving the feed raw material.

## APPENDIX B

Log book (example, but contains min required information)

### Appendix B: Categorisation of substances and materials

**Note: Any uncategorised material will by default be a Category 1 material.**

#### Category 1 (“Haulage Exclusion List”)

##### Animal material of Ruminant origin ) (refer to Appendix E):

1. High-risk Material (from non-inspected or rejected animals)
2. Low-risk Material (slaughter by-products from approved slaughter animals)
3. Specific-risk Material (material susceptible to BSE)
4. Treated skins and their waste
5. (Products containing) animal proteins<sup>9</sup> - for loading areas with 'walking floor systems'<sup>10</sup>

##### Fertilisers:

1. Animal manure
2. Garden soil/compost dressed with animal manure

##### Other (inorganic) substances:

1. Asbestos or materials containing asbestos
2. Fresh or waste asphalt
3. Metal chips and swarf (not degreased, washed and dried)
4. Mineral clay used for detoxification
5. Petroleum cokes
6. Quakerol oil
7. Radioactive material
8. Toxic oxidative materials and their packaging materials
9. Fly ash

##### Other (organic) substances:

1. Domestic waste
2. Jayflex phthalate tester
3. Unpacked seeds, treated with toxic substances
4. Sewage sludge
5. Untreated food residue (swill)

<sup>9</sup> This refers to processed ruminant animal proteins categorised as prohibited in by Act 36. It also includes products that contain these proteins, and compound feeds and premixes *not containing* these proteins in the ingredients, but originating from production lines *containing* these proteins.

<sup>10</sup> Vehicles so constructed that effective cleaning cannot take place, as is the case with “walking floors” for example, may not be used for the transport of mixed feeds or premixes intended for agricultural animals or for feedstuffs not demonstrably intended for non-agricultural domestic animals, if they have previously been used to carry animal proteins or products containing animal proteins. This stipulation does not apply in the case of transport of mixed feeds or pre-mixes for non-ruminants (or feedstuffs intended for a fully segregated production line for non-ruminant feeds) following the transport of (mixed feeds or pre-mixes containing) fish meal, dicalcium phosphate or hydrolysed skin proteins. Where the following load involves mixed feed for non-agricultural domestic animals, or feedstuffs demonstrably intended for a production line for non-agricultural domestic animals, then the animal proteins or products containing animal proteins<sup>9</sup> will fall into category 4.

## Category 2

1. Mushroom compost<sup>11</sup>
2. GFT-compost<sup>12</sup>
3. Glass intended for recycling
4. Materials contaminated with salmonella or other pathogens.
5. Materials with perceivable signs of decay (e.g. abnormal odour)
6. Stackable (untreated) poultry manure and horse manure<sup>13</sup>

<sup>11</sup> Temporary categorisation in category 2 will apply provided the compost is composed of no manure other than dry/stackable (unprocessed) poultry and horse manure and provided the transport vehicles involved participate in the hygiene scheme and observe all the associated conditions. See footnote 5 for the conditions of the hygiene scheme.

<sup>12</sup> Where unambiguous "green compost" is concerned, obtained entirely from prunings, plant remains, hedge cuttings, leaves, lawn and verge cuttings, then loading category 3 will be appropriate. This must be explicitly indicated on the transport contract.

<sup>13</sup> Temporary classifications under the conditions that the carrier:

works in accordance with the protocol on cleaning and disinfection as included in appendix 5;

applies the protocol on cleaning and disinfection used by drivers as included in appendix 5;

includes the statement "previous load manure" on the consignment note

applies the protocol on maintenance and calibration for hygiene equipment and measuring devices as included in appendix 5;

has the drivers take part annually in a course designed for them on cleaning and disinfection;

as an alternative to the first 4 points, has the cleaning or disinfection take place by a cleaning location approved by the veterinary authorities;

makes use of agents for disinfection (in conformity with the legal instructions for use) which (inter alia) are permitted for use in or on equipment and materials which can come into contact with human food substances and which according to the legal permission dossier have a virus killing effect in addition to a bacteria killing effect;

has the disinfectant thoroughly flushed out with water once it has had time to take its effect;

has the vehicles involved take part in a hygiene scheme where all the vehicles involved are checked at least twice per year by an expert third party for the results of cleaning using the ATP bioluminescence method. The results of these measurements must be made available by the carrier at the request of (potential) clients, the certifying body involved and the Product Board.

This classification will be evaluated after a period of a year on the basis of practical results.

## Category 3

### Fertilisers:

1. Champost
2. Sanitised (bulk) manure products (pathogen-free, from an approved institution, (EC guideline 92/118/EEG)<sup>14</sup>
3. Sanitised (bulk) manure products (pathogen-free, with a product certificate)<sup>15</sup>
4. Artificial fertiliser (if not specifically mentioned in the fertilisers in category 4)
5. Manure grains and granules (pathogen-free, from an approved institution, (EC guideline 92/118/EEG))<sup>9</sup>
6. Organic manure granules
7. Sulphuric acid ammonia

### Products involving soil:

1. Green compost
2. Garden soil/compost, treated with fertilisers from category 3.
3. Garden soil/compost improved with green compost

### Additives

All additives from the list of permitted additives (transport in bulk)

Other (inorganic) substances/products:

1. Aluminium hydroxide powder (99.5%, Na<sub>2</sub>O < 5000 ppm)
2. Aluminium sulphate
3. Ammonium hydroxide (ammonia, ammonia solution) (Cas-no. 1326-21-6)<sup>16</sup>
4. Ball clay
5. Barium sulphate (Barite, Portaryte) (if followed by a cleaning with water and cleaning agent)
6. Bentonite
7. Fullers earth
8. Construction and demolition waste
9. Calcium chloride solution (Cas no. 10043-52-4)<sup>16</sup>
10. Calcium hydroxide Ca(OH)<sub>2</sub> (Cas no. 1305-62-0)<sup>16</sup>
11. Chromite (Fe, Mg)O.(Cr,Al)<sub>2</sub>O<sub>3</sub> (Cas no. 1308-31-2)
12. Diatomaceous earth
13. Phosphoric acid (Cas no. 7664-38-2)<sup>16</sup>
14. Phosphoric acid plaster
15. Calcinated bauxite powder
16. Recycled cans
17. Recycled glass
18. Ferrous carbonate FeCO<sub>3</sub> - Siderite (CAS-no. 563-71-3)
19. Ferrous oxide Fe<sub>2</sub>O<sub>3</sub> - Hematite (CAS-no. 1317-60-8)
20. Iron(2)sulphate, heptahydrate crystals
21. Potassium carbonate
22. Potassium chloride
23. Potassium hydroxide (Cas no. 1310-58-3)<sup>16</sup>
24. Copper oxide
25. Magnesium chloride solution (Cas no. 7786-30-3)<sup>16</sup>
26. Manganese dioxide
27. Metal chips and swarf (degreased, washed and dried with particles smaller than 10mm)
28. Micro silica (Cas no. 7631-86-9)<sup>16</sup>
29. Engine castings, degreased, washed and dried
30. Sodium hydroxide (Cas no. 1310-73-2)<sup>16</sup>
31. Sodium perborate tetrahydrate<sup>11</sup>
32. Sodium sulphate
33. Unslaked lime CaO (Cas no. 1305-78-8); (provided this is followed by cleaning with water and a cleaning agent)
34. Waste glass
35. Quartz powder
36. Nitric acid<sup>18</sup>
37. Silicium dioxide
38. Soda (Na<sub>2</sub>CO<sub>3</sub>)
39. Rubble
40. Calcium hydroxide<sup>18</sup>
41. Tanco spodumene
42. Tetra methylol methane
43. Road salt
44. White spirit (turpentine substitute)<sup>18</sup>
45. Sand cement
46. Zinc oxide (powder and granulate)
47. Zinc powder
48. Salt
49. Sulphuric acid (Cas no. 7664-93-9)<sup>18</sup>

<sup>14</sup> This relates to processed manure and processed manure products, originating from an institution approved by the qualified authority. They must be free of salmonella and entero bacteria (according to measurement of the aerobic germ count: < 1000 kve per gram of treated product) and the trace and toxin formation must be suppressed.

<sup>15</sup> Product certificate based on the certification scheme Organic fertilisers and soil improving agents of animal origin (Certification scheme KIWA, BRL k 10011).

<sup>16</sup> With mandatory cleaning with an appropriate cleaning agent (regime C) and provided a stainless steel, epoxy resin or technically equivalent clad tank is used. (cf. 96/3/EG and KB 1997-12-22).

**Other organic substances:**

1. Acetone (dimethyl ketone, propane-2-on)<sup>18</sup>
2. Anti freeze
3. Vinegar<sup>18</sup>
4. Benzyl
5. Beeswax(Cas no. 8012-86-3)<sup>18</sup>
6. Butyl acetate (n-, sec-, ter-butyl acetate) (Cas no. 123-86-4, 105-46-4, 540-88-5)<sup>18</sup>
7. Butylene glycol<sup>18</sup>
8. Calcium lignosulphonate<sup>18</sup>
9. Candelilla wax (Cas no. 8006-44-8)<sup>18</sup>
10. Carnauba wax (Cas no. 8015-86-9)<sup>18</sup>
11. Cyclohexane (hexamethylene, hexanaftene, hexahydrobenzene) (Cas no. 110-82-7)<sup>18</sup>
12. Cyclohexanol (hexahydrophenol) (Cas no. 108-93-0)<sup>18</sup>
13. Animal proteins<sup>9</sup> (if the following load involves fodder, not demonstrably to be used for a production line for non-farm animals, or compound feeds or premixes, to be used for farm animals)
14. Animal, marine and vegetable oils and fats (except cashew nut oil and raw tall oil) <sup>18</sup>
15. Animal feed with animal proteins or produced on production lines with animal proteins<sup>6</sup> (where the following load of concerns fodder, demonstrably not to be used for a production line for non-farm animals, or involving compound feeds or premixes, intended for farm animals)
16. Ethyl acetate (Cas no. 141-78-6)<sup>18</sup>
17. 2-Ethylacetate-1-ol (2-thylhexylalcohol) (Cas no. 104-76-7)
18. Ferro-silicium
19. Ferro-chrome
20. Epoxidated soya oil (minimally 7% oxirane oxygen) (Cas no. 8013-07-8)<sup>18</sup>
21. Glycerol<sup>18</sup>
22. Glycerine<sup>18</sup>
23. Glycols<sup>18</sup>:
24. Butandiol (1,3-butylene glycol; butane-1,3-diol; 1,4-butylene glycol; butane-1,4-diol; 2,3-butylene; butane-2,3-diol, butylenes glycol)
25. Polypropylene glycol (molecular weight above 400) (Cas no. 25322-69-4)
26. Propylene glycol (1,2 propylene glycol; propane-1,2-diol); 1,2-dihydroxypropane; monopropylene glycol; methyl glycol (Cas no. 57-55-6)
27. 1,3-Propylene glycol (trimethylene glycol; propane-1,3-diol)
28. n-heptane<sup>18</sup>
29. n-hexane<sup>18</sup>
30. Isopropanol<sup>18</sup>
31. Cockles
32. Limonene (dipentane) (Cas no. 138-86-3)<sup>18</sup>
33. Methanol (methyl alcohol) (Cas no. 67-56-1)<sup>18</sup>
34. Methyl ethyl ketone (butanone) (Cas no. 78-93-3)<sup>18</sup>
35. Methylisobutyl ketone(4-methyl pentane-2-on) (Cas no. 108-10-1)<sup>18</sup>

36. Methyl-tert-butyl ether (MTBE) (Cas no. 1634-04-4)<sup>18</sup>
37. Formic acid<sup>18</sup>
38. Mussels
39. Sodium gluconate
40. Nonane<sup>18</sup>
41. Paraffin (when of food quality)<sup>18</sup>
42. Pentane<sup>18</sup>
43. N-propyl acetate<sup>18</sup>
44. Propylene glycol<sup>18</sup>
45. Earth foam
46. Fatty alcohols<sup>18</sup>
47. Butyl alcohol (butane-1-ol) (Cas no. 71-36-3)
48. Hexyl alcohol (hexane-1-ol) (Cas no. 11-27-3)
49. Heptyl alcohol (heptane-1-ol) (Cas no. 110-70-6)
50. Octyl alcohol (octane-1-ol) (Cas no. 111-87-5)
51. Nonyl alcohol (nonane-1-ol) (Cas no. 143-08-8)
52. Decyl alcohol (decane-1-ol) (Cas no. 112-301)
53. Lauryl alcohol (dodecyl alcohol, dodecane-1-ol) (Cas no. 112-53-8)
54. Stridency alcohol (tridecane-1-ol) (Cas no. 27458-92-0)
55. Tetradecyl alcohol (tetradecane-1-ol) (Cas no. 112-72-1)
56. Hexadecyl alcohol (hexadecane-1-ol, cetyl alcohol) (Cas no. 36653-82-4)
57. Octadecyl alcohol (octadecane-1-ol, stearyl alcohol) (Cas no. 112-95-5)
58. Oleyl alcohol (cis-octadec-9-enol) (Cas no. 143-28-2)
59. Lauryl-myristyl alcohol (mixture C12/C14)
60. Cetyl-stearyl alcohol (mixture C16/C18)
61. Fatty acids<sup>18</sup>:
62. Butyric acid (n-butyric acid, butanic acid, propane carbonic acid) (Cas no. 107-92-6)
63. Valerianic acid (n-pentane acid) (Cas no. 109-52-4)
64. Capronic acid (n-hexane acid) (Cas no. 142-62-1)
65. Heptanic acid (n-heptane acid) (Cas no. 111-14-8)
66. Caprylic acid (n-octane acid) (Cas no. 124-07-2)
67. Pelargonic acid (n-nonane acid) (Cas no. 112-05-0)
68. Caprinezuur (n-decaanzuur) (Cas no. 334-48-5)
69. Laurinic acid (n-dodecane acid) (Cas no. 143-07-7)
70. Lauroleinic acid (dodecane acid) (Cas no. 4998-71-4)
71. Myristinic acid (n-tetradecane acid) (Cas no. 544-63-8)
72. Myristoleinic acid (tetradecene acid) (Cas no. 544-64-9)
73. Palmitinic acid (n-hexadecane acid) (Cas no. 57-10-3)
74. Palmitoleinic acid (cis-hexadec-9-acid) (Cas no. 373-49-9)
75. Stearic acid (n-octadecane acid) (Cas no. 57-11-4)
76. Ricinolic acid (cis-12-hydroxyoctadec-9-acid; castor oil acid) (Cas no. 141-22-0)
77. Oleic acid (n-octadecene acid) (Cas no. 112-80-1)
78. Linolic acid (octadeca-9, 12-diene acid) (Cas no. 60-33-3)
79. Linolenic acid (octadeca-9, 12, 15-triene acid) (Cas no. 463-40-1)
80. Arachidonic acid (icosane acid) (Cas no. 506-30-9)
81. Behenic acid (docosane acid) (Cas no. 112-85-6)
82. Erucaic acid (cis-docos-13-acid) (Cas no. 112-86-7)
83. Fatty acid esters<sup>18</sup> (esters created by the reaction between one of the above named fatty acids with one of the above-named fatty alcohols such as butylmyristate, oliopalmitate or cetyl stearate)
84. Fatty acid methyl esters<sup>18</sup>:
85. Methyl laurate (methyl dodecanate) (Cas no. 111-82-0)
86. Methyl palmitate (methyl hexadecanate) (Cas no. 112-39-0)
87. Methyl stearate (methyl octadecanate) (Cas no. 112-61-8)
88. Methyl oleate (methyl octadecanate) (Cas no. 112-62-9)

89. Vinamul 3231 – latex (cleaning regime C)

90. Wine lees (vinasse<sup>17</sup>, argol, crude tartar, crude potassium tartrate)<sup>18</sup>

91. Acidic oils and fatty acid distillates (from vegetable oils and fats and/or mixtures of this and animal and marine oils and fats)<sup>18</sup>

<sup>17</sup> This does not mean reed vinasse and/or beet vinasse. These are animal feeds classified in category 4.

## **Category 4**

### **Products or raw materials for human food**

### **Feedstuffs used for production of mixed feeds or for direct feeding**

### **Dry and packed additives (transport packed products)**

#### **Fertilisers**

1. Ammonium sulphate (GRAS)<sup>18</sup>
2. Diammonium phosphate (GRAS)
3. Potassium sulphate (GRAS)
4. Calcium-ammonium-nitrate
5. Magnesium salpetre
6. Primary produced calcium
7. Urea (GRAS)
8. Mixtures of the above fertilisers

#### **Soil-related products:**

1. Soil from peat excavation/black peat from upland peat excavation)/ black soil
2. Garden soil/compost, treated with artificial fertilisers from category 4
3. Garden peat
4. Sand, not contaminated or originating from (former) industrial sites

#### **Minerals:**

1. Coal, washed or unwashed
2. Brown coal
3. Mine-stone
4. Quartz
5. Granite

21. Shells
22. Grit
23. Talc
24. Vermiculite

#### **Other organic substances:**

1. Tree bark
2. Animal feed (dry or liquid) not containing animal proteins <sup>9</sup>
3. Animal proteins (if the following load concerns fodder, demonstrably to be used for a production line for non-agricultural animals, or concerns compound feeds or premixes, to be used for non-agricultural animals
4. Animal feed with animal proteins<sup>6</sup> or produced on production lines with animal proteins<sup>6</sup>, if the following load concerns fodder, demonstrably to be used for a production line for non-farm animals, or concerns compound feeds or premixes, to be used for non-farm animals
5. Withdrawals from auctions
6. Ethanol (ethyl alcohol) (Cas no. 64-17-5)
7. Grass seed if of a healthy trading quality with respect to animal feed.
8. Wood chipping/green clippings
9. Treebark
10. (Waste) paper

<sup>18</sup> For artificial fertilisers classified in category 4 the following conditions apply:

- Transport of the specified artificial fertilisers in bulk tankers: classification of the specified fertilisers is only permitted if the transport of artificial fertiliser is alternated with the transport of animal feed and/or animal feed raw materials. This means that after one load of the specified artificial fertilisers a load of animal feed and/or animal feed raw materials must be transported before artificial fertilisers may be transported again. If multiple consecutive transports of artificial fertiliser take place then there must always be a wet clean before animal feeds and/or animal feed raw materials may be carried.
- Transport of the specified artificial fertilizers in bin wagons: cleaning regime A: dry cleaning

## Appendix B

**Log book for vehicles transporting material for the Animal Feed Industry (Page 1 from 2)**

Vehicle information					Product information									
Vehicle information (Registration no, manufacturer):		Transport Company name:		24 Hour Tel no:	Product transported	Loading point (Responsible person)	Very high risk material- <b>Prohibited</b>	Microbiologically contaminated - <b>High risk</b>	Physical or Chemical risk- <b>Medium risk</b>	Neutral material - <b>Low risk</b>	Action required			
Date	From	To	Final km	Driver							Product Category			

**Log book for vehicles transporting material for the Animal Feed Industry (Page 2 from 2)**

Cleaning information					Inspection and verification							
Date	Premises	Responsible person	Cleaning procedure				Date	Responsible person	Inspection (please indicate result)			Sign
			A) Dry clean	B) Cleaning with water	C) Cleaning with water and disinfectant	D) Disinfect			Visual inspection	ATP	Microbial plate	

**GMP RAW MATERIAL TRANSPORT (OVERVIEW)**

appendix C

	<b>HIGH RISK - Microbiological contaminated</b>	<b>MEDIUM RISK - Physical/Chemical risk</b>	<b>LOW RISK - Neutral Raw Material</b>	<b>PROHIBITED - Very high risk raw Material</b>
<b>Raw Materials</b>	<p><b>Category 2 (Refer to Appendix B)</b></p> <p>Mushroom compost, GTF compost, all non ruminant manure products</p> <p>Poultry by-product and other poultry products (All non-ruminant products)</p> <p>Salmonella contaminated material. All material that might be contaminated with salmonella and other pathogens</p> <p>Material showing signs of decay. Glass intended for recycling.</p>	<p><b>Category 3 (Refer to Appendix B)</b></p> <p>Fertilizers</p> <p>Product involving soils</p> <p>Additives</p> <p>Other organic and inorganic substances</p>	<p><b>Category 4 (Refer to Appendix B)</b></p> <p>Raw materials for human food</p> <p>Feedstuffs used for mixed feed or direct feeding</p> <p>Fertilisers, Soil related products, Minerals</p> <p>Other inorganic substances</p>	<p><b>Category 1 (Refer to Appendix B)</b></p> <p>Animal Material from ruminant origin</p> <p>Fertilizers from animal manure origin (excluding poultry manure), All ruminant animal manure.</p> <p>Toxic organic substances: Asbestos, Asphalt, etal chips and swarf, mineral clay for detoxification Petroleum cokes, Quaker oil, radioactive material, toxic oxidative materials and their packaging, fly ash</p> <p>Domestic waste, <b>jayflex phthalate</b> tester, unpacked seeds treated with toxic substances, sewage sludge, untreated food residue (swill)</p>
<b>Basic Cleaning and disinfection</b>	<p><b>Cleaning method C: Cleaning with water and cleaning agent:</b> High pressure (25 bar) hose, flat nozzle</p> <p>Remove residues from previous load by <b>Dry Cleaning:</b> Vacuum preferred, Blowing, Sweeping</p> <p>Pre-rinse with cold/warm water and clean difficult places by hand</p> <p><b>Cleaning method D: Cleaning with water and cleaning agent and disinfection:</b> Follow cleaning method C1</p> <p>Do dry disinfection if efficacy established</p> <p>Use chlorine on stainless steel otherwise quaternary ammonium compound</p> <p>Closed tankers with CIP use Ascetic acid for min 5 minutes</p>	<p><b>Cleaning method B: Wet Cleaning:</b> High pressure (25 bar) hose, flat nozzle</p> <p>Remove residues from previous load by <b>Dry Cleaning:</b> Vacuum preferred, Blowing, Sweeping</p> <p>Pre-rinse with cold/warm water and clean difficult places by hand</p> <p>High pressure cleaning with warm water (&gt;60°C)</p>	<p><b>Cleaning method A: Dry Cleaning:</b> Vacuum preferred, Blowing, Sweeping</p> <p>Clean difficult places by hand or brush</p> <p>Clean difficult places by hand or brush</p> <p>If dry cleaning unsuccessful, do <b>Wet Cleaning</b></p>	<p>Refer to Appendix G</p>

Hygienic procedure	Biosecurity	Develop stepwise procedure for training personnel, cleaning and disinfecting vehicle, utilising cleaning equipment, buying and utilising disinfectants, pre-load inspection procedure etc.	Hygienic procedure	Bio security	Develop stepwise procedure for training personnel, cleaning and disinfecting vehicle, utilising cleaning equipment, buying and utilising disinfectants, pre-load inspection procedure etc.	Hygienic procedure	Bio security	Develop stepwise procedure for training personnel, cleaning and disinfecting vehicle, utilising cleaning equipment, buying and utilising disinfectants, pre-load inspection procedure etc.	Hygienic procedure	Bio security	Develop stepwise procedure for training personnel, cleaning and disinfecting vehicle, utilising cleaning equipment, buying and utilising disinfectants, pre-load inspection procedure etc.
	Develop procedure to avoid contamination with undesirable substances like bird droppings and rain water, including vermin control	Hygienic procedure		Bio security	Develop procedure to avoid contamination with undesirable substances like bird droppings and rain water, including vermin control		Hygienic procedure	Bio security		Develop procedure to avoid contamination with undesirable substances like bird droppings and rain water, including vermin control	
	Create a Quality file	Hygienic procedure		Bio security	Create a Quality file		Hygienic procedure	Bio security		Create a Quality file	
	Keep records of all processes and procedures	Hygienic procedure		Bio security	Keep records of all processes and procedures		Hygienic procedure	Bio security		Keep records of all processes and procedures	
Traceability	Logbook (Refer to Annex B)	Traceability	Logbook (Refer to Annex B)	Traceability	Logbook (Refer to Annex B)	Traceability	Logbook (Refer to Annex B)				
Inspection/Verification	Visual (required after every load)	Inspection/Verification	Visual (required after every load)	Inspection/Verification	Visual (required after every load)	Inspection/Verification	Visual (required after every load)				
	ATP (1 X per week per vehicle or every 5th load)		HPLC or Mass Spectroscopy (on discretion of management)								
	Microbial (1 X per week per vehicle or every 5th load)										
NON-CONFORMANCE	Define Standards										
	Reporting of non-conformance.										
	Documentation										
CORRECTIVE AND PREVENTATIVE MEASURES	Describe corrective action										
	Initiate corrective action and adapt procedures										
	Go back to Inspection and verification										
	Documentation										

# Appendix D

Responsible person: \_\_\_\_\_

Date: \_\_\_\_\_

## Form to evaluate incoming RM vehicles (X3)

### Work instruction

Once a request for a audit are received the QC Manager must start evaluating the incoming vehicles

Evaluate 3 vehicles of the transport company ( as far as possible different drivers)

1	Name of the driver						
2	Date						
3	Product being transported						
<b>A Driver training</b>							
2	Evaluate the drivers understanding of RM classification	10	5	0	good	average	poor
3	Evaluate the drivers understanding of cleaning procedures	10	5	0	good	average	poor
4	In your Opinion is the driver capable of doing the required task	10		0	Y		N
5	Does the driver understand the basic concepts of biosecurity	10	5	0	good	average	poor
6	Let the driver demonstrate the preventative procedure in case of a oil leak on his vehicle	10	5	0	good	average	poor
7	Does he have the necessary equipment to avoid oil spillage	10		0	Y		N
8	Did the driver receive (according to training records) sufficient training	10	5	0	good	average	poor
9	Inspect the vehicle. Is in a good sanitary condition	10	5	0	good	average	poor
<b>B Logbook*</b>							
1	Request min information as indicated in the log book	10		FAIL	Available		Not Available
2	Can driver account for previous load on trailer/vehicle	10		0	Y		N
3	Is there any obvious discrepancies in the information.	10		0	Y		N
4	Can the transport company account for all loads transported with the vehicle	10		0	Y		N
<b>C GMP Transport file</b>							
1	Request the GMP transport file (must be in vehicle)	10		0	Available		Not Available
2	Does the file describe at which facilities vehicles must be washed	10		0	Y		N
3	Does it indicate the washing procedure (according to GMP guidelines)	10		0	Y		N
4	Does it indicate the detergents and disinfectants to use	10		0	Y		N
5	Does it indicate the solution concentrations	10		0	Y		N
6	Does it indicate who is responsible for cleaning the vehicle	10		0	Y		N

\* Information must be available from offices of company

**Out of Score**  
180 (75%Min)

Comments:

Please indicate comments on areas of correction

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Form to do audit at supplier premises (1X)

### Work instruction

#### QC Manager

Visit the transport company (if not possible request copies) of the indicated information

From the log book, make a list of all facilities use to wash vehicles. Inform the company that a representative of your company will do a audit

Transfer results to Alma Criteria

<b>D Request the following procedures and records from the company</b>							
1	Drivers training records	20		0	Received		Not received
3	Avoiding vehicle getting contaminated with bird droppings	20	10	0	Sufficient	Insufficient	Absent
4	Frequency of test	20	10	0	Sufficient	Insufficient	Absent
5	Results of test	20	10	0	Sufficient	Insufficient	Absent
6	Records of non-conformances	20	10	0	Sufficient	Insufficient	Absent
7	Corrective procedures	20	10	0	Sufficient	Insufficient	Absent
<b>E Facilities where vehicles are washed</b>							
1	Visit one of these premises and do a complete audit from vehicles arriving to leaving	60		FAIL	Sufficient		Insufficient

**Out of Score**  
180 (75%Min)

Comments:

Please indicate comments on areas of correction

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## APPENDIX E

After a prohibited material has been transported, a vehicle may be certified as “clean” to transport animal feed raw materials again.

1. A cleaning procedure based on the type of product will be developed by the transport company, and presented to the AFMA member, which will either:
  - approve it
  - make recommendations to change it; or
  - reject it

Recommendations may include using an external company (please note all costs will be for the transport company).

2. After the procedure has been approved, the AFMA member will inspect the vehicle and approve the vehicle as clean.

The AFMA Member (or an approved external company) will issue a certificate to certify the vehicle as “clean”.

The AFMA member may also insist that an external inspection company must be used to inspect the vehicle and to certify the vehicle as “clean”. (Please note all costs will be for the transport company).

Once a vehicle has been approved as clean, the vehicle may transport animal feed material again.

If a vehicle transports a different prohibited material again, the whole procedure must be repeated. If the same material is transported again, only step 2 will have to be repeated.