

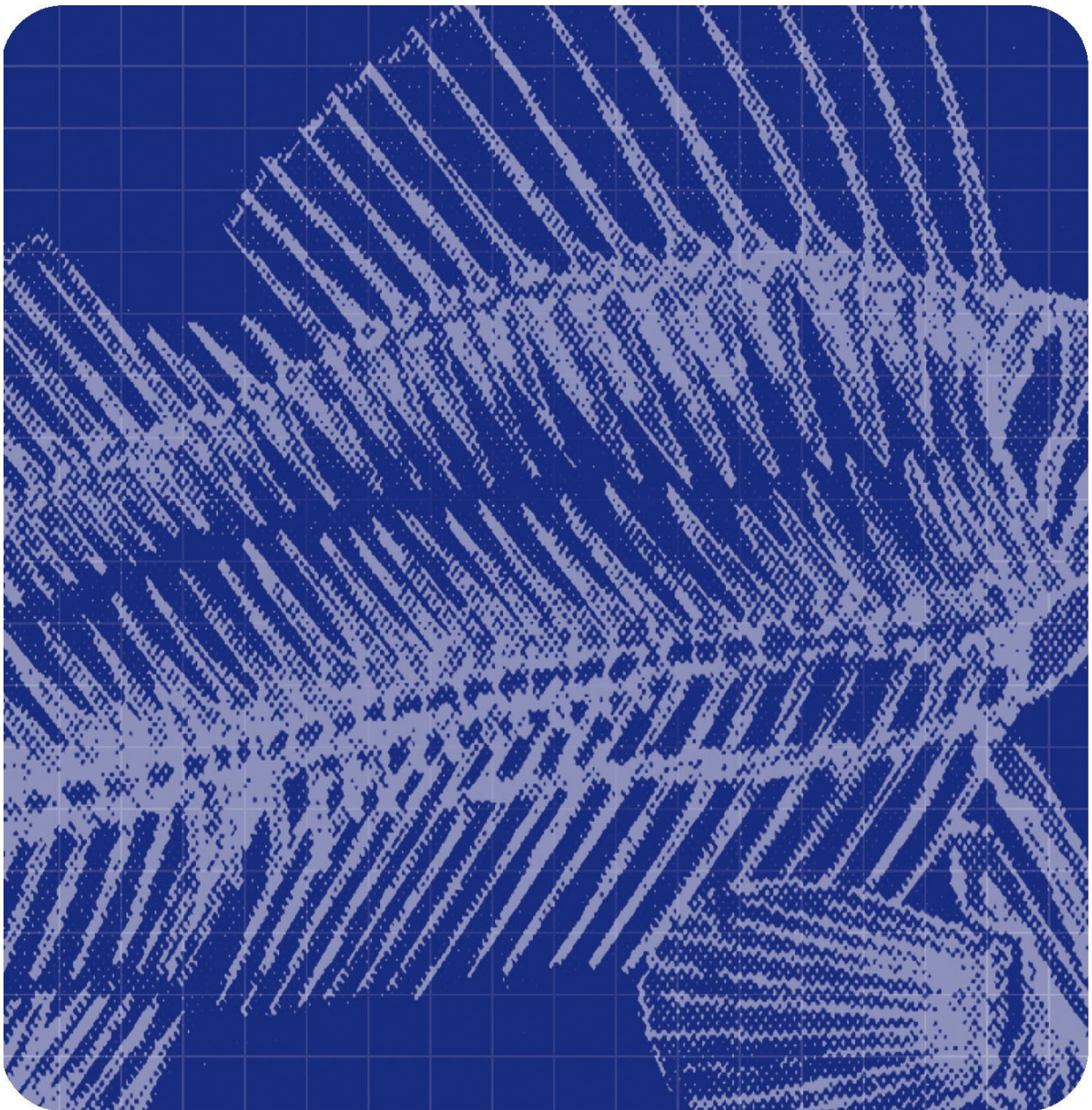


Fiskeriforskning

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## **Material flow and information flow at Insalus, a mineral water company**

Petter Olsen and Kine Mari Karlsen





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| <i>Summary:</i><br><p>Traceability will be an immensely important subject for the food industry these upcoming years. The TRACE R&amp;D project is a European joint effort between food industry and solution providers, assisted by research institutes and financed by the European Commission, to ensure that the food industry is ready to meet these challenges.</p> <p>The objective in the traceability group of TRACE is to ensure that the information loss in the chains from received raw materials and ingredients through production to shipping and consumption is minimal, and that the product can be traced both forwards and backwards through all links.</p> <p>The mineral water plant of Insalus outside San Sebastian, Spain was chosen to be a pilot company in TRACE. The report describes material flow and information flow, points out where information is lost in the current system, and recommends changes to existing routines and practices.</p> |  |   |

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### Abbreviation

|      |  |
|------|--|
| EAN  | European Article Number                            |
| GLN  | Global Location Number                             |
| GS1  | Global Solutions                                   |
| GTIN | Global Trade Item Number                           |
| ISO  | the International Organization for Standardization |
| LU   | Logistic Unit                                      |
| SSCC | Serial Shipping Container Code                     |
| TU   | Trade Unit   |

## **1 BACKGROUND**

Traceability will be an immensely important subject for the food industry these upcoming years. From August 12<sup>th</sup> 2004, registration and prior notice sent in electronic form with a wealth of traceability information is required for all food shipments to the US (Bio Terrorism Act PL107-188, 2002). The European Union (EU) Common Food Law (EC-178/02, 2002) came into effect on January 1<sup>st</sup> 2005 and requires one-up, one-down traceability. Commercial requirements and consumer awareness relating to traceability and documentation of food products are increasing rapidly, particularly as a result of the many food scandals in recent years.

The TRACE R&D project is a European joint effort between food industry and solution providers, assisted by research institutes and financed by the European Commission, to ensure that the food industry is ready to meet these challenges (TRACE, 2005).

The mineral water plant of Insalus outside San Sebastian, Spain was chosen to be a pilot company in TRACE.

## **2 OBJECTIVE**

The objective in the traceability group of TRACE is to ensure that the information loss in the chains from received raw materials and ingredients through production to shipping and consumption is minimal, and that the product can be traced both forwards and backwards through all links. Tracing back from consumption / production may be useful if undesirable product properties originating from previous links are discovered. Tracking forward from product to find where the mineral water went is used in connection with recalls (both to effectuate, to reduce the scope of, and to avoid), but also to study the applications further down the chain, and in particular to get feedback with respect to how the quality in the earlier links in the chain influence the quality of the product as it reaches the consumer.

The outcome of this project should be improved access to timely, relevant and accurate data about the food or product, from any point in the chain to any point in the chain. In addition, a significant tangible benefit for the users in the food sector will be reduced transaction costs and less re-punching of data, where as a significant benefit for the solution providers will be interoperability, platform independence, and increased value of the services and products they already offer.

## 3 DEFINITIONS

### 3.1 Traceability

The International Organization for Standardization (ISO) defines traceability as follows (ISO, 2000): '*Ability to trace the history, application or location of an entity by means of recorded identifications.*' In a product sense, it may relate to;

- ✦ The origin of materials and parts
- ✦ The product processing history
- ✦ The distribution and location of the product after delivery

There are two types of traceability (Moe, 1998):

#### 1. Internal traceability

The ability to trace the product information internally in a company.

#### 2. Chain traceability

The ability to trace the product information through the links in a supply chain, in other words the product information a company gets and gives away. Traceability is not the product information itself, but it is a tool that makes it possible to trace this information through the supply chain.

### 3.2 Trade Unit (TU)

Also referred to as a Trade Item. Defined by EAN as any item upon which there is a need to retrieve predefined information and that may be priced, or ordered, or invoiced at any point in any supply chain (EAN, 2002). TU is a generic term, and it may be atomic or it may be clustered. Note that per definition, all logistic units are TUs, as there may certainly be a need to retrieve predefined information on a logistic unit.

TU is the general term. It can refer to a very small unit ('one bottle of Coke'), but it can also refer to a six-pack, a case, a pallet, a truck, or whatever. As the definition says, a trade unit is any unit for which there is a need to retrieve predefined information and which may be priced, or ordered, or invoiced at any point in any supply chain.

### **3.3 Logistic Unit (LU)**

Defined by EAN as an item of any composition established for transport and/or storage that needs to be managed through the supply chain (EAN, 2002).

Logistic Unit is a type of TU, and it designates the grouping that you do before transportation or storage. The classic LU is a pallet, but it may also designate a container, a boat load, or similar.

Note that the relationship between TU and LU cannot in general be quantified. A pallet of bottles that we send from A to B is certainly a LU, and at the same time each individual bottle might be a TU, or each six-pack, or each case, or indeed the whole shipment of pallets. This observation highlights the need for defining at least one new type of TU.

### **3.4 Batch**

A batch is defined as the quantity that has gone through the same processes (ERC 2004; Forås *et al* 2004). In this document batch is synonymous with lot. Some examples of batches are a pallet of fish, a container of fish, 24 hours production and 12 hours production.



## 4 THE METHOD

The objective of the process mapping is to analyze the material flow and the information flow, and in particular to identify systematic information loss.

The overall steps for process mapping are outlined in figure 1.

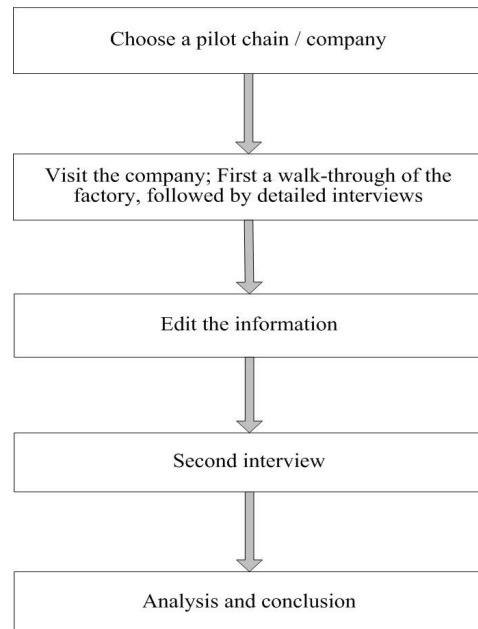


Figure 1. Overview of the steps in the process mapping.

Mineral water produced by Insalus was chosen as a pilot chain (figure 2).

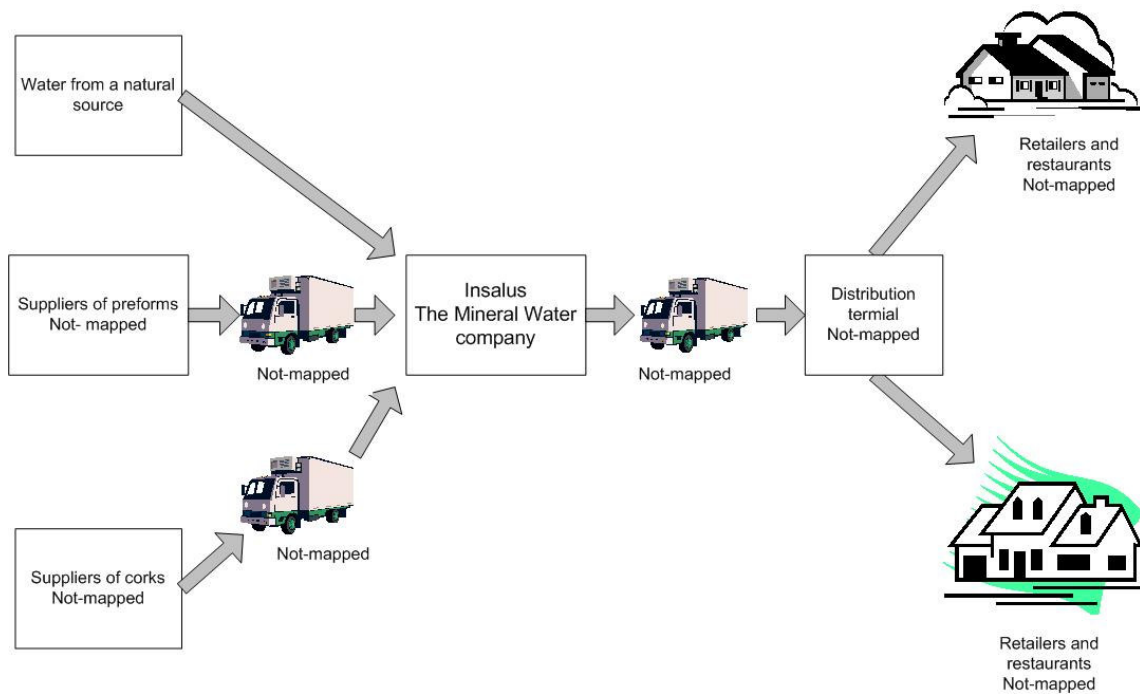


Figure 2. Overview of the material flow in the mineral water chain.

The mineral water producer Insalus, was visited on May 18<sup>th</sup> and 19<sup>th</sup> 2005, and this process mapping study was carried out. The team visiting Insalus consisted of:

Borja Alberdi, AZTI, Spain

Kari Fremme, Tracetracker, Norway

Brian Morrow, e-blana, Ireland

Petter Olsen, Norwegian Institute of Fisheries and Aquaculture

Kine Mari Karlsen, Norwegian Institute of Fisheries and Aquaculture

A walk-through of the factory was followed by detailed interviews of Insalus staff, in particular:

Franciso Javier Malcorra Arsuaga, Director Gerente

Amaia Astibia, Laboratory Manager

The first step in process mapping of this type was to identify the end product.

The method “Analysis of traceability in food supply chains - Standard method” was used (Olsen, in press). This method was developed for exactly this type of analysis.

The principle and sequence of events can be illustrated as follows:

When performing process studies to document material and information flow of the food, each of the 9 steps in figure 3 can be converted to a form to be used in the mapping or interview. The tables with questions in the appendix are quite extensive, and not all questions will apply to all links. In addition, some products or links may have special attributes that it is relevant to record in addition. These may easily be appended to the respective forms.

Note that steps 2, 4, 6 and 8 deals with the transformation information; the documentation of what happens exactly at the point and time when the product moves from one context to the next.

Steps 1, 3, 5, 7, and 9 deals with durations; what happens or what is the state during transportation, pre-processing, production and packaging of the product.

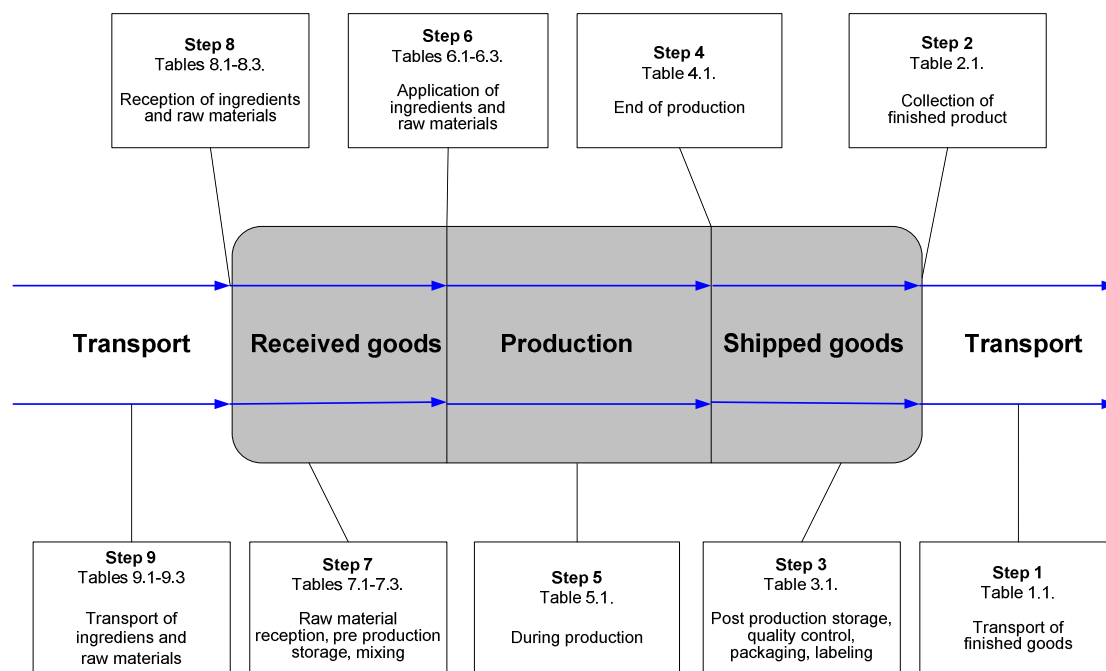


Figure 3. Overview of the method in process mapping to analyze the material flow and the information flow.

The diagram above and the tables with questions in the appendix show how to map one product, starting with a form or table where the information about the transportation of it to the next link is recorded. As the process mapping moves against the material flow, it is likely that multiple tables or forms will be needed. In particular this is true when moving from mapping the process parameters (step 5) to the application of raw materials and ingredients (step 6). If only one product, process and transportation route is documented, there will be only one set of questions to ask (one form or table) in steps 1, 2, 3, 4, and 5. If multiple raw materials or ingredients are used then each of these will be documented on a separate form 6, and each of these form 6's will then have to be traced through steps 7, 8 and 9.

## 5 THE RESULTS

Insalus is situated in Tolosa, Spain, it employs about 30 people. Insalus produces 30 000 000 liters water per year. The products are glass or plastic bottles of still or sparkling mineral water in different sizes. The production capacity of plastic bottles is 18 000 liters water per day. The customers are retailers and restaurants.



At Insalus, the products chosen to map were plastic bottles of 0, 33 l, 0, 5 l and 1, 5 l containing still water. The following raw materials and ingredients were identified (figure 4):

- ✘ Water
- ✘ Pre-forms
- ✘ Screw caps

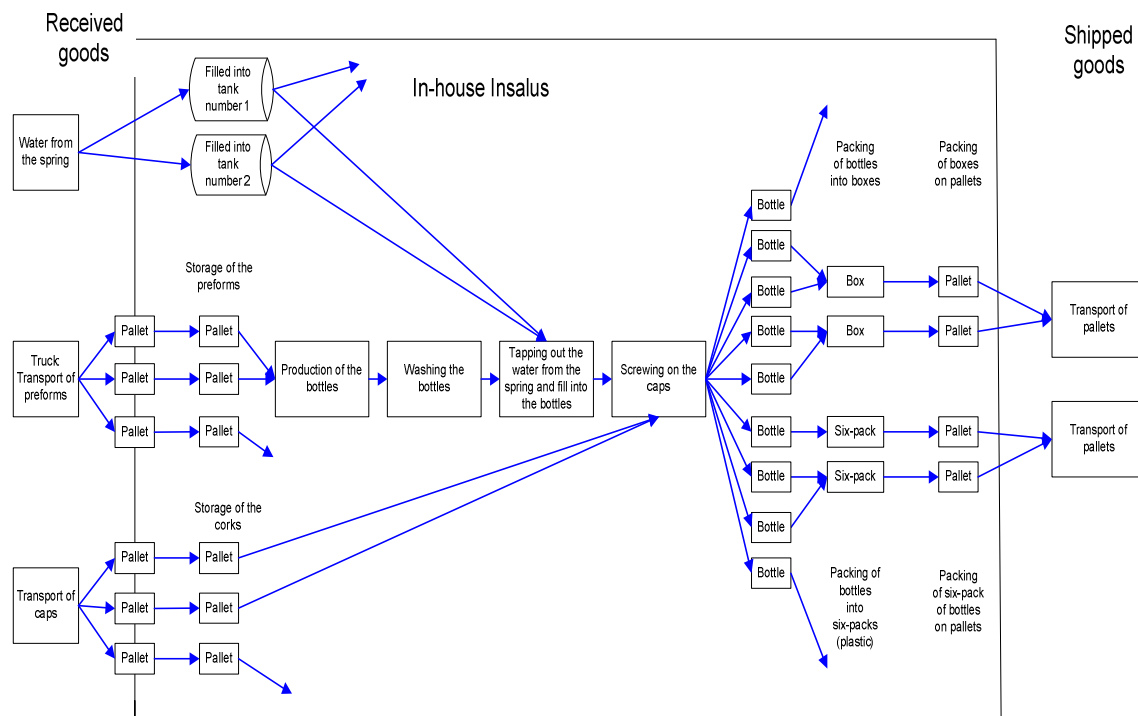


Figure 4. Overview of the material flow of plastic bottles in Insalus, a mineral water producer.

## 5.1 Material flow and identification - Water:

Insalus receives the water from a natural source. Water is pumped every day into one out of two tanks, normally alternating between tanks from one day to the next. The size of one tank is 500 000 liter, and it takes 12 hours to fill it. Insalus records every time a tank is filled with water. One tank is enough for one day's production, but can also be used for two days. Normally the water can be stored in the tank for a maximum of two days. Under production of mineral water Insalus records production date and number of the tank (figure 5). The number of the tank is indirectly linked to the identification of each bottle of mineral water, through production date which can be found from best-before date (L27.04.08). Twice a year these tanks are emptied and cleaned. Insalus analyzes of the water every week. Temperature measurements or temperature control of the water is not deemed necessary.

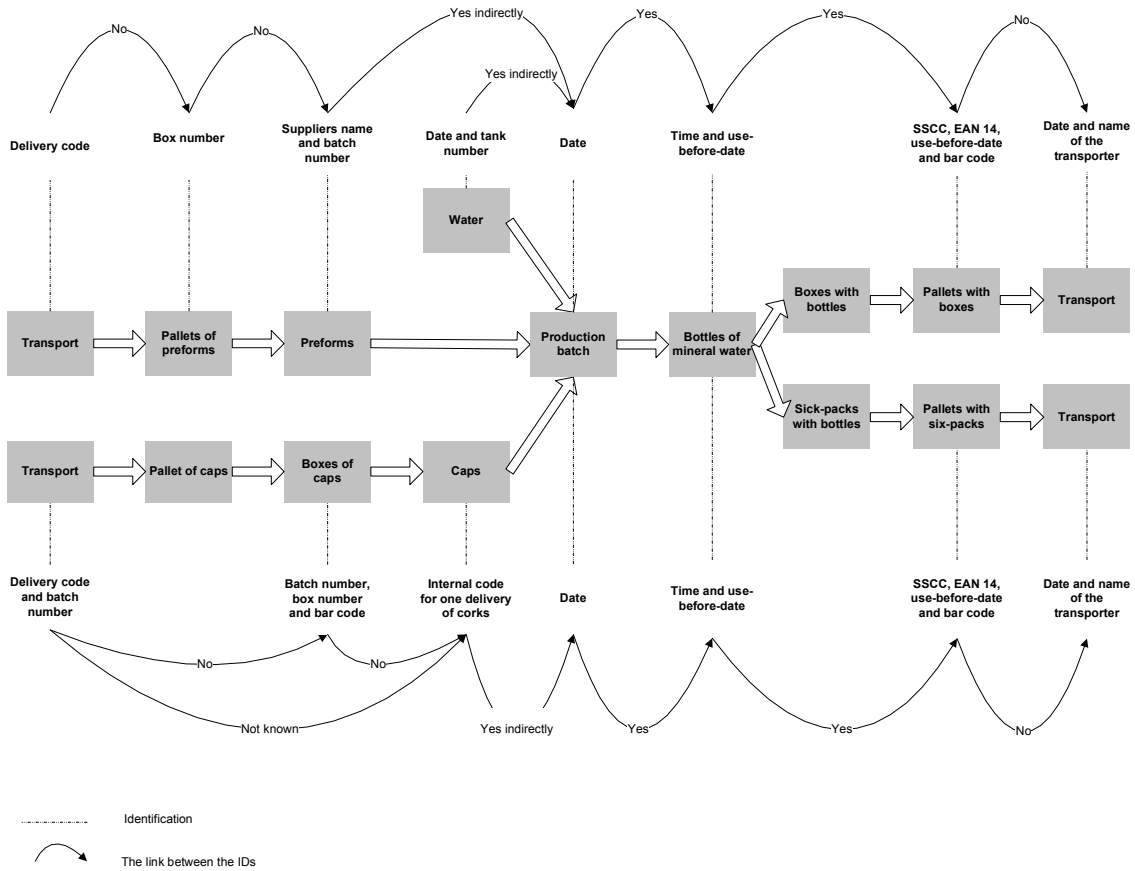


Figure 5. Overview of identification of the batches, trade units and logistic units, and the link between the identifications.

## 5.2 Material flow and identification - Pre-forms:

The pre-forms Insalus used in production of mineral water are delivered from different suppliers by trucks 1-2 times per month. Insalus receives normally 30 pallets of pre-forms every delivery depending on the price. One pallet consists of one box with pre-forms. The boxes with pre-forms are identified with box numbers (figure 6). Some pre-forms are labelled with the supplier's name and batch number ex. TEGNOPET and H-1. The documents following the delivery do not consist information about the pre-form's batch numbers.

| Preformas 13,5gr. |                 |
|-------------------|-----------------|
| Código Cajón:     | 056432          |
| Material:         | NOVAPET MW SOFT |
| Cantidad:         | 14080           |
| Fecha:            | 17/04/05        |
| Hora:             | 7:31            |
| Turno:            | 1               |
| Color:            | Azul N          |
| Inyectora N°:     | 2               |

The box number  
The name of the product  
Volum  
The production date  
Time  
Shift  
The number of the machine

Figure 6. The label of a pallet with pre-forms.

When Insalus receives pre-forms they record suppliers name and box number. The production is based on first-in, first-out principle. The first step in the production is blowing up the pre-forms to the right size, in our case 0,33 l, 0,5 l and 1,5 l. Pallets with pre-forms are mixed together. Insalus records manually the box number when the pre-forms are blow up. Insalus has capacity to produce 18 000 small bottles per hour and 12 000 big bottles per hour (without water). Insalus uses 8 pallets with small pre-forms per day (one pallet consisted 16 000 pre-forms) and 8 pallets with big pre-forms per day (one pallet consisted 9000 pre-forms). Insalus records which boxes are used to produce bottles labelled with ex. L27.04.08, the link is indirect via time (figure 5).

### 5.3 Material flow and identification - Caps:

The caps Insalus uses in production of mineral water are delivered by trucks once per month. Insalus orders caps from two different suppliers. The caps are packed into plastic bags in boxes and identified with box numbers (figure 7). The volume of one box is 4000 caps, and 40 boxes on one pallet. Insalus receives 25 pallets each delivery. When Insalus receives the caps they give a code to all caps from one delivery. They do not record any information to these numbers under the production. Insalus uses one pallet per day in production of mineral water.

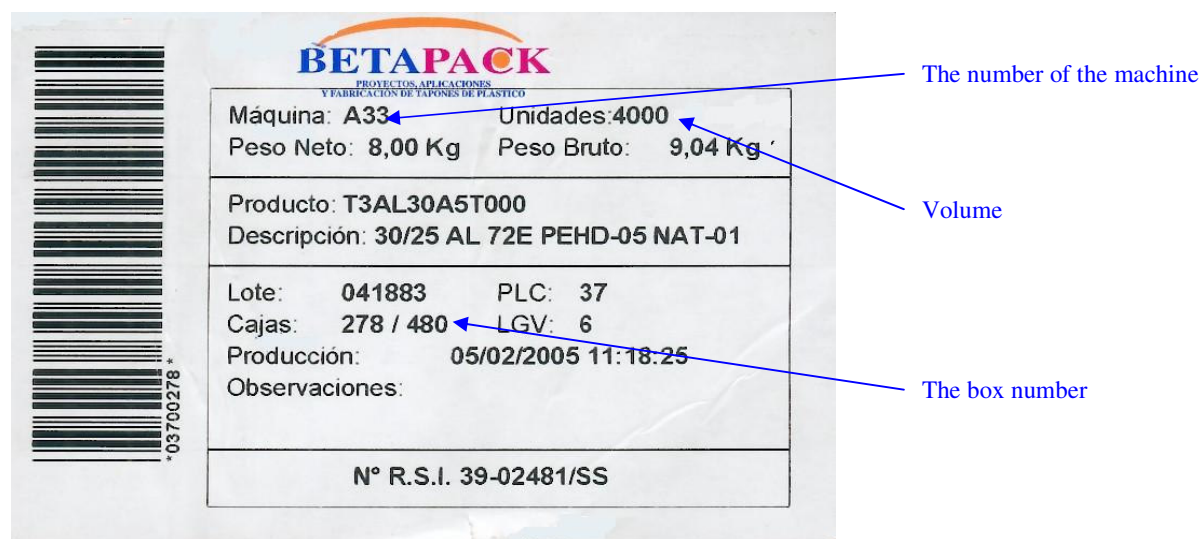


Figure 7. The label of a box with caps.

### 5.4 Material flow and identification – Finished product:

The bottles of mineral water are identified with time and use-before-date, ex. 14.10 L170508. Insalus has daily batches and has capacity to produce 12 000 bottles of mineral water per hour. The production time from the start to the end is 15 minutes.

The end products of plastic bottles of mineral water are:

- ✗ Boxes with 34 bottles a 0, 33 l
- ✗ 6-packs a 0, 33 l (with red/pink caps, this chain was not studied in our process mapping).
- ✗ Boxes with 24 bottles a 0, 5 l
- ✗ 6-packs a 0, 5 l.
- ✗ Boxes with 12 bottles a 1, 5 l
- ✗ 6-packs a 1, 5 l.

A pallet with bottles of mineral water is identified with Serial Shipping Container Code (SSCC), European Article Number (EAN) 14, lot number and bar code (figure 8). Insalus often ends the production on one day with a half full pallet with one product and finishes it next day, this means that one pallet can consist of bottles with two different best-before-dates.

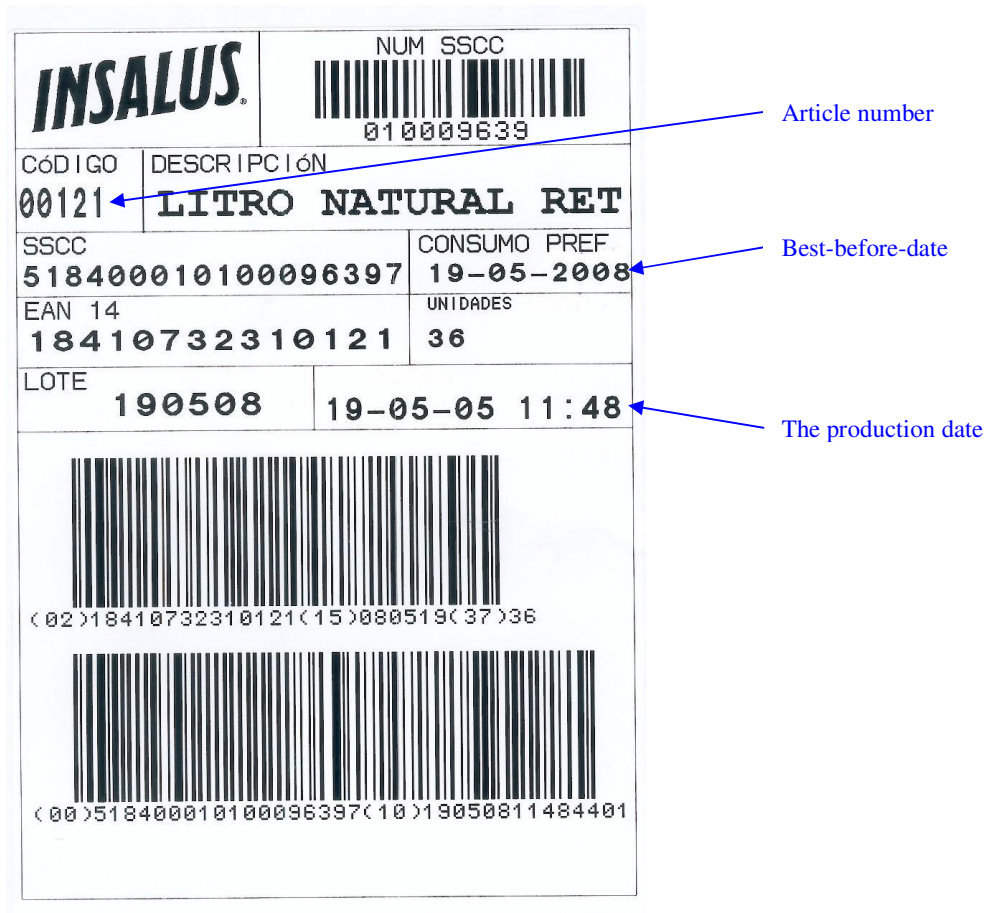


Figure 8. The label of a pallet with mineral water.

Insalus do not produce mineral water based on orders thus the plastic bottles are produced for storage. The post-storage time is two weeks for the big bottles and one week for the small bottles. Insalus receives an order on paper and this is recorded in Insalus's system. Insalus has three trucks (two were rented and one owned) and the person who drive the truck records electronically the pallet number and destination of the delivery. Insalus uses this information for production management. Insalus can find the customers of the water through the date, but not with 100 % accuracy.

Full trucks with mineral water deliver 4-5 times per day to a distribution terminal. The mineral water is unpacked on the terminal and dispatch to retailers and restaurants. Insalus do not send product documentation to the customers.



## **6 DISCUSSION AND CONCLUSIONS**

The objective of the process mapping at Insalus is to analyze the material flow and the information flow of mineral water, and in particular to identify systematic information loss.

With respect to traceability, the production at Insalus was simple with separate batches for mineral water and identification of bottles of mineral water through best-before-date which in turn gives us the production date.

Insalus meets with 178/2002 Common Food Law requirements for traceability, and to some degree fulfils the additional recommendations made in the accompanying guidance document.

### **6.1 Traceable units**

#### **6.1.1 Water**

The only relevant and possible traceable unit for water is the water that is in a tank on a specific day. The link to this is always available, as each individual bottle is always marked with best-before date, and a best-before date maps 1-to-1 to a production date, and on a given production date water from a single specified tank (with accompanying measurements) were used.

#### **6.1.2 Pre-forms**

For pre-forms, two different levels of traceable units can be considered:

- the whole delivery (all 30 pallets/boxes delivered from a supplier on a given date) is considered to be a traceable unit
- each pallet/box is considered to be a traceable unit

Depending on the level of ambition, the willingness to risk large recalls, and the cost/benefit analysis, a traceability system can function on either of these two levels.

#### **6.1.3 Caps**

For caps, three different levels of traceable units can be considered:

- the whole delivery (all 25 pallets delivered from a supplier on a given date) is considered to be a traceable unit
- each individual pallet (with 40 boxes) is considered to be a traceable unit
- each box is considered to be a traceable unit

The final case is not practical to implement in practice; it would obviously not be convenient to keep separate track of the use of 40 individual boxes each day. The other two levels represent relevant and possible traceable units, though. Depending on the level of ambition,

the willingness to risk large recalls, and the cost/benefit analysis, a traceability system can function on either of these two levels

#### **6.1.4 Finished product**

For finished products, the following alternatives exist, at least in theory, for traceable units:

- The production batch; all bottles of one type produced on the same day and with the same best-before date (and so, with the same production date)
- The whole shipment; a number of pallets (or parts of pallets) delivered to a customer on a given day/time
- Each individual pallet (or part of pallet) in a shipment
- Each box of 12/24/34 bottles
- Each 6-pack of bottles
- Each individual bottle

The obvious choice for traceable unit is the production batch, and the reason is twofold:

- Single bottles are guaranteed to reach the consumer and each link in between whole, and there is already a system of marking each individual bottle with production batch number (via the best-before date). When it comes to tracing back to the water (which is the most important ingredient), one days production is the smallest unit that it is possible or relevant to trace back to
- In practice, when the bottle has been blown up, filled with water, and corked, nothing much more can happen to it (at least nothing reported in practice). If the foodstuff in question had been sensitive to environmental conditions like temperature, humidity or pressure (like fresh meat or fish is), it would have been relevant to track each shipment, pallet, box or 6-pack, but as it is, it seems obvious that at least for this mineral water chain, the cost of tracking smaller units individually would far outweigh the benefits.

To illustrate the workings of Insalus's current system, let us look at two simple scenarios, tracing back through Insalus and tracking forward through Insalus:

## **6.2 Tracing back through Insalus**

Let us assume that the mineral water was contaminated in some invisible way, and that this was not discovered during the production. A real life example similar to this was the dioxin scandal in Belgium in 1999, when chicken feed accidentally became contaminated. To trace mineral water from consumer / supermarket back to Insalus is possible because every bottle was labelled with use-before-date.

A bottle of mineral water had three raw materials and ingredients; water, pre-forms and caps. To trace the water back through the production is possible because Insalus recorded

production date and tank number, which was linked to use-before-date on every bottle. To trace pre-forms back to the supplier is possible since pre-forms were labelled with supplier's name and batch number. To trace caps back to the supplier is depending on Insalus had recorded the internal code for one delivery of caps to the supplier's name, which probably is the case.

It is possible to trace back mineral water through Insalus with the existing system, thus Insalus is prepared for a crisis that might require trace back through the production.

### **6.3 Tracking forward through Insalus, recall**

Recall of bottles containing water taken from a tank on a certain day is not very likely, but if it happened, the bottles could be identified and recalled directly, using the best before date.

Recall of pre-form batches (a number of pallets/boxes) is a possible case. The recall would be issued on some producers' local and non-standard batch number. Insalus records suppliers name and box numbers when receiving shipment and Insalus also records the box number when the boxes are used in production. Thus, for each box of pre-forms recalled, Insalus would have to recall bottles produced on one or two specific dates.

Recall of cap batches (a number of boxes or pallets) is possible, and in the interviews conducted, Insalus reported that they considered the cork supply chain as the most vulnerable, since faulty caps can cause both leakage and, in the worst case, contamination. This is problematic since the link from production to the caps used is far weaker and more indirect than the link from production to water or pre-forms. As seen above, Insalus assigns a number to a shipment of caps when it is received, but there is no explicit link to the producers' batch number. If a link between cork supplier batch number and bottle number cannot be established, the whole production may, in worst case, be recalled. If such a link can be established, the recall will still be very big. A shipment of caps lasts Insalus for almost a month, so if a recall on a batch of caps were issued, at least a months production of bottles would have to be recalled.

In general, tracking through Insalus is good, although there may be an unnecessary risk connected with possible recalls of caps.

## 7 RECOMMENDATIONS

A plan to improve the traceability at Insalus could look as follows:

1. Decide on the level of traceability wanted for pre-forms and caps. For water and for bottles, the traceable unit is the production day (combined with the product type). Insalus must, depending on perceived risk, ambition and cost, decide whether the goal is to trace pre-forms and caps back to deliveries or to individual pallets.
2. Link all information about ingredients and raw materials directly to production date. One production batch (one days production) will be drawn from only one tank, it will use several boxes of pre-forms and it will use one, or perhaps two (at change-over) batches of caps. A simple table could look as follows:

| Production batch | Ingredients and raw materials | Identification  | Supplier                              |
|------------------|-------------------------------|---|---------------------------------------|
| 19.05.05         | Water                         | Tank 2  |                                       |
| 19.05.05         | Caps                          | Cap Batch 041883  | Cork Supplier Name                    |
| 19.05.05         | Pre-forms                     | Box number 056432<br>Box number 056434<br>Box number 056435<br>Box number 056436<br>Box number 056439 | Pre-form Supplier Name (for each box) |
| 20.05.05         | Water                         | Tank 1  |                                       |
| 20.05.05         | Caps                          | Cap Batch 041883<br>Cap Batch 041884  | Cap Supplier Name (for each batch)    |
| 20.05.05         | Pre-forms                     | Box number 056439<br>Box number 056440<br>Box number 056445<br>Box number 056446<br>Box number 056447 | Pre-form Supplier Name (for each box) |

3. Provide information about the mineral water to customer keyed to best-before-date on bottle. Information can be put on the Insalus web site; Insalus defines which information they want to make available for the customer, the customer is directed to [www.insalus.es](http://www.insalus.es) and the customer can search for more information by using the best-before-date.
4. Encourage suppliers of pre-forms and caps to use globally unique numbers when identifying their shipments (and pallets and boxes). One weakness in the current system is that Insalus is required to record the supplier batch number to maintain the link to the delivery. Supplier batch number is an internal number, and its properties and uniqueness is not guaranteed. If the number describing the shipment (or the number describing each box) was guaranteed to be globally unique, this number with known structure and content would be the link between ingredient (pre-form or cork) and production. Having the number in standard format would also act as an enabler for electronic dissemination of information, both from supplier to Insalus, and from Insalus to customer.

For more information about globally unique number series and also about efficient ways of carrying and representing these numbers, contact GS1 (formerly EAN).

Tracing back through Insalus will then be based on the use-before-date. Insalus customers will have a number to relate to, and this number will be the key for Insalus internally to find the production batch, and then identify all the recordings keyed to the production batch and the raw materials that constituted the production batch.

Tracking forward through Insalus will be based on the production batch. In Insalus's current system this relates directly and uniquely to a best-before-date.

## 8 BIOGRAPHY

Bio Terrorism Act, PL107-188 (2002), <http://www.fda.gov/oc/bioterrorism/PL107-188.pdf> EN.REFLISTTRACE (2005). The EU project “Tracing the origin of food”, <http://www.trace.eu.org/>

## 9 APPENDIX

Table 1.1 Transport of finished goods – Mineral water

| Question to transporter of finished goods   | Answer, fill in  | Description or example   |
|---|--|--|
| What type of transport is used?   | <i>Truck</i>   | Truck / vessel/ air plane / post / courier / etc.  |
| What type of delivery is it?  | <i>Distribution terminal</i>   | Distribution terminal or directly to customer, either  |
| How is the vehicle identified?  | <i>Name of the truck driver; Insalus owns one truck and rents two trucks</i> | Registration number of vehicle or name and address (or GLN)  |
| How is the trip identified?   | <i>Date and name of the transporter</i>                                      | SSCC, transporter code, delivery code, freight code, etc.  |
| Is there a link from vehicle / trip to delivery?  | <i>Yes, indirectly via the list of orders</i>                                | No / Yes, indirectly / Yes, directly   |
| What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the buyer or given back to the supplier? | <i>Not mapped</i>  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate "Own", "Buyer" or "Suppl". |
| Which temperature control method was used?  | <i>Not relevant</i>  | None / iced / iced and refrigerated / refrigerated / etc.  |
| Is temperature logged during transportation?  | <i>Not relevant</i>  | No / Yes manually / Yes electronically   |

Table 2.1 Collection of finished product – Mineral water

| Transformation questions, shipping   | <i>Answer, fill in</i>  |  | Description or example   |
|--|---|--|--|
| To whom are shipments of this type delivered?  | <i>Distribution terminal</i>  |  | Name and address / GLN   |
| From where are shipments of this type shipped?   | <i>Insalus</i>  |  | Name and address / GLN   |
| Description of the total amount collected?   | <i>Full/part trucks</i>   |  | Full/part containers, full/part trucks, full/part holds / etc  |
| Range of total amount collected every time?  |   |  | From-to in kg / ton / other number relating to TU/LU   |
| How often does collection take place?  | <i>4-5 times per day</i>  |  | Daily / weekly / etc   |
| How is the total collected amount identified? What type of code and media?   | <i>Date and name of the transporter</i>   |  | Trip number / SSCC <sup>1</sup> / etc, Unique / Non-unique. Sequential / Structured, Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.        |
| What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter? | <i>Not mapped</i>   |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Own”, “Tran”, “Sent” or “Via”.    |
| If collected amount is divided into LUs; how is each LU identified? What type of code and media?   | <i>The collected amount is divided into pallets.<br/><br/>Identified with SSCC, EAN 14, use-before-date and bar code.</i> |  | Trip number / SSCC / none / etc.<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc. |

<sup>1</sup> Each logistic unit is often marked with a **Serial Shipping Container Code (SSCC)** which uniquely identifies the company and the particular logistic unit.



|   |  |  |   |
|---|--|--|---|
| Can the producer link from the identification of the total amount to each LU?   | <i>No</i>  |  | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |
| If the answer is yes, how is it linked?   | -  |  | Electronic / manual   |
| What parameters are linked to each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate "Own", "Tran", "Sent" or "Via".           |
| If pallets were divided into boxes; how is each box identified? What type of code and media?  | <p><i>The pallets are divided into boxes or six-packs (plastic).</i></p> <p><i>The boxes are identified with lot and filling time, and the six-packs are not identified.</i></p> |  | <p>Trip number / SSCC / none / etc.</p> <p>Unique / Non-unique. Sequential / Structured</p> <p>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.</p> |
| Can the producer link from the identification of the pallet to the box?   | <i>Yes for boxes and no for six-packs</i>  |  | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |
| If the answer is yes, how is it linked?   | <i>Manual</i>  |  | Electronic / manual   |
| What parameters are linked to each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate "Own", "Tran", "Sent" or "Via".           |

|  |   |  |
|--|---|--|
| <p>If LU is divided into TUs; how is each TU identified? What type of code and media?</p>  | <p><i>Boxes or six-packs are divided into bottles. Each bottle is identified with time and use-before-date, ex. 14:10 L170508</i></p> | <p>GTIN+ / other<br/>Unique / Non-unique.<br/>Sequential / Structured<br/><br/>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.</p>                  |
| <p>Can the producer link from the TU-ID to LU-ID?</p>  | <p><i>Yes for boxes and no for six-packs</i></p>  | <p>No / Yes indirectly / Yes directly (LU-ID recorded upon collection)</p>   |
| <p>If the answer is yes, how is it linked?</p>   | <p><i>Manual</i></p>  | <p>Electronic / manual</p>   |
| <p>What parameters are linked to each TU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?</p> | <p><i>Not mapped</i></p>  | <p>List of parameters.<br/><br/>For each parameter, indicate L/P/F/E/O for type of transmission.<br/><br/>For each parameter, indicate "Own", "Tran", "Sent" or "Via".</p> |

Table 3.1 Post production storage, quality control, packaging, labelling – Mineral water

| Questions post-production  | Answer, fill in   | Description or example  |
|--|---|---|
| What is the name/type of the product?  | <i>Insalus</i>  | Identifying description or name of the product  |
| What is the product condition?   | <i>Ambient, natural water without additives</i>   | Ambient / chilled / frozen / etc  |
| Which storage method is used post-production?  | <i>Bottles with mineral water are packed into boxes and sick-packs, and then packed on pallets.</i> | Boxed / bulked / seawater tanks / brine tanks / cold storage / etc.                       |
| What type of transport from process to packaging is used?  | <i>Flow line</i>  | Not needed / Flow line / Fork-lift / By hand / etc.                                       |
| Is a label used, if so, what type?   | <i>Bottles are labelled with clear text and bar code.</i>   | Clear text, barcode / Radio Frequency Identification-number (RFID) / none / etc.          |
| If a label is used, what information is on it?   | <i>Name of the product, name of the company, time and use-before-date</i>                           | Name of the company / date and time of production / date of durability etc                |
| What quality control checks are linked to the finished product? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>   | List of parameters.<br><br>For each parameter, indicate “Paper”, “ComPunch” or “ComAuto”. |
| Which temperature control method was used?   | <i>Not relevant</i>   | None / iced / iced and refrigerated / refrigerated / etc.                                 |
| Is the storage / display temperature shown or recorded?  | <i>Not relevant</i>   | No / Shown only / Recorded manually / Recorded electronically                             |

Table 4.1 End of production – Mineral water

| Transformation questions, from production   | <i>Answer, fill in</i>   |  | Description or example  |
|---|--|--|---|
| What type of lot / batch is used for finished product?  | <i>Daily</i>   |  | Daily / weekly / etc  |
| What is the lot / batch amount?   | <i>18 000 liter</i>  |  | From-to in kg / ton / etc   |
| How is the lot / batch identified?  | <i>Date and time</i><br><br><i>Internal number</i>                 |  | Unique / Non-unique.<br><br>Code structure.<br><br>Internal / Visible number                      |
| Can the producer link from identification of lot / batch to shipment of finished product?   | <i>Yes indirectly via time and use-before-date at the bottles.</i> |  | No / Yes indirectly / Yes directly (Lot / batch-ID recorded after production and linked to TU-ID) |
| If the answer is yes, how is it linked?   | <i>Manual</i>  |  | Electronic / manual   |
| What parameters are linked to the finished production batch? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate “Paper”, “ComPunch” or “ComAuto”.         |
| Is the finished lot / batch split up, joined together or kept as one?   | <i>Split up</i>  |  | Split up / joined together / kept as one  |

Table 5.1 During production – Mineral water

| Questions production   | Answer, fill in   | Description or example   |
|--|---|--|
| How are the batches separated during production?             | <i>Most of the batches are physically separated, but some batches are mixed together because a production day often ends with a half full pallet and the rest of the pallet consists of bottles from the next production day.</i> | Physically, staged mixing, continuous mixing, etc                    |
| 1 batch only or many in parallel?                            | <i>Insalus produces only one batch at the time, but bottles from the last production day are still on the end of the flow line</i>  | One / Many   |
| If many, are they ever mixed?                                | <i>Yes</i>  | No / Yes   |
| How are batches identified during production?                | <i>Date</i><br><i>Internal number</i>   | Unique / Non-unique.<br>Code structure.<br>Internal / Visible number |
| Is this identifier retained or referred to after production? | <i>Yes via the identification of the bottles (time and use-before-date)</i>   | No / Yes   |

Table 6.1 Application of ingredients and raw materials - Water

| Transformation questions, into production  | <i>Answer, fill in</i>  |  | Description or example  |
|--|---|--|---|
| Can the producer link from identification of ingredients and raw materials to identification of lot / batch?   | <i>No</i><br><br><i>Never-ending-batches</i><br><br><i>The number of the tank is indirectly linked to the identification of the bottles (time and use-before-date).</i> |  | No / Yes indirectly / Yes directly (ingredients and raw materials ID recorded under production) |
| If the answer is yes, how is it linked?  | -   |  | Electronic / manual   |
| Is the ingredient / raw material split up, joined together or kept as one?   | <i>Never-ending batches</i>   |  | Split up / joined together / kept as one  |
| What parameters are recorded to document the application of this ingredient / raw material? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>   |  | List of parameters.<br><br>For each parameter, indicate "Paper", "ComPunch" or "ComAuto".       |

Table 6.2 Application of ingredients and raw materials – Pre-forms

| Transformation questions, into production  | <i>Answer, fill in</i>   |  | Description or example  |
|--|--|--|---|
| Can the producer link from identification of ingredients and raw materials to identification of lot / batch?   | <i>Yes indirectly.</i><br><br><i>The identification of the bottles (time and use-before-date) is indirectly linked to the identification of the pre-forms.</i> |  | No / Yes indirectly / Yes directly (ingredients and raw materials ID recorded under production) |
| If the answer is yes, how is it linked?  | <i>Manual</i>  |  | Electronic / manual   |
| Is the ingredient / raw material split up, joined together or kept as one?   | <i>Split up</i>  |  | Split up / joined together / kept as one  |
| What parameters are recorded to document the application of this ingredient / raw material? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate “Paper”, “ComPunch” or “ComAuto”.       |

Table 6.3 Application of ingredients and raw materials - Caps

| Transformation questions, into production  | <i>Answer, fill in</i>   |  | Description or example   |
|--|--|--|--|
| Can the producer link from identification of ingredients and raw materials to identification of lot / batch?   | <p><i>Yes indirectly.</i></p> <p><i>The identification of the bottles (time and use-before-date) is indirectly linked to the identification of the caps.</i></p> |  | No / Yes indirectly / Yes directly (ingredients and raw materials ID recorded under production)  |
| If the answer is yes, how is it linked?  | <i>Manual</i>  |  | Electronic / manual  |
| Is the ingredient / raw material split up, joined together or kept as one?   | <i>Split up</i>  |  | Split up / joined together / kept as one   |
| What parameters are recorded to document the application of this ingredient / raw material? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>  |  | <p>List of parameters.</p> <p>For each parameter, indicate “Paper”, “ComPunch” or “ComAuto”.</p> |



Table 7.1 Raw material reception, pre production storage, mixing - Water

| Questions pre-production   | <i>Answer, fill in</i>      |  | Description or example  |
|--|-----------------------------|--|---|
| Storage type for this raw material / ingredient as it enters production?   | <i>In local tank</i>        |  | Whole shipment as received / each LU as received / each TU as received, in local tank, etc. |
| Relationship from the above to received shipments?   | <i>Never-ending batches</i> |  | 1:1 with shipment / LU / TU, split, joined, mixed, added in queue, etc.                     |
| Identification of this raw material / ingredient as it enters production?  | <i>By tank number</i>       |  | As before, by date/time, by tank number, by other reference                                 |
| What quality control checks are linked to the raw materials / ingredients pre-production? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>           |  | List of parameters.<br><br>For each parameter, indicate "Paper", "ComPunch" or "ComAuto".   |
| Which temperature control method was used?   | <i>Not relevant</i>         |  | None / iced / iced and refrigerated / refrigerated / etc.                                   |
| Is the storage / display temperature shown or recorded?  | <i>Not relevant</i>         |  | No / Shown only / Recorded manually / Recorded electronically                               |

Table 7.2 Raw material reception, pre production storage, mixing – Pre-forms

| Questions pre-production   | Answer, fill in   |  | Description or example  |
|--|---|--|---|
| Storage type for this raw material / ingredient as it enters production?   | <i>Local tank</i>   |  | Whole shipment as received / each LU as received / each TU as received, in local tank, etc. |
| Relationship from the above to received shipments?   | <i>TUs (a pallet consists of one box with pre-forms) are mixed together</i> |  | 1:1 with shipment / LU / TU, split, joined, mixed, added in queue, etc.                     |
| Identification of this raw material / ingredient as it enters production?  | <i>Box number ex. 056432</i>  |  | As before, by date/time, by tank number, by other reference                                 |
| What quality control checks are linked to the raw materials / ingredients pre-production? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>   |  | List of parameters.<br><br>For each parameter, indicate “Paper”, “ComPunch” or “ComAuto”.   |
| Which temperature control method was used?   | <i>Not relevant</i>   |  | None / iced / iced and refrigerated / refrigerated / etc.                                   |
| Is the storage / display temperature shown or recorded?  | <i>Not relevant</i>   |  | No / Shown only / Recorded manually / Recorded electronically                               |

Table 7.3 Raw material reception, pre production storage, mixing - Caps

| Questions pre-production   | <i>Answer, fill in</i>   |  | Description or example  |
|--|--|--|---|
| Storage type for this raw material / ingredient as it enters production?   | <i>Local tank</i>  |  | Whole shipment as received / each LU as received / each TU as received, in local tank, etc. |
| Relationship from the above to received shipments?   | <i>TUs (boxes of caps) are mixed together</i>  |  | 1:1 with shipment / LU / TU, split, joined, mixed, added in queue, etc.                     |
| Identification of this raw material / ingredient as it enters production?  | <i>Insalus give a new code to all caps from one delivery, they do not use box or batch number on the box</i> |  | As before, by date/time, by tank number, by other reference                                 |
| What quality control checks are linked to the raw materials / ingredients pre-production? How are they recorded; on paper, punched into computer system, automated data gathering? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate "Paper", "ComPunch" or "ComAuto".   |
| Which temperature control method was used?   | <i>Not relevant</i>  |  | None / iced / iced and refrigerated / refrigerated / etc.                                   |
| Is the storage / display temperature shown or recorded?  | <i>Not relevant</i>  |  | No / Shown only / Recorded manually / Recorded electronically                               |

Table 8.1 Reception of ingredients and raw materials - Water

| Transformation questions, reception  | <i>Answer, fill in</i>                          |  | Description or example  |
|--|---|--|---|
| From whom are shipments of this type received?   | <i>Natural source</i>                           |  | Name and address / GLN  |
| Where are shipments of this type received?   | <i>Insalus receives the water from a spring</i> |  | Name and address / GLN  |
| Description of total amount received?  | <i>Continuous</i>                               |  | Full/part containers, full/part trucks, full/part holds, etc  |
| Range of total amount received every time?   | <i>Continuous</i>                               |  | From-to in kg, ton / etc  |
| How often does reception take place?   | <i>Continuous</i>                               |  | Daily, weekly, etc  |
| How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?                             | <i>The date and tank number</i>                 |  | Trip number / SSCC / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.          |
| What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception? | <i>Not mapped</i>                               |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?       | -   |  | Trip number / SSCC / none / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.   |
| Can the producer link from the identification of the total amount to LU?   | -   |  | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |

|   |                     |   |
|---|---------------------|---|
| If the answer is yes, how is it linked?   | -                   | Electronic / manual   |
| What parameters are linked to the each LU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | -                   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?                   | -                   | GTIN+ / other<br><br>Unique / Non-unique.<br>Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.                  |
| Can the producer link from TU-ID to LU-ID?  | -                   | No / Yes indirectly / Yes directly (TU-ID recorded upon LU-ID)  |
| If the answer is yes, how is it linked?   | -                   | Electronic / manual   |
| What parameters are linked to the each TU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | -                   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| Does a temperature log accompany the shipment?  | <i>Not relevant</i> | No / Yes  |
| Is the temperature of the shipment measured on reception?   | <i>Not relevant</i> | No / Yes  |

Table 8.2 Reception of ingredients and raw materials – Pre-forms

| Transformation questions, reception  | <i>Answer, fill in</i>   |  | Description or example  |
|--|--|--|---|
| From whom are shipments of this type received?   | <i>Name and address of different suppliers of pre-forms</i>  |  | Name and address / GLN  |
| Where are shipments of this type received?   | <i>Insalus, Tolosa, Spain</i>  |  | Name and address / GLN  |
| Description of total amount received?  | <i>Full/part trucks</i>  |  | Full/part containers, full/part trucks, full/part holds, etc  |
| Range of total amount received every time?   | <i>30 pallets, one pallet consists of one box with pre-forms, the volume in on box of small pre-forms is 16000 parts and big pre-forms 9000.</i> |  | From-to in kg, ton / etc  |
| How often does reception take place?   | <i>1-2 times per month</i>   |  | Daily, weekly, etc  |
| How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?                             | <i>Delivery code</i>   |  | Trip number / SSCC / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.          |
| What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception? | <i>Not mapped</i>  |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?       | <i>LUs (a pallet consists of one box with pre-forms) are identified with box number ex. 056432.</i><br><br><i>Internal number</i>                |  | Trip number / SSCC / none / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.   |

|   |   |  |   |
|---|---|--|---|
| Can the producer link from the identification of the total amount to LU?  | <i>No</i>   |  | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |
| If the answer is yes, how is it linked?   | -   |  | Electronic / manual   |
| What parameters are linked to the each LU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | <i>Not mapped</i>   |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?                   | <i>TUs (each pre-forms) are identified with supplier’s name and batch number ex. TEGNOPET and H-1.<br/><br/>Internal number</i> |  | GTIN+ / other<br><br>Unique / Non-unique.<br>Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.                  |
| Can the producer link from TU-ID to LU-ID?  | <i>No</i>   |  | No / Yes indirectly / Yes directly (TU-ID recorded upon LU-ID)  |
| If the answer is yes, how is it linked?   | -   |  | Electronic / manual   |
| What parameters are linked to the each TU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | <i>Not mapped</i>   |  | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| Does a temperature log accompany the shipment?  | <i>Not relevant</i>   |  | No / Yes  |
| Is the temperature of the shipment measured on reception?   | <i>Not relevant</i>   |  | No / Yes  |

Table 8.3 Reception of ingredients and raw materials – Caps

| Transformation questions, reception  | Answer, fill in   | Description or example  |
|--|---|---|
| From whom are shipments of this type received?   | <i>Name and address of two different suppliers of caps</i>  | Name and address / GLN  |
| Where are shipments of this type received?   | <i>Insalus, Tolosa, Spain</i>   | Name and address / GLN  |
| Description of total amount received?  | <i>Full/part trucks</i>   | Full/part containers, full/part trucks, full/part holds, etc  |
| Range of total amount received every time?   | <i>25 pallets, 40 boxes on one pallet, 4000 caps in one box.</i>  | From-to in kg, ton / etc  |
| How often does reception take place?   | <i>Once per month</i>   | Daily, weekly, etc  |
| How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?                             | <i>Delivery code and batch number (information on the received invoice and documentation of control of the caps done by the supplier)</i>                           | Trip number / SSCC / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.          |
| What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception? | <i>Not mapped</i>   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?       | <i>LUs: pallets<br/><br/>The producer of caps has an internal code, but Insalus does not use this code. Insalus gives a new code to the whole delivery of caps.</i> | Trip number / SSCC / none / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.   |
| Can the producer link from the identification of the total amount to LU?   | <i>No</i>   | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |



|   |   |   |
|---|---|---|
| If the answer is yes, how is it linked?   | -   | Electronic / manual   |
| What parameters are linked to the each LU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | <i>Not mapped</i>   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| If LU is divided into TU`s; how is each TU`s identified? What type of code and media? Is this identifier discarded or recorded and kept?                | <i>TUs: boxes with caps</i><br><br><i>Identified with batch number, box number and bar code</i> | Trip number / SSCC / none / etc<br><br>Unique / Non-unique. Sequential / Structured<br><br>Bar-code / RF-ID / Direct reference (label) / Indirect reference, etc.   |
| Can the producer link from the LU-ID to the TU-ID?  | <i>No</i>   | No / Yes indirectly / Yes directly (LU-ID recorded upon collection)   |
| If the answer is yes, how is it linked?   | -   | Electronic / manual   |
| What parameters are linked to the each LU?<br>How are they transmitted; on Label, Paper, Fax, Electronically, Other?<br>Are they recorded on reception? | <i>Not mapped</i>   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Discarded”, “Kept” or “Repunched”. |
| Does a temperature log accompany the shipment?  | <i>Not relevant</i>   | No / Yes  |
| Is the temperature of the shipment measured on reception?   | <i>Not relevant</i>   | No / Yes  |

Table 9.1 Transport of ingredients and raw materials - Water

| Question to transporter of ingredients and raw materials   | Answer, fill in   | Description or example   |
|--|---|--|
| What type of transport is used?  | <i>None, Insalus receives the water from one natural source(cave)</i> | Truck / vessel / air plane / post / courier / etc.   |
| What type of delivery is it?   | <i>Through the spring</i>   | Distribution terminal or directly from supplier, either  |
| How is the vehicle identified?   | <i>None</i>   | Registration number of vehicle or name and address (or GLN)  |
| How is the trip identified?  | <i>None</i>   | SSCC, transporter code, delivery code, freight code, etc.  |
| Is there a link from vehicle / trip to delivery?   | <i>No</i>   | No / Yes, indirectly / Yes, directly   |
| What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they received but ignored, re-recorded for own use only, given to the buyer or given back to the supplier? | <i>None</i>   | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate "Ignore", "Own", "Buyer" or "Suppl". |
| Which temperature control method was used?   | <i>Not relevant</i>   | None / iced / iced and refrigerated / refrigerated / etc.  |
| Is temperature logged during transportation?   | <i>Not relevant</i>   | No / Yes manually / Yes electronically   |

Table 9.2 Transport of ingredients and raw materials – Pre-forms

| Question to transporter of ingredients and raw materials   | Answer, fill in               | Description or example   |
|--|-------------------------------|--|
| What type of transport is used?  | <i>Truck</i>                  | Truck / vessel / air plane / post / courier / etc.   |
| What type of delivery is it?   | <i>Directly from supplier</i> | Distribution terminal or directly from supplier, either  |
| How is the vehicle identified?   | <i>Name and address</i>       | Registration number of vehicle or name and address (or GLN)  |
| How is the trip identified?  | <i>Delivery code</i>          | SSCC, transporter code, delivery code, freight code, etc.  |
| Is there a link from vehicle / trip to delivery?   | <i>No</i>                     | No / Yes, indirectly / Yes, directly   |
| What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they received but ignored, re-recorded for own use only, given to the buyer or given back to the supplier? | <i>Not mapped</i>             | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Ignore”, “Own”, “Buyer” or “Suppl”. |
| Which temperature control method was used?   | <i>Not relevant</i>           | None / iced / iced and refrigerated / refrigerated / etc.  |
| Is temperature logged during transportation?   | <i>Not relevant</i>           | No / Yes manually / Yes electronically   |

Table 9.3 Transport of ingredients and raw materials – Caps

| Question to transporter of ingredients and raw materials   | Answer, fill in               | Description or example   |
|--|-------------------------------|--|
| What type of transport is used?  | <i>Truck</i>                  | Truck / vessel / air plane / post / courier / etc.   |
| What type of delivery is it?   | <i>Directly from supplier</i> | Distribution terminal or directly from supplier, either  |
| How is the vehicle identified?   | <i>Name and address</i>       | Registration number of vehicle or name and address (or GLN)  |
| How is the trip identified?  | <i>Delivery code</i>          | SSCC, transporter code, delivery code, freight code, etc.  |
| Is there a link from vehicle / trip to delivery?   | <i>No</i>                     | No / Yes, indirectly / Yes, directly   |
| What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they received but ignored, re-recorded for own use only, given to the buyer or given back to the supplier? | <i>Not mapped</i>             | List of parameters.<br><br>For each parameter, indicate L/P/F/E/O for type of transmission.<br><br>For each parameter, indicate “Ignore”, “Own”, “Buyer” or “Suppl”. |
| Which temperature control method was used?   | <i>Not relevant</i>           | None / iced / iced and refrigerated / refrigerated / etc.  |
| Is temperature logged during transportation?   | <i>Not relevant</i>           | No / Yes manually / Yes electronically   |



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