

Industry standard for draining and weighing of unsorted pelagic landings for fishmeal and fish oil production

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1. INTRODUCTION

1.1. Background

Credibility, traceability, accountability and sustainability are central to the fish processing industries.

No market can function without correct measuring and without common units of measurement ⁽¹⁾. This industry standard for draining and weighing will contribute to ensuring correct and impartial weighing of unsorted pelagic landings for fishmeal (FM) and fish oil (FO) production in Europe. The standard is important to achieve a harmonized and sustainable future for pelagic fisheries and landings of unsorted pelagic fisheries in Europe. It is the hope that other parts of the world will commit to equally accurate and sustainable reporting of pelagic landings.

The industry standard is a supplement to the current national legislations and international agreements and has been developed on the basis of the FAO Code of Conduct for Responsible Fisheries and the post-harvest practices for responsible fish utilization stated here in ⁽²⁾.

Furthermore, the standard for draining and weighing of unsorted pelagic landings for FM and FO production, is a dedicated contribution towards UN SDGs by addressing a core issue in the fishing industry, and helping achieving one of the targets for SDG14 - Life Below Water, specifically: "*By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics*"³". To achieve this goal, an impartial and universal standard for weighing of unsorted pelagic landings for FM and FO production is essential. Other SDGs within the scope of this standard are SDG 17- Partnerships for the goals, and SDG 2 - Zero Hunger.

1.2. Scope and definitions

Pelagic fisheries and unsorted bulk pelagic landings for FM and FO production

The pelagic fisheries are fisheries of organisms living freely in the water masses. This again can be considered under two divisions, namely pelagic-neritic fisheries and pelagic-oceanic fisheries. The former includes the fisheries of species such as sprat and other clupeidae, which are mainly confined to the waters above the continental shelf e.g. the North Sea. The pelagic-oceanic fisheries comprise the fisheries of fish which inhabit the high seas outside the continental shelf e.g. blue whiting.

¹ Legal metrology: https://ec.europa.eu/growth/single-market/goods/building-blocks/legal-metrology_en).

² Code of Conduct for Responsible Fisheries: <http://www.fao.org/3/v9878e/v9878e00.htm>

³ UN development plan: <https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-14-life-below-water.html>

Pelagic fisheries are carried out by fishing vessels using pelagic trawls and purse seine. The pelagic landings are *unsorted* because the fish are pumped directly from the trawl or purse seine into the tanks of the vessels with no sorting taking place on board. Other species than the target fish can be by-caught. When landed for fishmeal and fish oil production, the amount of by-caught species are calculated either through direct sorting or through a sampling process. All species in the landings are registered and the total weight of the bycatches are determined.

Pelagic landings for fishmeal and fish oil production consist of species such as blue whiting, capelin, horse mackerel, sandeel, sprat, Norway pout, and herring caught in directed fisheries.

Procedures for unsorted pelagic landings for FM and FO

Landings to the first-time buyer or processor of the fish shall take place in approved ports with access to approved landing and weighing facilities as well as an approved operator responsible for the weighing documentation of the landing.

Masters of fishing vessels shall submit prior notice of landing including notification of catch on board and submit the estimated catch information to the competent authorities as well as the buyer before arrival at port.

Different ways of receiving landings/raw materials by the first-time buyer (i.e. processing company) are described in Annex 1.

Approved weighing what does it mean?

It means the weighing is performed by individual weighing operators (here in after mentioned as weighing operator) who fulfil the following requirements:

- National fisheries control authorities or person/company authorised by the national fisheries control authorities.
- Has access to a certified and approved system of weighing and testing control premises and equipment of an appropriate standard.
- Management and staff are adequately qualified and trained.
- Calibration programme of equipment is traceable to international reference standards.
- External independent check control of the weighing equipment and or weighing operator at least once a year

Or

- An independent commercial 3rd party. Who meets the above criteria.

This industry standard is based on the international system of units (SI) for expressing quantities (e.g. SI unit for mass is 1 kg).

1.3. Who follows the standard?

The following organisations commit to follow this industry standard for draining and

weighing of unsorted pelagic bulk landings for FM and FO. The management is responsible for the implementation of the standard.

Marine Ingredients Denmark (MID) (Denmark)
Danish Seafood Association (DSA) (Denmark)
FÍF: The Icelandic Fishmeal Association (Iceland)
Havsbrun P/F, Pelagos Kollafjordur Pelagic and Vardin (Faroe Islands)
Sjømat Norge (Norway)
Bioceval (Germany, France, Spain)
Pelagia (UK) Ltd
Pelagia Feed (Ireland) Ltd
Aucosa (Spain)
Eesti Kalatootjate Keskkühistu (Estonia)

Relevant national authorities responsible for laws, regulations and enforcement

Denmark

Danish Fisheries Agency: <https://fiskeristyrelsen.dk/english/>

Norway

Directorate of Fisheries: <https://www.fiskeridir.no/English>

Iceland

Directorate of Fisheries in Iceland: <http://www.fiskistofa.is/english>

Faroe Islands

Ministry of Fisheries: <https://www.government.fo/en/the-government/ministries/ministry-of-fisheries/>

UK

UK Government for fisheries:
<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>

Ireland

Ireland Government for fisheries: <https://www.agriculture.gov.ie/seafood/>
Sea Fisheries Control Agency (SFPA) : <https://www.SFPA.ie>

Germany

Federal Ministry of Food and Agriculture:
https://www.bmel.de/EN/Home/home_node.html

Spain

Ministry of Agriculture, Fisheries and Food:
<https://www.mapa.gob.es/en/ministerio/ministerio-exterior/brexit/Papel-MAPA.aspx>

International agreements

Agreed Record of Conclusions of Fisheries Consultations between Norway, the European Union and the Faroe Islands on Control Measures for Pelagic Stocks in the

North-East Atlantic for 2020 (22nd April 2020):

https://ec.europa.eu/fisheries/press/eu-norway-and-faroe-islands-reach-agreement-better-monitoring-and-control-pelagic-fish-stocks_en

Council Regulation (EC) No 1224/2009 of 20th November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy

1.4. Requirements and responsibility for documentation of the landing

Weighing shall be monitored and carried out by an approved weighing operator. Who is responsible for control of documentation.

Or (In agreement with the competent authority and the first time buyer)

First-time buyer can have a contractual agreement with an 3rd party weighing operator to carry out the weighing and control of species of the landing on his/her behalf.

Landings, if possible, should take place in approved ports, where certified weighing can be carried out and where approved weighing equipment is available.

For smaller harbours, transport of landings to an approved weighing station.

For all unsorted pelagic landings, for fishmeal and oil, all weighing, sampling of species and documentation of the landed catch and bycatch must be made based on a pre-defined sampling plan applicable to all weighing.

Personnel working with weighing and documentation of the landing must be trained in species' identification, weighing methods and equipment used for landing and weighing.

Breaching of rules should have legal consequences in accordance with national legislation.

2. WEIGHING SYSTEMS USED FOR PELAGIC LANDINGS

2.1. General requirements for all weighing systems

Weighing data (including quantities, name and registration number of vessel, date, time and other relevant information) concerning all landings shall be stored by the weighing operator.

The competent authorities shall have immediate access to the weighing system. And real-time access to such data the registration for landing, weighing data as well as camera / video data. Data shall be stored securely for a minimum of 3 years except for video data which can be stored according to GDPR rules.

All changes in parameters and functions in the weighing system that effect the weighing result shall be logged. Such changes shall be logged with identification of

the user, date and time and shall be checked, registered and reported to the fisheries authorities by the weighing operator.

Camera surveillance shall be mandatory at the landing sites and at the processing facilities, where the landing is directly connected to the production. The surveillance shall apply to the weighing locations and cover the flow of landed fish from the vessel until the weighing has been completed. This requirement does also apply to transportation of landed catches to a processing plant in case of the fish needs to be transported by truck from the vessel to the processing facility. Competent authorities shall have access to camera surveillance online (live stream) as well as data stored.

The weighing indicator shall be visible on a screen. To prevent manipulation of the weighing system, critical functions shall be secured by sealing as determined by the competent authority.

2.2. Special requirements for belt weighing systems (flow scales)

- 2.2.1. Before starting to unload a vessel the weighing operator checks that the weighing system is functioning correctly.
- 2.2.2. The weighing instrument shall have a counting device that has a total running number of minimum eight digits.
- 2.2.3. The belt weighing system shall have a stop function. This function shall automatically stop feeding of fish to the belt weighing system if there are detectable errors or if the weighing system cannot carry out weighing.
- 2.2.4. The belt weighing system shall have an automatic zero setting function to be activated prior to the start of the weighing operations and at a frequency to be determined by the competent authority.

2.3. Special requirements for batch weighing scales

- 2.3.1. Before starting to unload a vessel the weighing operator checks that the weighing system is functioning correctly. -
- 2.3.2. The batch weighing system shall have a stop function. This function automatically stops feeding of fish to the batch weighing system if there are detectable errors or if the weighing system cannot carry out weighing.
- 2.3.3. The pressure sensor shall be a part of the stop function to secure sufficient pressure to hatch functions.
- 2.3.4. To prevent free flow of unweighted material through the batch scales sensors shall detect the position of the hatch.

3. WEIGHING OF LANDINGS

Landings to the first-time buyer or processor of the fish shall take place in approved ports with approved landing and weighing facilities.

Masters of fishing vessels shall submit prior notice of landing including notification of catch on board and submit the estimated catch information to the competent authorities before arrival at port.

Different ways of receiving landings/raw materials by the first-time buyer or processor are described in Annex 1.

All quantities of fresh pelagic species in bulk landings must be weighed by a weighing operator authorised by the national fisheries control authorities.

Weighing results for first-time buyer/processor must at least contain the following information:

- Weighing date.
- Vessel number and name.
- FAO alpha code of catch area for the weighed species.
- The quality (e.g. temp. and TVN) and purpose of catch intended for fishmeal and oil (category 3), or human consumption.
- Weighing results for each species with reference to the samples.
- Total landed kg of main species as well as bycatch.

3.1. Weighing certification

3.1.1. Certified weighing can be carried out only where approved weighing equipment is available.

3.1.2. Transport of landings to weighing stations from smaller harbours is possible with certain criteria defined by the competent authorities

3.1.3. The first-time buyer or processor of the fish shall via the weighing operator submit sales information for the payment of the quantities received to the competent authorities.

3.1.4. In the case of vessels pumping catch ashore the weighing of the entire discharge from the vessels shall be monitored by the weighing operator.

3.1.5. The following measures shall be applied for all species landed for fishmeal and fish oil production:

1. All species landed shall pass through a water draining system before weighing
2. It is prohibited with arrangements that may contribute to loss of biological material between the water draining system and the weighing system.
3. In circumstances where fish is landed in small harbours and trucked to the weighing facility it is necessary to utilise a dedicated draining system.

3.2. Drum sieve systems

3.2.1. During landing, landed material shall go through only one drum sieve for water draining before weighing.

3.2.2. The filtering holes in the drum sieve shall not exceed 10 mm.

3.2.3. The inside diameter of the drum sieve shall not exceed 1700 mm.

3.2.4. The length of the sieves before weighing, excluding conveyor belts, shall not exceed 11 meters in total.

3.2.5. Rotation speed of the drum sieve shall not exceed 28 rounds per minute.

3.2.6. Light opening in the filtering area shall not exceed 45%.

3.2.7. Product enters the scale and weight is registered.

3.3. Belt draining systems

3.3.1. In the front sieve, the bar distance or filtering holes shall not exceed 10 mm.

3.3.2. The width of the conveyor steel belt shall be 1.8 – 2.5 meter.

The length of the conveyor steel belt shall not be less than 2.6 meter and not more than 10 meters.

3.3.3. Product enters the scale and weight is registered.

3.4. Other Draining systems

3.4.1. Fish separator or a variation of this design

3.4.2. Generic details to be inputted. Some use a double pass inclined screen comprising parallel round bars spaced 4mm apart to filter water from fish products. The water is sent back to the vessel where it is reused in the pump to offload fish. The fish passes through the unit under gravity and ejects into a waiting bulk lorry for transportation to the weighing bridge at the processing plant 45km away.

3.5. Deductions for water

3.5.1. Deduction for water are not applied for all species in line with Regulations.

4. SAMPLING AND DETERMINATION OF SPECIES COMPOSITION OF LANDINGS FOR FISHMEAL AND FISH OIL PRODUCTION

The sampling and determination of species composition of landings for fishmeal and fish oil production follow national rules and regulations in the EFFOP member countries. The following gives the links to the current rules and regulations by country.

Fish landed for reduction purposes is unsorted and it is not practicable to sort all the fish onboard the fishing vessel or during landing of the fish. Therefore, Fisheries Agencies have developed a sampling plans to be followed by first-hand the buyer/recipient of the fish at each landing. Sampling should be blind and representative.

Denmark

Danish Fisheries Agency: <https://fiskeristyrelsen.dk/english/>

The Danish Fisheries Agency's sampling plan for weighing fishery products landed unsorted for industrial purposes: <https://fiskeristyrelsen.dk/media/11559/2020-01-21-provetagningsplan-industrifisk.pdf>

Norway

Directorate of Fisheries: <https://www.fiskeridir.no/English>

Iceland

Directorate of Fisheries in Iceland: <http://www.fiskistofa.is/english>

Faroe Islands

Ministry of Fisheries: <https://www.government.fo/en/the-government/ministries/ministry-of-fisheries/>

UK

UK Government for fisheries: <https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>

Ireland

Ireland Government for fisheries: <https://www.agriculture.gov.ie/seafood/>

Germany

Federal Ministry of Food and Agriculture: https://www.bmel.de/EN/Home/home_node.html



Spain

Ministry of Agriculture, Fisheries and Food:

<https://www.mapa.gob.es/en/ministerio/ministerio-exterior/brexit/Papel-MAPA.aspx>

5. ANNEXES

Annex 1 Different ways of receiving landings/raw materials

Receiving raw materials for fishmeal and fish oil production

When the ship arrives, the competent authorities collect the landing document from the skipper. At the same time, the process of unloading the ship is agreed with the skipper. On the quayside, the first-time buyer/processing factory staff prepare the unloading system and the connections to the ship, so that all are ready for unloading once the competent authorities/weighing operator has approved to start the unloading (Figure 1).

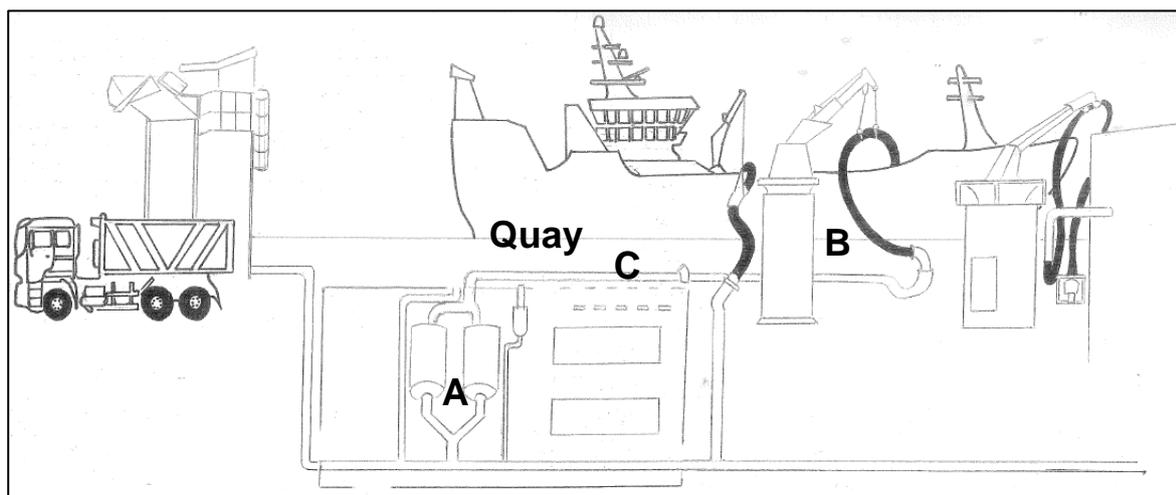


Figure 1. At FF Skagen there is one quay for unloading fish from fishing vessels. There are two different fish pumps – one suction/vacuum pumps and a mechanical pump (A and B). At the “pump house” wall is a display (C) showing the kg of fish unloaded from the vessels and received by the factory, the temperature of the fish and information about the water used.

When fish are received by truck, the truck is weighed with fish on a calibrated and certified weight by the weighing operator. The truck is weighed with load and without load to calculate the net weight.

ANNEX 2 THE PRODUCTION PROCESS

The production process seen in Figure 2 can be split into seven main processes. 1) The raw material is boiled in its own juice by an indirect supply of steam. 2) Pressing of the raw materials results in a solid fraction – the presscake – and a liquid fraction – the presswater. 3) A decanter processes the liquid from which the solids are separated and returned to the presscake. 4) The fish oil is removed from the liquid fraction by centrifuging. 5) The remaining liquid called “stickwater” is evaporated. The resulting product is called solubles. 6) In the dryer the presscake and the solubles are dried by means of indirect steam or hot air to a fishmeal with a moisture content of 5-10%. 7) The fishmeal is added antioxidant, cooled and milled to form the product. After control and analysis the fishmeal is ready for packaging and delivery.

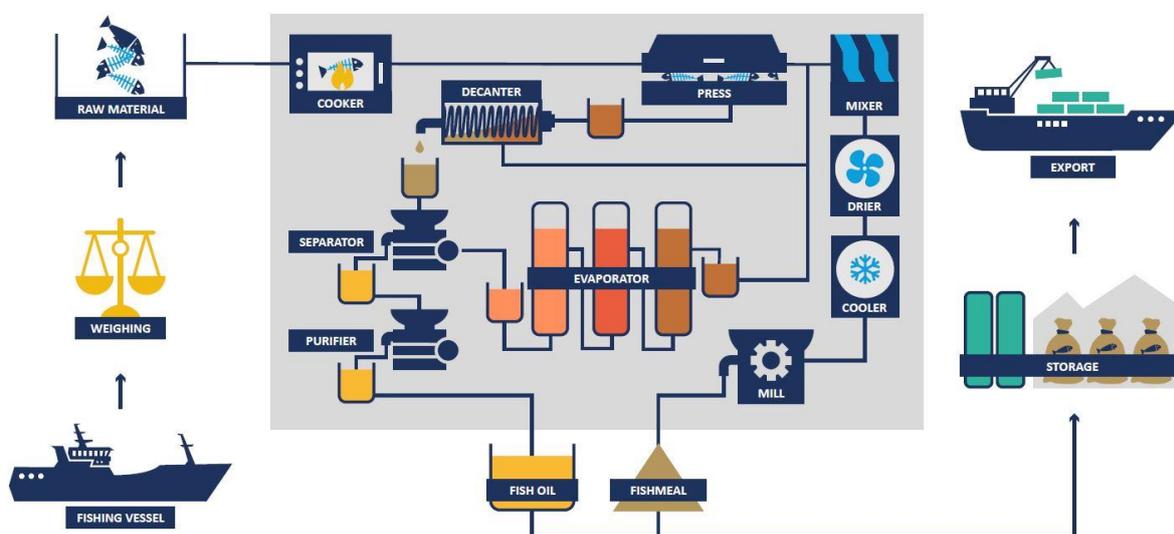


Figure 2 The production processes of making fishmeal and oil