

Glaze

This factsheet is aimed at seafood businesses that buy, trade or sell glazed seafood.

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What is protective glaze?

Protective glaze (hereafter referred to as 'glaze') is a coating of ice, which has been applied to the surface of a frozen food product. For the purposes of legal definition, glaze is considered to be a 'liquid medium' and is defined as such in Regulation 1169/2011:

'Liquid medium shall mean the following products, possibly in mixtures and also where frozen or quick-frozen, provided that the liquid is merely an adjunct to the essential elements of that preparation and is thus not a decisive factor for the purchase: water, aqueous solutions of salts, brine, aqueous solutions of food acids, vinegar, aqueous solutions of sugars, aqueous solutions of other sweetening substances, fruit or vegetable juices in the case of fruit or vegetables.'

Why do we glaze seafood?

Glaze is used to protect frozen seafood products and to prevent quality deterioration during storage. Freezing is a natural means of preserving food and extending shelf-life, but the freezing process does not entirely prevent quality deterioration, particularly if the item is exposed to air. Through a process known as sublimation, frozen water in the ice crystals on the surface of a product can evaporate when they are exposed to air, this loss of water from the product causes dehydration of the exposed surface, leaving a distinctive matt finish and cardboard-like texture. This drying out of a product is typically referred to as 'freezer burn', and whilst it is not a food safety hazard, it is detrimental to both the appearance and the eating quality of the product, and in the worst cases, it can make it unmarketable.

For oily fish species such as herring, mackerel and salmon, exposure to air during cold storage can also cause rancidity and discolouration due to the oxidation of the oils naturally present in fish muscle.

Freezer burn is of particular concern for individually quick frozen products (IQF) such as fish fillets or prawns. Because it is difficult to exclude all of the atmospheric air from trade or consumer packages of IQF product, there will inevitably be headspaces and air cavities between individual pieces within the container. By adding a coating of ice to the surface of the product, each individual item can be protected from the sublimation process, and any evaporation will only affect the ice crystals of the glaze rather than those within the product itself.

How is glaze applied to seafood?

There are a number of ways that glaze can be added to frozen seafood products. Because of the ease of automation, the principal methods used for industrial products are dipping, deluging (passing beneath a falling 'curtain' of water) and spraying, although other manual methods such as brushing can be used.

Whether dipping, deluging, spraying or brushing, the process is the same; glaze is applied to the product as a liquid medium after the item has first been frozen. The added liquid may freeze on immediate contact with the cold surface of the frozen product, but for the best results and to prevent clumping or the 'welding' together of pieces, the product should be passed through a secondary freezing process to harden off the added glaze before it is finally packaged. By repeating this process several times, glaze can be formed layer upon layer, and very high levels of glaze weight can be achieved.

Any medium used to glaze food products must in itself be safe as a foodstuff. Most typically, water is used to glaze seafood and that water must therefore be either food grade fresh water (potable) or clean seawater. Potable water is fresh water, which is fit for human consumption in accordance with Council Directive 98/83/EC on the minimum requirements for water quality intended for human consumption. Clean seawater is seawater that meets the same microbiological standards as potable water and is free from objectionable substances.

If a spray method is used, the product should ideally be transported on a mesh belt so that the glaze can be applied from both above and below. Spray nozzles should be checked at regular intervals to ensure good operation and even coverage.

If a dip or deluge method is used, the operator must be careful to ensure that the water in the dipping bath or deluge well does not become contaminated – this may require replacing the water on a regular basis to avoid the build-up of bacteria.

Additives to glaze

Some manufacturers seek to improve the protective qualities and functionality of ice glaze through the use of additives. An example of this would be the addition of sugar alcohol or 'polyol' derived from corn starch. The addition of this syrup product to glaze water is intended to improve surface adhesion and greater elasticity to the ice, this improves product protection by reducing the cracking and breaking of glaze during storage and transport.

If additives are used within the glaze solution, the manufacturer should check that they are of human food grade and are legally approved for their intended purpose. Consideration should also be given as to whether the additive is required to be declared in the product ingredient listing, or whether it fulfils the role of a 'functional ingredient' where no ingredient declaration is required. Information about additives can be found on the EU database on permitted additives.

https://webgate.ec.europa.eu/sanco_foods/main/?event=substances.search&substances.pagination=1

Even if additives do not legally need to be declared, businesses buying or selling products in which additives are used should be aware that they are present. It should be recognized that the use of food additives can be subject to complex legal interpretation and operators are encouraged to seek further advice if they are unsure about the approval status or ingredient declaration requirement for any potential additive.

What level of glaze is added to seafood?

The level of glaze applied to a product should be sufficient to protect it for the duration of its intended shelf-life. Levels of glaze should be discussed and agreed between buyers and sellers as the required levels will vary in accordance with a number of factors such as:

- Capability of the packaging format to exclude atmospheric air. Products packed in air may require higher levels of glaze.
- Piece size; smaller pieces may require higher levels of glaze.
- Surface area to weight ratio (products with a high surface area to weight ratio such as flatfish fillets or squid rings will naturally pick up a high proportion of glaze).
- Degree of gaping of the fish muscle segments; higher degrees of gaping will result in greater glaze pick up.
- Oil content
- Specified shelf-life of the commodity.
- Known variations in storage temperatures may necessitate higher levels of glaze to be specified.

There is no current industry guidance on what constitutes an appropriate level of glaze for any particular product format, but provided that products are properly wrapped and sealed, an added glaze level from 5% to 10% of the total weight should be sufficient to afford protection in most cases. If a buyer is offered product that has been specified with a glaze level above the target of 10%, they should make enquiries with the vendor as to why this is the case.

Issues with over-glazing

In the UK, there are no legal minimum or maximum permitted levels for protective ice glaze, but whether you are buying or selling seafood products, it is important to know what level of glaze has been added. As a buyer, if the product has been glazed to a level beyond your specification or commercial agreement, you will be buying ice for the same price that you are paying the vendor for the seafood itself. As a seller, if the product contains more ice glaze than agreed with the buyer, you may be construed to have conducted an act of criminal fraud and be subject to commercial claims from the buyer.

From an operational perspective, over-glazed raw materials can also cause quality issues in final products. For example:

- The boil-off of excessive water from melting ice glaze can cause spitting and bubbling during deep frying operations and can cause bald patches on battered and breaded products.
- Over-glazed materials added to a fish-in-sauce or prawn cocktail recipe may cause dilution of the sauce component, resulting in a runny consistency.

What are the labelling requirements for glazed seafood?

Businesses must ensure that product labelling and presentation are not misleading to consumers. This is particularly important when you are selling directly to the consumer, as higher levels of glaze can lead to the perception there is more weight of product in the pack than there actually is. Further detail on the labelling requirements including definitions is included in the Seafish factsheet on weight indication (see 'Further Information' for details).

The labelling requirements for glazed products in the EU are:

- Product sold directly to the consumer (pre-packed or loose) – Net Weight only.
- Product sold in bulk to a re-packer – Gross Weight. The product needs to be accurately described including the amount of glaze to allow correct labelling for the consumer by the re-packer. The Net Weight should also be declared unless the information is provided in other documents sent prior to or at the same time as the delivery. A re-packer is a business or entity that buys products in bulk and repacks it into smaller packs, either for sale to the trade or the consumer.

Definitions:

- 'Net weight' – the weight of the goods excluding the packaging items and glaze.
- 'Gross weight' – the total weight, including the goods, the packaging and glaze.

Food Information to Consumers Regulation, EU Regulation No 1169/2011

Since its introduction in January of 2015, consumer interests have been specifically protected under the Food Information to Consumers Regulation (EU Regulation No 1169/2011). The Food Information to Consumers Regulation (FIC) requires that any pre-packed foods above 5g that are intended for sale or supply to consumers or mass caterers be labelled with net quantity, unless they are expressly exempted. Article 5 of Annex IX of the FIC on the subject of Net Quantity Declaration states that:

“Where the food has been glazed, the declared net weight of the food shall be exclusive of the glaze.”

'Net weight' means the weight of the product without its container or packaging – because protective glaze is considered to be part of the item's packaging and not part of the food, this means that the net weight should be exclusive of the glaze weight.

Further clarification has been given that other weight declarations such as glazed weight or gross weights are not permitted even if additional to the net weight.

Quantitative Ingredient Declaration (QUID)

Protective glaze is considered to be part of the product packaging rather than part of the edible product itself, and it is therefore exempted from the Quantitative Ingredient Declaration (QUID) rules and it should not be included in the ingredient listing.

For legal purposes, any water that is present beneath the protective glaze layer may invoke an ingredient declaration requirement if it exceeds the technically unavoidable level that can be achieved under Good Manufacturing Practice (GMP). The 'technically unavoidable' level of water that can be achieved under GMP refers to the typical pick-up of water for a product that has been produced in accordance with operating practices which do not seek to debase the product unnecessarily in relation to composition, quality, form or texture. It is accepted that seafood products will retain some process water during their primary processing, but even when GMP is applied, these levels may differ between different processes and product formats. The manufacturer should seek to establish what the typical levels of technically unavoidable water are for their product ranges, as in some circumstances this may invoke a legal requirement for the declaration of water in the product ingredient listing.

In cases where the technically unavoidable water addition is greater than 5% of the product weight, and in cases where seafood products have been deliberately 'soaked' to enhance their weight through water absorption, it is mandatory that the added water is listed in the ingredient declaration. When this is the case, the declaration should be based on the added water in the frozen core prior to the application of any protective ice glaze.

Accounting for glaze weight in retail packing operations

Because retail packs must be labelled with the net weight of the product, the packer of retail packs needs to know both the gross weight and the net weight of the materials received. Whether the product is to be sold to the consumer in a frozen format or in a chilled format (where it has been packed frozen and defrosted during distribution inside the retail package), the packer will need to ensure that sufficient over-fill of product is deposited into each pack to compensate for the level of glaze.

For retail packages sold to the consumer as a constant nominal quantity (fixed weight), the packer will also need to ensure that the net weight of product dispensed into the packages complies with the three rules set out in the Weights and Measures (Packaged Goods) Regulations 2006:

- The actual contents of the packages should not be less, on average, than the nominal quantity
- The proportion of packages which are short of the stated quantity by a defined amount (the 'tolerable negative error' or TNE) should be less than a specified level
- No package should be short by more than twice the TNE

For more detailed information about the three packers' rules and TNE's, see the UK government guidance at the following link:

[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487018/Guidance - The Weights and Measures Packaged Goods Regulations 2006 v.4 December 2015.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487018/Guidance_-_The_Weights_and_Measures_Packaged_Goods_Regulations_2006_v.4_December_2015.pdf)

Processors may also add frozen materials (including glaze) as ingredients into a value added product. They will therefore need to know how much glaze is on the product in order to be able to declare the amount of water added to the new product, as well as the amount of the ingredient. Therefore the processor needs to know the gross weight and the net weight.

Because the FIC Regulation also applies to product sold to the consumer in loose form, the vendor must also pass on this information to the retailer or mass caterer for loose product sales.

The Price Marking Order 2004 (PMO)

The Price Marking Order 2004 (SI 2004, No 102) is designed to make sure that the pricing of goods in labelling and advertising enables the consumer to compare value for money easily. The Order requires that, for "loose goods" sold from bulk, all traders must display the "unit price" – that is, the price per legal, metric unit. Larger shops (those with a floor space greater than 280 square meters used for selling goods) must also give the unit price (per metric unit) of packaged goods so that consumers can compare the value for money of packages of different sizes. This requirement also applies to wholesale businesses if the public have access.

Because glaze is not considered to be part of the product, it is important to ensure that vendor has sufficient information to ensure that the item is properly described to the consumer and that any weights cited are net of glaze.

The Price Marking Order 2004 (PMO) has a different scope to that of the FIC. It does not apply to advertising but does apply to information at the point of sale in retail premises. It also includes mail order catalogues and print or electronic price lists. The PMO is limited to 'sales by traders to consumers' and not business to business transactions. Therefore sales material intended for other businesses such as mass caterers would be outside the scope of the PMO.

The PMO requires the selling price and, where appropriate, the unit price (e.g. price per 1kg, 100g etc.) to be clearly displayed. The weight of the product must be based on the net weight without glaze.

Labelling of bulk packs and outer cartons

There are legal requirements for the labelling of bulk product (product which is packed in large quantities for trade sale and intended to be re-packed into smaller quantities at a later date) and retail package outer cases when the contents have been glazed.

For product handling and freight management purposes, the gross carton weight should be declared on bulk packages of glazed product. Businesses supplying wholesale product that is intended to be re-packaged for the consumer, are required by Article 8.7 of the FIC Regulation to supply the Net Weight (net of glaze) to the buyer, either on the packaging or on documents sent prior to or at the same time as the delivery.

For outer cartons containing a number of individual retail packages, the information that is required to be marked on the packages must be reproduced on the outer container (unless the labels of the packages can be read through transparent packaging). Also, the number of inner units contained should be indicated.

Any weight declarations made on outer cases must directly refer to the declared net weights of the retail packages contained inside.

How do we check the levels of glaze on seafood?

It is not only important that the buyer of the product is able to verify glaze levels, but because the primary manufacturer is obliged to provide the buyer with details about the level of glaze added to products, it is also necessary for them to assess and test product during the manufacturing process to ascertain the level of glaze they have added.

The calculation of the glaze level is as follows, where:

$$\text{Glazed weight (GW)} - \text{Net Weight (NW)} = \text{Glaze weight (G)}$$

- % net content of the product = $(\text{NW}/\text{GW}) \times 100$
- % glaze related to the net weight of the product = $(\text{G}/\text{NW}) \times 100$
- % glaze related to the gross weight of the product = $(\text{G}/\text{GW}) \times 100$

If product has been passed through multiple glazing operations to build up layers of glaze, the 'Net Weight' must always be taken as the weight of the frozen product prior to the first glazing operation.

For seafood buyers, this calculation requires that there should be an effective and consistent method to remove ice glaze from the surface of a frozen product in order to ascertain the de-glazed 'Net Weight.' Importantly, this method should not fully defrost the product, as this will lead to the loss of water that is an intrinsic part of the product and is not part of the protective ice glaze, this will lead to an overstatement of the glaze level.

There is no mandatory method for the removal of glaze, but there are a number of internationally recognized methodologies. There are four CODEX¹ methods available for the glaze determination of quick frozen fillets, shrimps and prawns, lobsters and blocks, and there is also non-statutory European guidance published by WELMEC². See Appendix for details.

- CODEX General Standard for Quick Frozen Fish Fillets (CODEX STAN 190-1995) - Section 7.3.2
- CODEX General Standard for Quick Frozen Shrimps or Prawns (CODEX STAN 92-1981 Rev. 1-1995) - Section 7.3.2
- CODEX Standard for Quick Frozen Lobsters (CODEX STAN 95-1981 Adopted 1981. Revisions 1995, 2004. Amendments 2011, 2013, 2014) - Section 7.3.2

¹ CODEX or 'Codex Alimentarius' (the Food Code) was established by the Food and Agriculture Organization of the United Nations in 1963, as a global reference point for consumers, food producers and processors, national food control agencies and the international food trade.

² WELMEC is the European Cooperation in Legal Metrology. When it was founded, the acronym WELMEC stood for Western European Legal Metrology Cooperation. However, today WELMEC extends beyond Western Europe and includes representatives from Central, Eastern, Northern and Southern Europe. The acronym WELMEC has been retained.

- CODEX Standard for Quick Frozen Blocks of Fish Fillet, Minced Fish Flesh and Mixtures of Fillets and Minced Fish Flesh (CODEX STAN 165-1989 Adopted in 1989. Revised in 1995. Amendments 2011, 2013, 2014) - Section 7.3.2
- WELMEC Guide on the Verification of Drained Weight, Drained Washed Weight and Deglazed Weight (WELMEC 6.8, Issue 2, May 2013)

Best practice is for suppliers and customers to agree the methodology to use, and the agreed glaze levels, prior to purchase.

The European Controls Regulation sets down how Member States should go about checking compliance with food regulations. Usually the required analytical methodology is specified to ensure compliance between Member States. However this has not been the case with the determination of net weight for deglazed seafood products. In the absence of mandatory measures, it is the case that the standardised CODEX and WELMEC methodologies tend not to be widely used by the industry in their exact and published forms. A number of reasons are cited for this, largely related to the practicalities of application.

As an example, the CODEX method for IQF fillets requires their direct exposure to a water spray – some operators have found that the irregular shape of natural fish fillets means that new ice can be formed from the de-glaze water on the thicker parts of the fillet, whilst simultaneously, the thinner parts may become fully defrosted. To avoid this, some buyers choose to place IQF fillets inside a polythene bag to protect them from the de-glaze water, the bag containing the fillets is then dipped into a bath of water until the glaze ice has melted.

It is also considered that CODEX methods contain many parameters that are inadequately defined, such as ‘room temperature’ or ‘a spray of cold water’. Varying immersion times by just a few seconds could affect the result significantly, and even carrying out the glaze measurement in different rooms can cause variation.

Businesses that opt to use modified versions of the CODEX or WELMEC standards, should ensure that their modified method(s) have been fully documented, taking particular care to specify any time and temperature variables. Because CODEX will be used in the event of any international legal dispute outside of the EU/EFTA and WELMEC will be used to arbitrate disputes inside the EU/EFTA, it is important that businesses are able to prove that their modified versions produce equivalent results to those of CODEX or WELMEC. Where modified methods are used, the detail of these need to be agreed in writing with the partners in the supply chain as part of the product specification.

Operatives should be trained against documented procedures and agreement should be sought between buyers and sellers that the method is acceptable to both parties. Given that Net Weight declaration of product as sold to the consumer is a legal obligation, businesses should be aware that any variant methodology must be based on a rational premise and be able to withstand legal scrutiny should a legal challenge occur. Best practice would be for businesses to show a library of results demonstrating consistency between the standard and modified methodologies.

Whichever method is being used, when de-glazing a frozen product the following are required:

- A source of potable hot and cold water so that a precise temperature can be attained by mixing
- A calibrated electronic balance capable of measuring in grams to at least one decimal place
- A calibrated electronic temperature probe capable of recording temperature in Celsius to one decimal place
- A clock with a second hand or a stopwatch

Additional requirements may include:

- A 20cm or 30cm diameter laboratory test sieve with a mesh size of 2.8mm
- Paper towels to pat dry the deglazed product
- Polythene bags to protect the product from 'picking up' the glaze water

Sample size

It is important that the number of tests carried out (the sample size) is sufficient to be representative of the lot that it is intended to represent. The relationship of a sample size to the total lot size is dependent upon the level of assurance being sought. For example, in order to attain 100% assurance that 100% of the packages are compliant with agreed standards, a sample size of 100% of the lot is required. Given that glaze testing is a destructive test method, it is not practical or reasonable for operators to be expected to test 100% of a lot, and therefore a statistically representative sample size must be determined in order to ensure a reasonable level of assurance that the test results are representative of the whole batch.

As guidance on sample size, WELMEC specifies that for lots of greater than 100 units, 20 samples should be inspected. On a risk-assessed basis, businesses may consider reducing this sample size if the results exhibit a high degree of consistency during the testing process, but they must be able and prepared to demonstrate that they have considered that any reduction in sample size is appropriate.

Future developments and harmonization

Because the perceived practical issues with CODEX and WELMEC have led to a number of modified methods being unilaterally developed by different businesses, there is concern that this proliferation of variant methodologies is contrary to the principle of standardisation and could potentially lead to commercial dispute and legal challenge.

Commission experts have agreed that there is a lack of harmonisation between the methods used by member states. A proposal for a draft decision was considered; requiring the use of the CODEX standards and for glazed products not covered by these the use of WELMEC. However Member States could not achieve consensus on this, and the proposal was withdrawn. Member states have now been asked to gather technical information about the methods currently being used within their jurisdictions and to send this information to the Commission for consideration in a potential future harmonisation process.

Work is also currently ongoing to assess the need for a UK trade consensus on de-glaze methodologies. The National Measurement and Regulation Office (NMRO) is also interested in understanding which glaze determination methods are currently used by the UK industry, and in particular, any deviation from the CODEX and WELMEC methods, and the reasons for those deviations.

Whilst this work is progressing, seafood buyers and sellers are encouraged to seek agreement between themselves on the de-glaze methodologies they are using, so that parity of results between manufacturer and recipient can be seen.

Best practice principles;

The following provide an overview of what should be considered best practice for all businesses.

- The level of glaze and the glazed product presentation should not be arrived at with the intention of misleading the buyer, whether they are a business or consumer.
- Compliance with all labelling requirements;
 - Correctly indicating the net weight.
 - Presenting the product clearly i.e. ensuring product labels are clear and properly represent the content.
- Not exceeding the level of glaze necessary to ensure product protection.
- Having an agreed glaze level on product specifications.
- Monitoring glaze levels against the product specification, using one of the known methods (Codex or Welmec), or a modified method that has been developed to produce equivalent results to those of Codex or Welmec.
- If additives are used in glaze, ensuring they are of human food grade and legally approved and used in accordance with Good Manufacturing Practice.
- Product counts, where supplied, are based on net weight.

APPENDIX

CODEX STANDARD FOR QUICK FROZEN SHRIMPS OR PRAWNS - 7.3.2 (STAN 92-1981, REV. 1- 1995)

Sample preparation	Open the package with quick frozen shrimps or prawns immediately after removal from low temperature storage.
De-glazing in water	<p>For raw product, place the contents in a container into which fresh water at room temperature is introduced from the bottom at a flow of approximately 25 litres per minute.</p> <p>For cooked product place the product in a container containing an amount of fresh potable water of 27°C (80°F) equal to 8 times the declared weight of the product. Leave the product in the water until all ice is melted. If the product is block frozen, turn block over several times during thawing.</p>
Determining the process endpoint	The point at which thawing is complete can be determined by gently probing the block apart.
Draining	<p>Weigh a dry clean sieve with woven wire cloth with nominal size of the square aperture 2.8 mm (ISO Recommendation R565) or alternatively 2.38 mm (US No. 8 Standard Screen).</p> <p>If the quantity of the total contents of the package is 500g or less, use a sieve with a diameter of 20 cm.</p> <p>If the quantity of the total contents of the package is more than 500g use a sieve with a diameter of 30 cm.</p> <p>After all glaze that can be seen or felt has been removed and the shrimps or prawns separate easily, empty the contents of the container on the previously weighed sieve. Incline the sieve at an angle of about 20° and drain for 2 minutes</p>
Weigh & calculate	Weigh the sieve containing the drained product. Subtract the mass of the sieve; the resultant figure shall be considered to be the net content of the package.

CODEX STANDARD FOR QUICK FROZEN LOBSTERS CODEX STAN 95-1981

Adopted 1981. Revisions 1995, 2004. Amendments 2011, 2013, 2014.

Method 1

As soon as the package is removed from frozen temperature storage, open immediately and place the contents under a gentle spray of cold water until all ice glaze that can be seen or felt is removed. Remove adhering water by the use of paper towel and weigh the product.

Method 2

The pre-weighed glazed sample is immersed into a water bath by hand, until all glaze is removed, which preferably can be felt by the fingers. As soon as the surface becomes rough, the still frozen sample is removed from the water bath and dried by use of a paper towel before estimating the net product content by second weighing. By this procedure thaw drip losses and/or re-freezing of adhering moisture can be avoided.

Method 3

Sample preparation	As soon as the package is removed from frozen temperature storage, place the product in a container containing an amount of fresh potable water of 27°C (80°F) equal to 8 times the declared weight of the product.
De-glazing in water	Leave the product in the water until all ice is melted. If the product is block frozen, turn block over several times during thawing.
Determining the process endpoint	The point at which thawing is complete can be determined by gently probing the block.
Draining	Weigh a dry clean sieve with woven wire cloth with nominal size of the square aperture 2.8 mm (ISO Recommendation R565) or alternatively 2.38 mm (U.S. No. 8 Standard Screen.) If the quantity of the total contents of the package is 500g or less, use a sieve with a diameter of 20 cm. If the quantity of the total contents of the package is more than 500g use a sieve with a diameter of 30 cm. After all glaze that can be seen or felt has been removed and the lobsters separate easily, empty the contents of the container on the previously weighed sieve. Incline the sieve at an angle of about 20° C and drain for two minutes.
Weigh & calculate	Weigh the sieve containing the drained product. Subtract the mass of the sieve; the resultant figure shall be considered to be part of the net content of the package.

CODEX STANDARD FOR QUICK FROZEN FISH FILLETS - 7.3.2 (STAN 190 - 1995)

Sample preparation	As soon as the package is removed from low temperature storage, open immediately and place the contents under a gentle spray of cold water.
De-glazing in water	Agitate carefully so that the product is not broken.
Determining the process endpoint	Spray until all ice glaze that can be seen or felt is removed.
Draining	Remove adhering water by the use of paper towel.
Weigh & calculate	Weigh the product in a tared pan.

STANDARD FOR QUICK FROZEN BLOCKS OF FISH FILLET, MINCED FISH FLESH AND MIXTURES OF FILLETS AND MINCED FISH FLESH. CODEX STAN 165-1989

Adopted in 1989. Revised in 1995. Amendments 2011, 2013, 2014

Method 1

As soon as the package is removed from frozen temperature storage, open immediately and place the contents under a gentle spray of cold water until all ice glaze that can be seen or felt is removed. Remove adhering water by the use of paper towel and weigh the product.

Method 2

Sample preparation	The product temperature should be adjusted to -18/-20°C to achieve standard deglazing conditions (especially necessary if a standard deglazing period shall be defined in case of regular shaped products). After sampling from the low temperature store remove, if present, external ice crystals or snow from the package with the frozen product.
De-glazing in water	The water bath shall contain an amount of fresh potable water equal to about 10 times of the declared weight of the product; the temperature should be adjusted on about 15°C to 35°C. The pre-weighed samples/sub-samples are transferred into the water bath and kept immersed by hand. The product may be carefully agitated, till no more glaze can be felt by the finger-tips on the surface of the product: change from slippery to rough. Needed time, depending on size/shape and glaze content of the product, 10 to 60 sec. (and more in case of higher glaze contents or if frozen together).
Determining the process endpoint	The product may be carefully agitated, till no more glaze can be felt by the finger-tips on the surface of the product: change from slippery to rough. Needed time, depending on size/shape and glaze content of the product, 10 to 60 sec. (and more in case of higher glaze contents or if frozen together).
Draining	The still frozen sample is removed from the water bath and dried by use of a paper towel before estimating the net product content by repeated weighing. By this procedure thaw drip losses and/or re-freezing of adhering moisture can be avoided.
Weigh & calculate	Immediately weigh the deglazed sample/sub-sample, after removal of adhering water by use of a towel (without pressure). $\text{Glaze \%} = \frac{\text{Glaze weight}}{\text{Net weight}} \times 100$

WELMEC GUIDE ON THE VERIFICATION OF DRAINED WEIGHT, DRAINED WASHED WEIGHT AND DEGLAZED WEIGHT 3.3.2.3 - WELMEC 6.8 ISSUE 2 MAY 2018

Sample preparation	Open the package and pour the contents carefully across the mesh of the sieve(s), distributing them over the surface of the sieve, avoiding product damage. If the product contains caps or cavities, carefully invert by hand all parts which fall onto the sieve(s) with the cup or cavities facing upwards. Any solid material adhering to the container's internal surfaces may be removed carefully with a spoon or similar implement and added to the contents of the sieve. Do not shake the material on the sieve.
De-glazing in water	Immerse sieve and test sample in the vessel containing the specified quantity of water until the end-point of glaze determination is reached, i.e. all of the added glaze has been removed and the still-frozen product core remains. It is important that product is not left in the warm water beyond this point to avoid any thawing of the core product with attendant "drip loss".
Determining the process endpoint	After all glaze that can be seen or felt is removed (i.e. when the external surface of the sample changes from "smooth" or "slippery" to "rough") and the sample separates easily, remove sieve with sample.
Draining	Tilt the sieve(s) to an angle between 17° and 20° from the horizontal to facilitate draining. Allow to drain for 2 minutes from the time at which all the product is on the sieve, or for the washed and deglazed products 2 minutes from the time the washing or deglazing ceases.
Weigh & calculate	<p>Reweigh the sieve plus contents (weight Pe2). Calculate the drained quantity, the drained washed quantity or the deglaze quantity as follows:</p> $P = Pe2 - Pe1$ <p>Where:</p> <p>P is the quantity of the product, Pe1 is the tare weight of the clean sieve, and Pe2 is the weight of the sieve plus the product after draining.</p>

References and further reading

- The Weights and Measures (Packaged Goods) Regulation 2006 – National measurement and Regulation Office, Department for Business Innovation and Skills
- Regulation (EU) No 1169/2011 of the European Parliament and of the Council, 25th October 2011 on the provision of food information to consumers
- Code of Practice on the Declaration of Fish Content in Fish Products (2008) – UKAFP, BFFF, BRC, BHA, SFIA, LACOTS, APA
- A Pocket Guide to the EU's New Fish and Aquaculture Consumer Labels – European Commission Publications Office
- KJ Whittle & P Howgate, Glossary of Fish Technology Terms, FAO, February 2002
- Seafish Glazed Seafood Weight Indication Guidance (undated)
- Seafish Industry Authority, Seafood Labelling Guidance, March 2008
- Codex Alimentarius Standard for quick frozen shrimps or prawns Codex Stan 190 - 1995
- Codex Alimentarius Standard for quick frozen fish fillets Codex Stan 92-1981, Rev 1 – 1995
- Codex Alimentarius Standard for quick frozen lobsters, Codex Stan 95-1981 (Rev 1995, amended 2011, 2013, 2014)
- Codex Alimentarius, Standard for quick frozen blocks of fish fillet, minced fish flesh and mixtures of fillets and minced fish flesh, Standard 165-198 (rev.1 1995)
- WELMEC Guide on the Verification of Drained Weight, Drained Washed Weight and Deglazed Weight – WELMEC 6.8 issue 2 may 2013
- WELMEC Guide for packers and importers of e-marked prepacked products – WELMEC 6.4, 2015
- The Food Labelling Regulations 1996 (as amended)

Further information from Seafish –

Food Information for Consumers -

http://www.seafish.org/media/Publications/Seafish_labelling_update_2016_v2_1.pdf

Glazed Seafood Weight Indication -

http://www.seafish.org/media/publications/Weight_indication_guidance_Final.pdf

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