

OPTIMICE®

Where the cold
chain never breaks

≈ 0°C



throughout the
manufacturing
process



PRECOOLERS

GET MAXIMUM QUALITY

Ensure that the temperature is always at 0°C during the manufacturing process and obtain maximum quality and longer shelf life.

OptimICE® cooling:

- As soon as the fish is caught
- To cool processing lines
- On conveyor belts in the fish factory
- For packing and shipping

TEMPERATURE MEASUREMENTS

Were performed in the fish factory in Hellissandur where OptimICE® pre-cooling equipment is installed. OptimICE® liquid slurry ice machines are used on board the ships.



The catch was landed in Siglufjörður and driven to Hellissandur (435 km) on a 7 hour drive.



The ambient temperature in the fish factory was about 20°C during processing.

The temperature is always at 0°C during the manufacturing process and obtain maximum quality.

OPTIM ICE®

OptimICE® is a liquid slurry ice that replaces conventional flake ice and is produced on board the ship. The cooling surrounds the fish and holds it around 0°C throughout the fishing trip, during landing and transport across the country, to other countries and to the final customer.

Therefore, the cold chain never breaks with Optim-ICE® cooling.



The Precooler

Cold liquid used in hot places in the process.



The Slurry ice machine

Liquid slurry ice that cools the fish down to -0,7°C in a very short time.



The storage tank

holds liquid slurry ice to speed up processing by ensuring a constant flow of ice.

1)**Temperature of catch on arrival in Hellissandur:
-0,7°C**

Temperature of fish measured upon arrival at the fish factory

The 4 days old catch is measured in the tub.

The temperature in the tub was measured -0,7°C and all measurements taken in a total of 78 fish tubs were from -0,5°C to -0,7°C.

**2)****Temperature of catch after pre-cooling
in a buffer tank:
-0,7°C**

Temperature measurement at the first Buffer tank before filleting of the fish



The Buffer tank stores the fish before filleting, where tubs of approx. 300 kg of fish are dumped into. The tank is filled with OptimICE® pre-cooled fresh water with a temperature of -0,7°C.

3)

-0,7°C before filleting

-0,2°C after filleting

Temperature before and after filleting



Pre-cooled water after filleting.

The temperature of the raw material at the beginning of the filleting process is -0,7°C.

The temperature of the raw material before filleting is -0,7°C.

After filleting, the temperature has risen up to -0,2°C.

Thus, the increase in the filleting process is 0,5°C.

The raw material is carried on a conveyor belt approx.

5m before it goes into a buffer tub, where it is cooled in OptimICE® pre-cooled water before trimming.



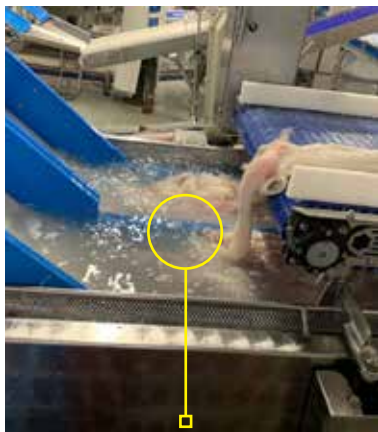
The temperature of the raw material is -0,2°C after filleting, before going back into pre-cooled water.

The largest fisheries companies around the world use OptimICE® to maximize quality and significantly extend shelf life

4)

-0,2°C before trimming
+0,4°C after trimming

Temperature before and after trimming



Pre-cooling after filleting and before trimming.



The temperature of the raw material is - 0,2°C before trimming.

The temperature of the raw material is -0,2°C after OptimICE® pre-cooling and before it is being trimmed.

The temperature after trimming is 0,4°C.

The next step is to cool down the raw material once again.



The temperature of the raw material is + 0,4°C after trimming.



Olafur Rognvaldsson
CEO of Hellissandur
fish factory

"OptimICE® has proven itself to be great machines, both at sea and on land. They are particularly suitable for us, as we land our fish all around the country. They will never be replaced!"

5)**+0,4°C** after trimming**+0,1°C** after cooling and before packaging

Temperature of the raw material after cooling and before packaging

The temperature decreased from + 0,4°C down to + 0,1°C after cooling at the end of the trimming process and before packaging.

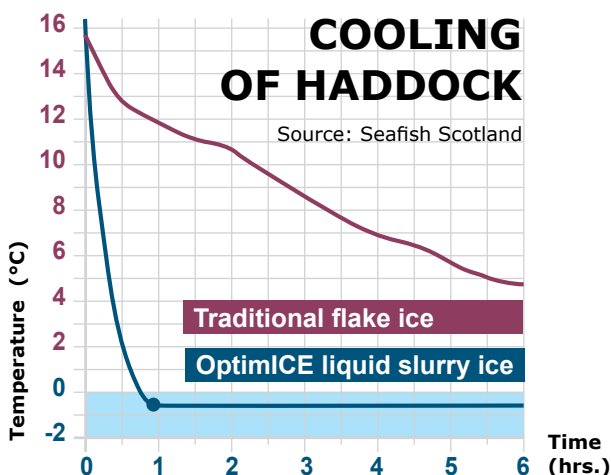
The picture to the right shows the temperature of the raw material after the whole process.

A temperature of -0,7°C was measured in the beginning of the process and at the end, when the product leaves the fish factory, a temperature of + 0,1°C was measured,



The temperature of the raw material is + 0,1°C before packaging.

It would be possible to decrease the temperature of the raw material down to 0,0°C to -0,1°C before packaging, by lowering the temperature in the processing room. When these measurements were made, the temperature in the processing room was around 20°C.



1.0

0.8

0.6

0.4

0.2

0

-0.2

-0.4

-0.6

-0.8

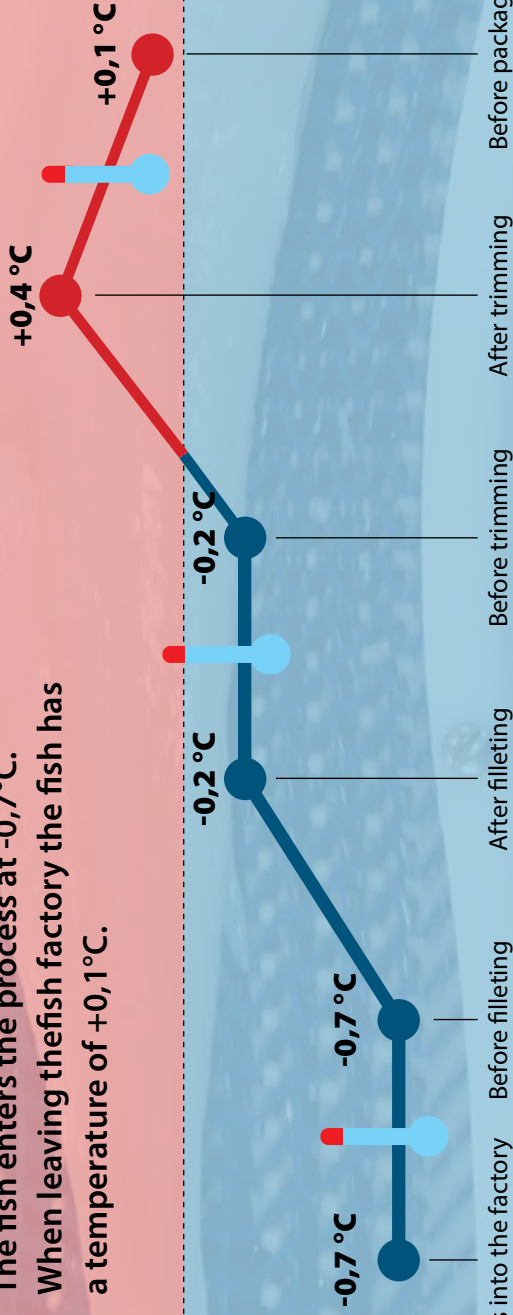
Temperature °C

The temperature of the raw material after the whole process.

The fish enters the process at $-0,7^{\circ}\text{C}$.

When leaving the fish factory the fish has a temperature of $+0,1^{\circ}\text{C}$.

OPTIMICE[®]



THE COLD CHAIN NEVER BREAKS

- from the sea to the consumer

From when the fish is caught, with a temperature of 6°C in the raw material, it does not take more than 1 hour to cool the fish down to -0,3°C to -0,9°C using OptimICE® cooling and it stays at this temperature throughout the whole process.



During the fishing trip



During landing



During transport



At the customer

KAPP_{ehf}

THE OPTIMICE COMPANY