



## Ammonia in Sea Water

One of the most common problems that the fish farming applications have are the constant elimination of toxic metabolites' such as  $\text{NH}_3$  or  $\text{NO}_2$ . The nitrogen ammoniac ( $\text{NH}_3 + \text{NH}_4$ ) increases the level because the urine and through the gills. This is consequence of the microbial decomposition of the food not consumed and it happens through the bacteria's.

Ammonia is represented by:

- The fish represents the 31,5%,
- The desnitrication is 17,4%,
- Vanish of the ammoniac ( $\text{NH}_3$ ) is 12,5% and
- Sediments that represent 2,6%.

There are three different ways to eliminate it:

- 1- Dragging air, producing denitrification.
- 2- By ionic interchange.
- 3- By biofiltration.

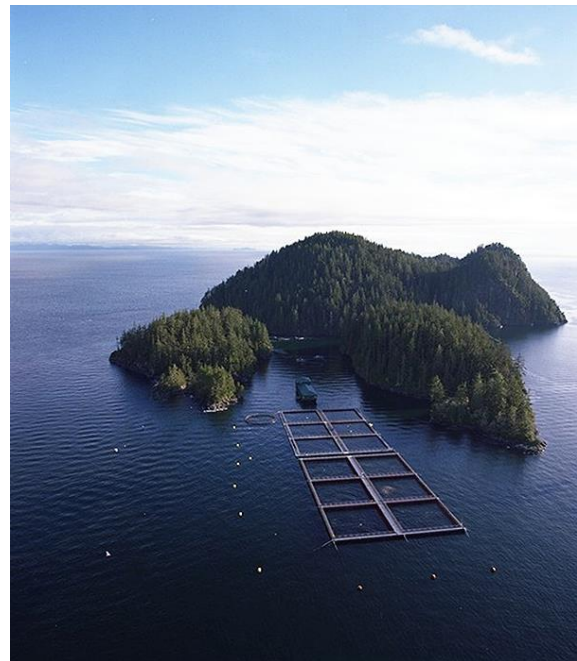
The last one is the most frequently used in the closed water recirculation systems because it's efficient, cheap and the operation and maintenance is quite simple.

The most important thing is to maintain the right level of ammonia considering the temperature of the water and the nature of the fishes. The ranges are between 0,02ppm for salmons up to 2,0ppm for carps.

The INSTRAN NH gives the  $\text{NH}_3$  and  $\text{NH}_4$  measurement in continuous with very low maintenance, with auto-calibration, outputs for dosification, alarms and pumping.

The analysis can programmed every 3 minutes using an ORION electrode modified for sea water applications with the Double Known Addition, what it the same as having a auto-calibration for each analysis without any drifts.

The INSTRAN NH gives simultaneous results for ammonia concentration and pH.





### Specifications:

INSTRAN NH4,  
On-Line analyzer for ammonia y sea water:

Range: 0-10 ppm  
(lower and higher ranges configurable)

Method: ISE Modified

ASTM D 1246-EPA 60 FR

- Sample conditioning with the alkaline reagent pH superior to 11
- Lecture of the potential generated by the ISE
- Addition of the volume known as Standard
- Calculation of the concentration of ammonia with the method (DKA)

### Advantage of the method:

- Standard method. Simple
- Specific method for the application
- The DKA means that we have auto-calibration for each analysis giving a correction if there is any drift of the ISE.

Resolution: 0'001 ppm

Calibration: Automatic DKA

### Sample conditions:

Pressure: 10 / 60 psi

Temperature: +10°C to +45°C

Flow rate: 100 ml/min (minimum)

Volume: 12 ml

Fast loop sampling system including filter integrated with purging and cleaning system. (Optional, system for self cleaning of filter).

Analysis time: less than 3 minutes

Digital pH electrode assembled into the fast loop system.

Range: -2 to 16,00 pH

Resolution: 0,01 pH

Temperature: 0,1°C

Calibration: at two points, fixed in the electrode



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