Laboratoires ORIGINAL QUINTON 1897

*LABORATOIRES QUINTON INTERNATIONAL S.L.*
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**Laboratoires Quinton International, S.L.**

## CERTIFICATE OF ANALYSIS

### Microplastic analysis in sea water

| GENERAL DATA | |
|---|---|
| PRODUCT DENOMINATION: | SEA WATER |
| PRODUCT DESCRIPTION: | RAW MATERIAL |
| BATCH: | MP-1-167 4474335 |
| REFERENCIA DOC: | DOC LQI-LBQ 4474335 MP-1-167 |

The sample was performed by to different method:

Optical Microscopy
Pyrolysis coupled to GC-MS.

This document, DOCC LQI-LBQ 4474335 MP-1-167, Laboratoires Quinton International, S.L. CERTIFIES THAT the sea water sample has not been detected microplastics. The absence of microplastics in the blank sample confirm that any cross contamination exists. The QC analysis confirm the strength of the methods used.

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Doc LQI-LBQ 4474335 MP-1-167
Informe Microplásticos bilingüe
Recibido 23/07/2018

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# *ANALYTICAL REPORT: MICROPLASTIC ANALYSIS IN SEA WATER*



***Done by:***

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# Introduction.

A seawater analysis has been carried out to the determination of microplastics.

The sample was codified as 4474335. The sample name was MP-1-167.

The sample characterization was performed by to different method:
Optical Microscopy
Pyrolysis coupled to GC-MS.

# Method description.

The sample have been analyzed following these steps:

1- Sample treatment.

The water sample was treated with different reactive according with the information of the PT BS/105-MICROPLASTICS GC-MS

2- Filtration.

After the sample treatment step, the sample was filtered using a 0.44 µm filter. This filter was rinsed to avoid interferences.

3- Microscopy determination.

Next, the filter was analyzed by Binocular Microscopy to determine and identify the presence of particles and microfibers. This artifact can be potentially as microplastics materials.

4- Check and quantification by pyrolysis + gas chromatography +MS (PY-GC-MS).

The different microplastics were analyzed by PY-GC-MS to identify the monomers profile of each kind of plastic.

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## Results:

In each batch, a sample blank and QC were analyzed to sure the quality of the analytical process.

Blank was an ultrapure-water sample analyzed carrying out the same process that the samples and QC. This is a check point to avoid external or cross contamination.
Figure 1 show a blank sample image

To ensure the analytical process, a standard with various kinds of microplastics was also analyzed. The figure 2 show an image of QC sample by microscopy.

Finally, Figure 3, show a filter image of the analyzed sample.

Table 1. Optical microscopy results:

| Sample | Result |
|---|---|
| Blank | Absence |
| Standard | 23 particles of microplastic detected |
| Sample 4474335 | Absence. |



**Figure 1.** OM image. Blank.

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**Figure 2.** Image of the standard.

**Figure 3.** Sample.

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**Confirmation and quantification:**

The analysis by PY-GC-MS permits identify and quantify the microplastics present in the sample.
As can be seen in Table 2, no monomers have been identified in the sample and blank., while standard sample (QC), monomers have been detected and quantified.

Table 2. PY-GC-MS results:

| Sample | Result |
|---|---|
| Blank | < 1.0 mg/L |
| Standard | 21 mg/L |
| Sample 4474335 | < 1.0 mg/L |

## Conclusions.

The sample have been analyzed by the method BS/105 MICROPLASTICOS GC-MS

The presence of microplastics in the sample has not been detected.

The absence of microplastics in the blank sample confirm that any cross contamination exists.

The QC analysis confirm the strength of the methods used.