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Laboratory for
food safety



HOW TO ANALYSE MICROPLASTICS IN (SEA)FOOD : PROPOSITION OF THE MIMS CONCEPT (MINIMAL INFORMATION FOR THE MICROPLASTICS)

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European Food Safety Authority

Current frontiers and recommendations for the study of microplastics
in seafood



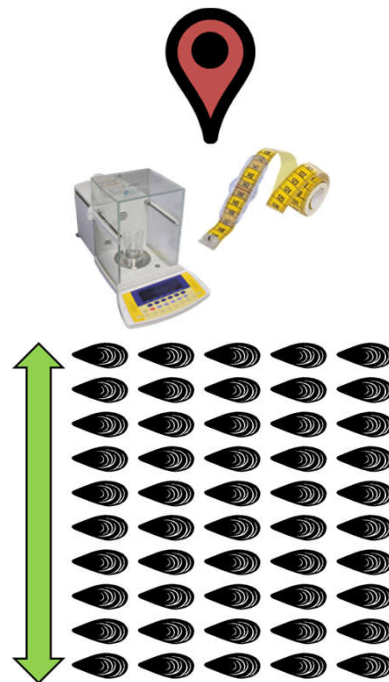
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Minimal Information for the publication of Microplastics Studies

Distinction between Essential and Desirable parameters
(inspired from the work of Bustin et al., 2009 on qPCR).

SAMPLING		8 points
Parameters to check	Information	
Species names	E	
Number of individuals	E	
Location (GPS)	E	
Depth	D	
Type of catching	D	
Individual sizes	E	
Commercial size (if risk assessment performed)	D	
Whole and tissues weights	E	
Tissue extraction procedure	E	
Time of sample exposition to atmosphere	D	
Conservation method	E	
Proof of innocuousness of this method on MP	E	
Time of conservation	D	



WORK ENVIRONMENT		3 points
Parameters to check	Information	
Type of lab coat used	E	
Working place (bench, laminar flow cabinet)	E	
Cleaning procedure	E	
Cleaning frequency	D	



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DIGESTION	10 points
Parameters to check	Information
Use of filtered reagents exempt of MP	E
Cleaning procedure of glass and tools	E
Used chemical	E
Proof of innocuousness of this method on MP	E
Recovering rates with the method	E
Relative proportion chemical/tissue	E
Model of used devices	E
Type of heating source	D
Temperature set to the device	E
Temperature in the digestate	D
Temperature monitoring across digestion	D
Duration of digestion	E
Agitation speed	E



KOH NaClO NaOH Trypsin
 Lipase HNO₃ H₂O₂

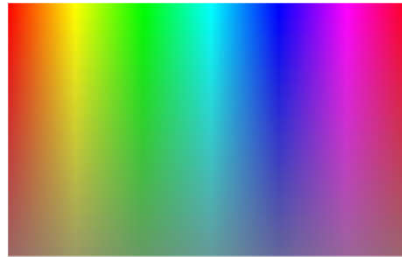
CONTROLS	3 points
Parameters to check	Information
Description (SAC, DAC, O/SC, FAC, PCE)	E
Numbers	E
Location and for which step	E
Area covered by controls	D
Time of exposition	D



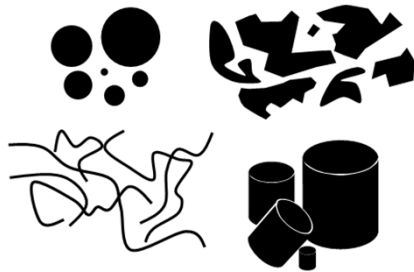
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COUNTING		7 points
Parameters to check	Information	
Method used	E	
Counting of particles in controls	E	
Counting of particles in samples	E	
Particle shape	E	
Particle size	E	
Particle colour	E	
Particle picture	E	



Colors



Morphology



Size

FILTRATION		2 points
Parameters to check	Information	
Cleaning procedure of glass and tools	E	
Type of filter used	E	
Procedure of filter storage	D	



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IDENTIFICATION	4 points
<i>Parameters to check</i>	<i>Information</i>
Number of analysed particles and proportion compared to total isolated particles	E
Identification method used	E
Evidence of method performance criterion	D
Use of standard references	E
Use of positive/negative controls	D
Information of identification scores & minimal tolerated value	E
Identification by second method for unknown	D

DATA ANALYSIS	5 points
<i>Parameters to check</i>	<i>Information</i>
Availability of the whole results	D
Description of how controls results were taken into account	E
Identification results of PIC/NIC	D
Identification results (expressed as a % of analysed particle)	E
Information on % misidentified or unidentified results	E
Clear separation between MP and other particles	E
Use of adequate unit	E
Estimation of MP mass based on identification & size	D

- The MIMS concept:
 - Is a check-list (40 essentials points)
 - Could be use by editors, reviewers and authors
 - Can evolve
 - Is in accordance with other studies (Hermsen et al, 2018, Cowger et al., 2020)

