

Process for separating microplastics from aqueous matrices

Patent #: WO2020/240069

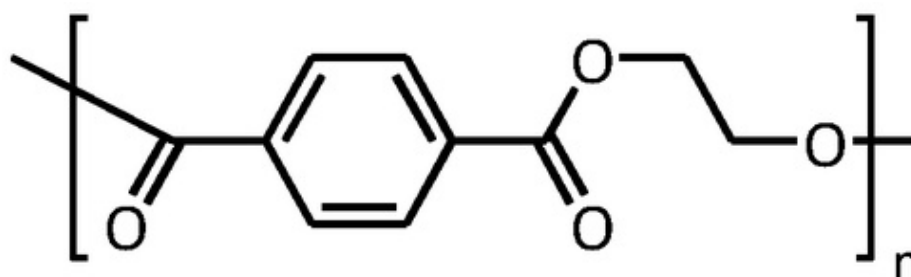
Publication date: 2020-11-30

Applicant(s): UNIVERSIDAD AUTONOMA DE MADRID

Inventor: MUÑOZ GARCÍA MACARENA, NIETO-SANDOVAL RODRÍGUEZ JULIA, MARTÍNEZ DE PEDRO ZAHARA, CASAS DE PEDRO JOSÉ ANTONIO

Abstract

The present invention relates to a process for separating microplastics from aqueous matrices, based on the interaction of said microplastics with magnetic minerals containing iron, such as magnetite, giving rise to the formation of a microplastic/magnetic iron mineral aggregate that can easily be separated from the water by applying a magnetic field.



Method of monitoring and optionally controlling removal of microplastics from microplastic containing waters

Patent #: WO2020/169595

Publication date: 2020-08-27

Applicant(s): KEIRA

Inventor: GRÖNFORS OUTI, HESAMPOUR MEHRDAD, RAJALA KATRIINA, LINDBERG LENITA

Abstract

The present invention relates to a method of monitoring and optionally controlling removal of microplastics from microplastic containing raw water, drinking water, storm water, water originating from melted snow, surface water, effluent of industrial wastewater treatment plants, effluent of municipal wastewater treatment plants, industrial process water, using at least one coagulant and/or polymer, wherein the number of microplastic particles of the microplastic containing water before and/or after addition of said at least one coagulant and/or polymer is determined by using an optical measurement measuring light scattering and fluorescence of particles in a predetermined volume of the microplastic containing water.

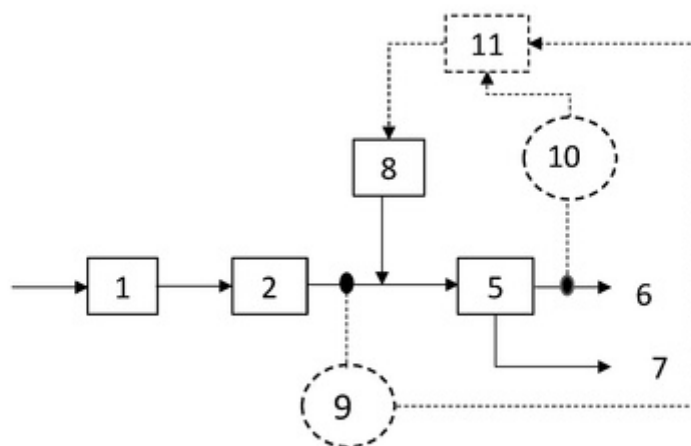


Fig. 1

A method of capturing and analysing microplastic particles from aqueous medium

Patent #: WO2020/225475

Publication date: 2020-11-12

Applicant(s): TEKNOLOGIAN TUTKIMUSKESKUS VTT

Inventor: HAKALAHTI MINNA, TAMMELIN TEKLA, JÄÄSKELÄINEN ANNA-STIINA, AROLA SUVI

Abstract

According to an example aspect of the present invention, there is provided a method of capturing and analyzing of colloidal microplastics and nanoplastics from aqueous medium. More precisely, the invention relates to a method for collecting and analyzing colloidal nano- and microplastic particles from aqueous media using nanoscaled lignocellulosic structures.

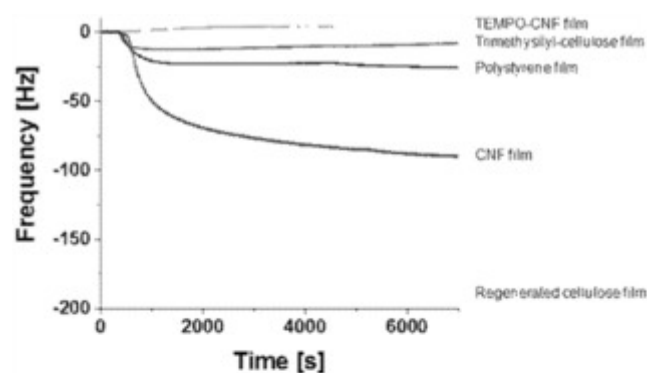


Fig. 1a

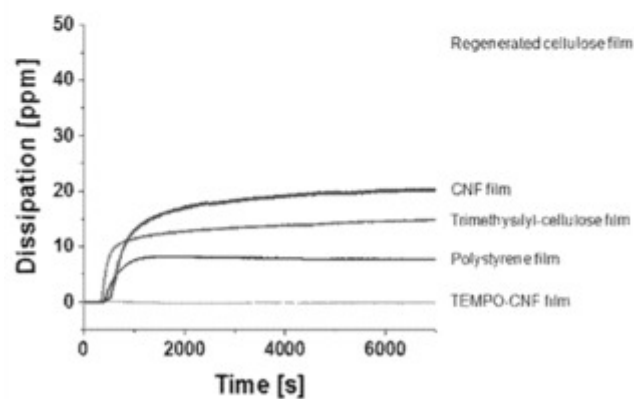


Fig. 1b

Characterization of plastic contamination of fluids using imagery of filter media

Patent #: WO2020/161585

Publication date: 2020-08-13

Applicant(s): POLYgone TECHNOLOGY

Inventor: SMITH LAUREN KEIRA MARIE, BALLISTON NICOLE ELIZABETH

Abstract

Systems and methods characterizing plastic contamination of a fluid are provided. An example system includes an imaging device to capture an image of a filter medium that contains plastic contaminants, the plastic contaminants captured by exposure of the filter medium to a sample of fluid. The example system includes a controller to apply a machine learning model to determine a characteristic of the plastic contaminants captured by the filter medium based on the image and to output the characteristic.

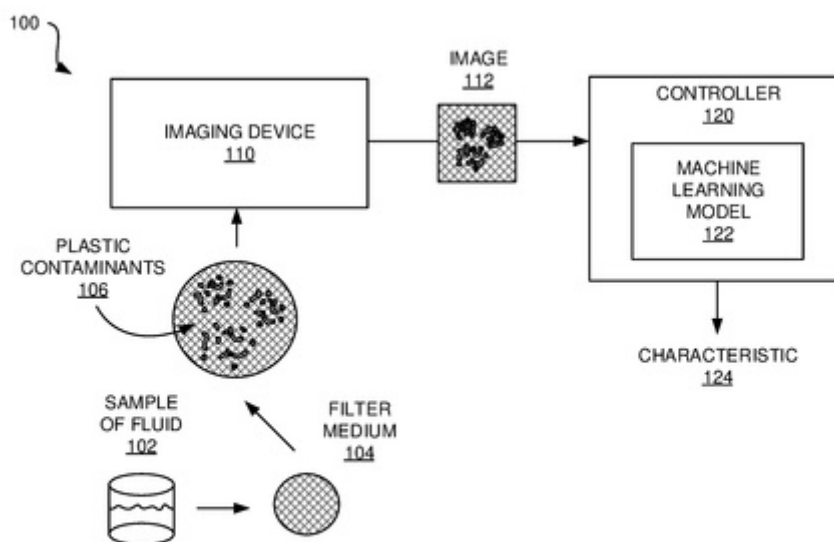


FIG. 1

Reactor and method for filtering microplastic particles

Patent #: DE102019104759

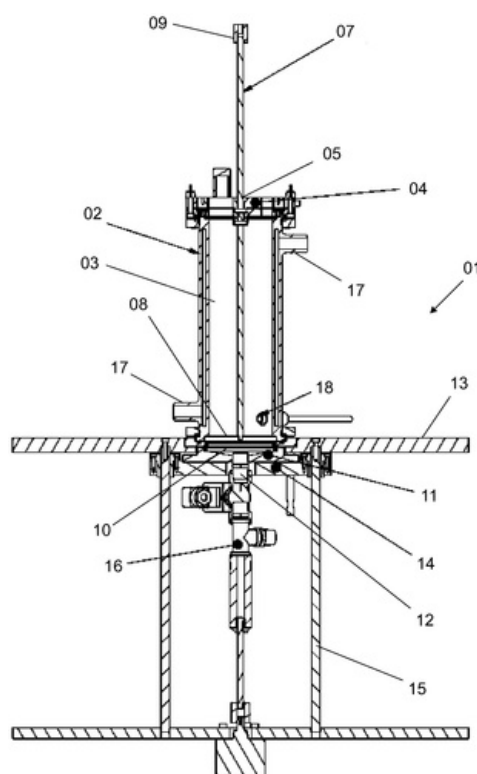
Publication date: 2020-06-18

Applicant(s): WFM WERKZEUGBAU & FEINWERKTECHNIK MEININGEN

Inventor: DEBERTSHÄUSER RALF, ZEISE FRANK, LINSER ROBERT

Abstract

The invention relates to a reactor (01) for filtering microplastic particles from samples. The reactor comprises a reaction vessel (02) with a cylindrical reaction chamber (03) which can be closed at its axial ends; a stirrer which is arranged in the reaction chamber (03) and can be rotated therein; a filter unit with a filter disc (10) which is directed upstream of the reaction chamber (03) and is coupled downstream to an outlet section (11). In a closed position, the filter unit is sealingly arranged at the lower end of the reaction chamber (03). Furthermore, an adjusting unit (14) is provided which enables at least one guided axial displacement of the filter unit between the closed position and a removal position. In the removal position, the filter disc (10) is spaced apart from the reaction chamber (03) in such a way that the filter disc (10) with microplastic particles deposited therein can be removed. The invention also relates to a method for operating such a reactor.



A washing machine comprising a hydrocyclone and a filtration hybrid arrangement

Patent #: WO2020/057820

Publication date: 2020-03-26

Applicant(s): ARCELIK

Inventor: ERDEM ILKAN, DEMIREL OZGE, YILMAZ NERGIZ, TERZIOGLU IPEK

Abstract

The present invention relates to a washing machine which cleans the discharge water of the particles therein by means of the filtration system and which prevents the microplastic fibers from being released into the environment, thus protecting the environment.

Microplastic compactor and method of compacting microplastics

Patent #: GB201918145

Publication date: 2020-01-22

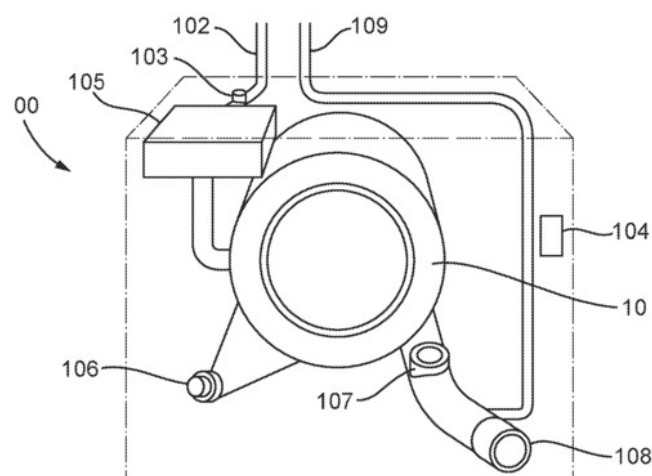
Applicant(s): INHERITING EARTH

Inventor: ADAM ROOT, REUBEN KETTLE AIERS, THOMAS RUDDLELL, NTANI KOKKINOS

Abstract

The compactor 200 is for extracting and compressing microplastics from waste effluent 203. The compactor includes a chamber 201 and an inlet 202 for supplying the waste effluent into the chamber. At least one plate 204a within the chamber is moveable between a non-compressing position and a compressing position. A drive unit 205a is for driving the at least one plate between a non-compressing position and a compressing position. The at least one plate is operable, in use, to extract and compress the microplastics from waste effluent, and to move the compressed microplastics to a discharge outlet 206. The drive unit may be a ram driven linear actuator, a hydraulic actuator, or may be manually operated via a lever or push rod. The plate may include a permeable material such as a mesh. The chamber may be cylindrical and include a permeable material in a wall. The compactor prevents microplastics or microfibers from the wastewater of washing machines and other appliances from entering the environment.

Fig. 1



Devices, methods, and kits for sample analysis using microslit filters

Patent #: WO2020/037288

Publication date: 2020-02-20

Applicant(s): SIMPORE

Inventor: CARTER JARED, ROUSSIE JAMES A

Abstract

Provided are methods, devices, and kits for the isolation and enumeration of one or more components of interest within a liquid sample using microslit filter membranes. This disclosure relates to the enumeration of components within a sample of interest, and more particularly, the capture of such components by efficient isolation using microslit filters with high permeation capacity and precision molecular cut-off characteristics.

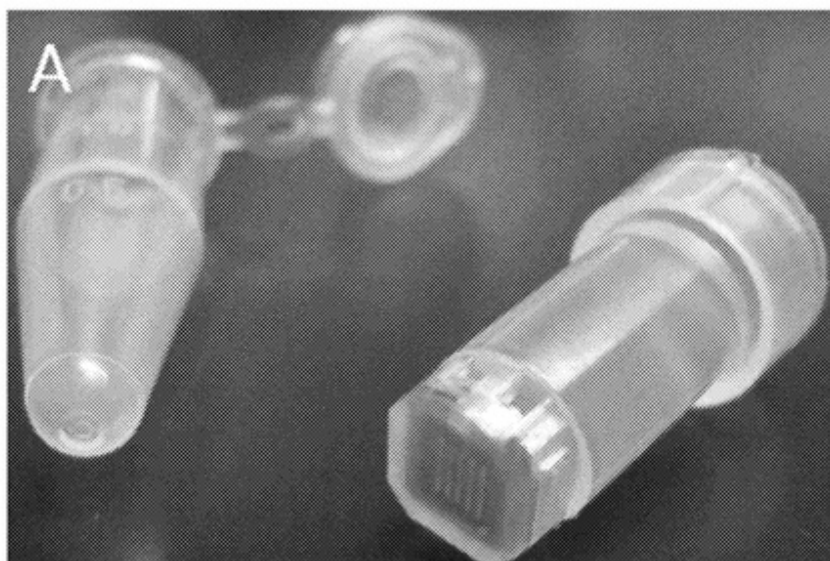


Figure 1