

## **EU RESTRICTIONS ON INTENTIONALLY ADDED MICROPLASTICS – SMALL PLASTIC, LOW AMBITION**

### **Abstract**

The paper discusses the need for an EU wide ban of microplastics. The focus is on the announced EU regulation on the ban of intentionally added microplastics. The paper firstly presents published results from research in natural science on the widespread of microplastic pollution and its influence on human health and life of animals and plants. These findings are used to analyse from a legal perspective to what extent there is a need for an EU ban on microplastics, what should be the scope of such regulation and what are the potential economic and regulatory impacts. The increase of plastic pollution caused by the COVID-19 pandemic is in this paper analysed as an important factor for a stricter EU approach towards microplastics. The EU for now decided to ban only the use of microplastics in *rinse-off* products and not in *leave-on* products. The EU did not show the ambition to be a front-runner on this matter, despite the economic benefits and its front-runner status in recycling. The comparative analysis confirms that the EU so far only reacts to already enacted legislation in other parts of the globe.

**Key words:** *microplastics, rinse-off products, EU Plastic Strategy, COVID-19, environmental protection*

### **1. Introduction**

Scientists discovered the existence and effects of microplastic pollution in the early seventies of the last century. It took the national legislators over four decades until the first national ban of at least a part of microplastics with regards to a particular use was issued in 2015 in the U.S. In the meantime, further research has proven the presence of small plastic particles in many waters including Arctic polar waters, in sea animals and birds and in the human body where it entered through the food chain. They are either a result of natural fragmentation of bigger plastic pieces or are intentionally added microplastics in certain products for human use. Microplastics could not be considered separately from the overall plastics pollution problem ever since. Several national legislators including Canada, South Korea, New Zealand and France followed with partial national

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bans, while the studies on health impact are still ongoing. The issue got more attention in European Union after the Plastics Strategy was adopted and published in January 2018.

The plastic pollution problem suddenly got much more serious and difficult to manage, while the legislative procedure for a harmonized EU measure is still ongoing. Namely, with the COVID-19 outbreak, the demand for use of plastic products to protect human health, such as gloves and masks, has dramatically increased. Immediate protection of human health has been prioritized over pollution concerns. A multiple increase of potentially contaminated waste is the consequence. An EU ban of microplastics thus gained even more importance and urgency.

From a legal perspective the main challenge arose with the definition of the umbrella term ‘microplastics’, since it describes a very diverse category of materials in terms of the ranges of polymer types, particle sizes, shapes and chemical formulations, which are likely to be found in various context-specific exposure situations. It goes back to the basic scientific question for which part of microplastics there is a proven detrimental effect for environment and health of humans, animals and plants. The answer to this question has a decisive influence on the scope of harmonization, the right of the EU Member States to keep stricter measures, potential implications on the freedom of goods and of course on the economic aspects of a potential ban. All of these aspects are potential obstacles or challenges for an EU wide ban on microplastics and will thus be analysed in this paper. A further legal problem may be a potential violation of WTO rules<sup>2</sup> in the TBT Agreement<sup>3</sup> and GATT<sup>4</sup>, but these aspects will be left out of this analysis. The aim is to make recommendations on the need and scope of regulation of microplastics in the EU, make a prognosis on barriers along the way and to which extent the COVID-19 pandemic shall be taken into consideration.

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<sup>2</sup> WTO (World Trade Organization)-a body dealing with rules of trade between nations. Under WTO rules, as confirmed by WTO jurisprudence, members can adopt trade-related measures aimed at protecting the environment, subject to certain specified conditions.

<sup>3</sup> The Technical Barriers to Trade (TBT) Agreement aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade. At the same time, it recognises WTO members' right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, or protection of the environment.

<sup>4</sup> General Agreement on Tariffs and Trade (GATT), set of multilateral trade agreements aimed at the abolition of quotas and the reduction of tariff duties among the contracting nations. GATT was concluded by 23 countries at Geneva, in 1947 (took effect on Jan. 1, 1948). In regards to environmental issues, it contains an article (XX) on general exceptions that lays out a number of specific instances in which WTO members may be exempted from GATT rules. Two exceptions are of particular relevance to the protection of the environment: paragraphs (b) and (g) of Article XX. Pursuant to these two paragraphs, WTO members may adopt policy measures that are inconsistent with GATT disciplines, but necessary to protect human, animal or plant life or health (paragraph (b)), or relating to the conservation of exhaustible natural resources (paragraph (g)).

## 2. The need for regulation - harmfulness of microplastics to the environment

### 2.1. Initial research

The term "microplastics" was first mentioned in 2004 by Professor Richard Thompson, a marine biologist at the University of Plymouth in the United Kingdom.<sup>5</sup> But the phenomena itself was discovered much earlier. In 1971 marine biologist Ed Carpenter was on a research cruise to the Sargasso Sea, when he discovered white specks floating amidst the mats of brown sargassum seaweed.<sup>6</sup> He reported the presence of plastic pellets and fragments in all 11 surface net samples collected in the western Sargasso Sea and published his research in two papers in *Science* in 1972<sup>7</sup>. In fact, a year before that, synthetic fibres in sea water from the North Sea and in plankton samples were reported.<sup>8</sup> Once the plastic reaches the environment it is already fragmented into smaller pieces and by the influence of wind, UV-radiation and high temperatures it further breaks down into smaller pieces.<sup>9</sup> Microplastics further include synthetic parts put into cosmetic personal care products (called micro-beads), in products like toothpaste or soap<sup>10</sup>. If taken into consideration the fact that more than 300 million metric tons of plastics is produced every year (which is about the weight of the entire human population)<sup>11</sup>, it is hard even to imagine the amount of tiny plastic pieces polluting the environment and endangering life in the sea, food chain, water quality, and eventually, humans.

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<sup>5</sup> Richard Thompson and others, "Lost at Sea: Where Is All the Plastic?" [2004], *Science*, vol. 304, 838.

<sup>6</sup> Andrea Thompson, "Earth Has a Hidden Plastic Problem—Scientists Are Hunting It Down", [2018], *Scientific American*; <https://www.scientificamerican.com/article/microplastics-earth-has-a-hidden-plastic-problem-mdash-scientists-are-hunting-it-down/>; 23 May 2020., 1.

<sup>7</sup> Peter Ryan, "A Brief History of Marine Litter Research", in M. Bergmann, L. Gutow and M. Klages (eds), *Marine Anthropogenic Litter*, (Heidelberg, 2015), 5.

<sup>8</sup> John Buchanan, "Pollution by synthetic fibres", [1971] *Marine Pollution Bulletin*, 2, 23.

<sup>9</sup> Ida M. Steensgaard and others, "From macro - to microplastics - Analysis of EU regulation along the life cycle of plastic bags", [2017], *Environmental Pollution* 224, 289-299, 290.

<sup>10</sup> Alison Anderson and others, "Microplastics in personal care products: Exploring perceptions of environmentalists, beauticians and students", [2016], *Marine Pollution Bulletin* 113, 454–460, 454.

<sup>11</sup> <https://committee.iso.org/files/live/sites/tc61/files/The%20Plastic%20Industry%20Berlin%20August%202016%20-%20Copy.pdf> accessed 20. June 2020.

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Further research included freshwaters in Africa,<sup>12</sup> Arctic polar waters,<sup>13</sup> Middle East<sup>14</sup>, and expanded to many other regions. The newest research in America<sup>15</sup> confirmed and quantified the presence of microplastics in terrestrial and aquatic birds of prey in Florida, including hawks, ospreys and owls. The latter was not the first one confirming the presence of microplastics in animals (those were also found in whales, fish and other birds). In October 2018, some research on microplastics in human waste were also published.<sup>16</sup> It was already definite that microplastics were everywhere. The main chemical characteristics of plastics were already known and that started to concern scientists. Further research was focused on harmfulness of microplastics to animals and humans.

### 2.2. Categories of products containing microplastics

Microplastics are regularly found in cosmetic products such as face washes, hand soaps, toothpaste and other personal care products.<sup>17</sup> Natural exfoliating ingredients are often replaced with microplastics, usually in the form of "microbeads" or "micro-exfoliates".<sup>18</sup> Mentioned products are typically composed of *polyethylene*, a common component of plastics, but they can also be manufactured from *polypropylene*, *polyethylene terephthalate* (PET), and *nylon*.<sup>19</sup> Other cosmetic products such as make-up, decorative products, lipsticks, perfumes, deodorants, antiperspirants, sunscreens, detergents, and different types of cleansing products also contain microplastics.<sup>20</sup>

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<sup>12</sup> See also: E. O. Akindele, S. M. Ehlers and J. H. E. Koop, "First empirical study of freshwater microplastics in West Africa using gastropods from Nigeria as bioindicators", in M. Hupfer (ed), *Limnologica* (Volume 78, September 2019.); H. Toumi, S. Abidli and M. Bejaoui, "Microplastics in freshwater environment: the first evaluation in sediments from seven water streams surrounding the lagoon of Bizerte (Northern Tunisia) [2019]; <https://link.springer.com/article/10.1007/s11356-019-04695-0>; accessed 24.May 2020.

<sup>13</sup> See scientific report: A. L. Lusher, V. Tirelli and Ian O'Connor & R. Officer, „Microplastics in Arctic polar waters: the first reported values of particles in surface and sub-surface samples”, [2015] <https://www.nature.com/articles/srep14947>; accessed 22.May 2020.

<sup>14</sup> Talat Saeed and others, "Microplastics in Kuwait Marine Environment: Results of First Survey", [2020], *Marine Pollution Bulletin* Volume 152.

<sup>15</sup> Julia Carlin and others, "Microplastic accumulation in the gastrointestinal tracts in birds of prey in central Florida, USA" [2020], *Environmental Pollution*, 264.

<sup>16</sup> <https://www.nationalgeographic.com/environment/2018/10/news-plastics-microplastics-human-feces/>; accessed 24.May 2020.; <https://www.theguardian.com/environment/2018/oct/22/microplastics-found-in-human-stools-for-the-first-time>; accessed 24. May 2020.

<sup>17</sup> Alison Anderson, "Microplastics in personal care products", 454.

<sup>18</sup> *Ibid.*

<sup>19</sup> [http://www.miss-ocean.com/Feed\\_The\\_World\\_Campaign/Microplastics.htm](http://www.miss-ocean.com/Feed_The_World_Campaign/Microplastics.htm); accessed 19 October 2020.

<sup>20</sup> Klaus Rettinger, Birgit Huber, "Microplastic Particles in Cosmetic Products - Impact on the Environment?", [2016], *Sofw Journal*, 08/16, Volume 142, Thanrhausen, 28.

The second category of products containing and releasing microplastics is clothing. Research has shown that not just nylon, but also polyester, acrylics, and spandex (lycra or elastine), can be shed from clothing and persist in the environment.<sup>21</sup> An ecologist, Mark Browne from the University of New South Wales, Australia, made an experiment by setting up three washing machines with the clothes made of different types of fibres. The experiment showed that “garments such as fleeces shed up to 1,900 tiny fibers every time they were washed”<sup>22</sup> All those fibers usually end up in sewage system and then in rivers and seas.

Microplastics were also found in car and truck tires, manufacturing, fishing industry, packaging and shipping, etc. Sewage treatment plants are also the places where the scientists have found the huge amount of microplastics.<sup>23</sup> The removal of contaminants from wastewater usually goes in two stages: primary and secondary treatment. During the first one, large pieces of waste ought to be removed (such as sand, large solids and oils) by using physical processes. In the second stage, bacteria and protozoa are used in biological processes to break down the organic matter. The optional tertiary treatment stage may include processes for nutrient removal (nitrogen and phosphorus) and disinfection.<sup>24</sup> The scientists found microplastics in both- primary and secondary stage of waste removal. In general, microplastics are classified as primary and secondary. Primary microplastics are plastic fragments and particles that are already very small (usually 5,0 mm or less) before reaching the environment. Those are microbeads, microfibers from clothing and plastic pellets. These microplastics are purposely manufactured.<sup>25</sup> Secondary microplastics are usually created in a process of degradation of large pieces of plastics, mostly by natural weathering processes. Degradation of plastics is long-lasting process, taking hundreds, or even thousands of years. The smallest microplastics found in the ocean so far is 1.6 micrometres ( $6.3 \times 10^{-5}$  in) in diameter.<sup>26</sup> Plastic particles smaller than 1  $\mu\text{m}$

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<sup>21</sup> See more: Elisabeth Grossman, “How Microplastics from Your Fleece Could End up on Your Plate”, [2015], Civil Eats.

<sup>22</sup> Alla Katsnelson, “News Feature: Microplastics present pollution puzzle”, [2015], Proceedings of the National Academy of Sciences, Vol 112., 5547.

<sup>23</sup> Jing Sun and others, “Microplastics in wastewater treatment plants: Detection, occurrence and removal”, [2019], Water Research, Volume 152, 21-37.

<sup>24</sup> Environmental Protection Agency: Waste water treatment manuals Primary, secondary and tertiary treatment, [1997], Ardavan, Wexford, Ireland.

<sup>25</sup> Samaneh Karbalaei and others, “Occurrence, sources, human health impacts and mitigation of microplastic pollution”, [2018], *Environmental Science and Pollution Research*, 25 (36): 3604–3606.

<sup>26</sup> Jeremy L. Conkle and others, “Are We Underestimating Microplastic Contamination in Aquatic Environments?”, [2017], *Environmental Management*, 61 (1): 1–8.

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(i.e. 1000 nm) or less than 100 nm in size are sometimes called nanoplastics.<sup>27</sup> Because of their size, scientists research their possibility to cross the cell membrane and to affect the functioning of the cells in human and animal body. Besides those mentioned, primary microplastics are also produced for air blasting technology. “This process involves blasting acrylic, melamine, or polyester microplastic scrubbers at machinery, engines, and boat hulls to remove rust and paint. As these scrubbers are used repeatedly until they diminish in size and their cutting power is lost, they often become contaminated with heavy metals”<sup>28</sup> such as cadmium, chromium, and lead.

### 2.3. The way of reaching the environment

The huge number of cosmetic and self-care products, as well as cleansing products and detergents are so called *rinse-off* products, which means that they are intended to be removed after its application on the skin or hair, or the mucous membrane, as opposed to *leave-on* products, which are intended to stay in prolonged contact with the skin or hair, or the mucous membrane.<sup>29</sup> This means that *rinse-off* products, after they are washed, go with the water into the sewage system immediately. Through the sewage systems, they are entering rivers and oceans. It might look exaggeratedly talking about microplastics coming to oceans through the sewage systems, but the amounts of those products used and washed-off every day by the billions of people is not negligible. If they are going through the preliminary treatment screens at wastewater plants, they still manage to get to the environment because of their small size. Even though wastewater treatment plants remove an average of 95–99.9% of microbeads, it still means that 0,1-5% microbeads leave, and get into rivers and oceans. It is estimated that between 4594 and 94,500 microbeads could be released from an exfoliant in a single use.<sup>30</sup> The numbers are even bigger if the sewage sludge is taken into account, which also contains microbeads and it is often reused as a fertilizer.<sup>31</sup> The presented data are on the household level, so if taken into account manufacturing and industry, the numbers are skyrocketing. Recreational and commercial fishing, marine vessels, and marine industries are also sources of

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<sup>27</sup>Joao Pinto da Costa, "Nanoplastics in the Environment", in R. M. Harrison/R. E. Hester (eds.), *Plastics and the Environment- Issues in Environmental Science and Technology*, [2018], Royal Society of Chemistry, London, 85.

<sup>28</sup> Matthew Cole and others, "Microplastics as contaminants in the marine environment: A review", [2011], *Marine Pollution Bulletin*, 62 (12): 2589.

<sup>29</sup> EU Regulation 1223/2009, Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products, Preamble to Annexes II to VI.

<sup>30</sup> Imogen E. Napper and others, "Characterisation, quantity and sorptive properties of microplastics extracted from cosmetics", [2015], *Marine Pollution Bulletin*, 1.

<sup>31</sup> Chelsea Rochman and others, "Scientific Evidence Supports a Ban on Microbeads", [2015], *Environmental Science & Technology*, 49 (18): 10759–10761.

plastic that can directly enter the marine environment, as a primary microplastics, but also a secondary after degradation by the water, sun and wind force. Marine debris observed on beaches are coming there in a same way.<sup>32</sup>

Shipping and packaging are also very important way of getting plastics to marine environment, having contributed around 6.5 million tons of plastic in the early 1990s.<sup>33</sup>

The COVID-19 pandemic has multiplied the numbers in several areas. Managing of the virus requires single-use plastic which again leads to potentially hazardous medical waste. The first reports show e.g. an increase of 370% of medical waste in the Hubei province.<sup>34</sup> While the lockdowns related to COVID-19 also had positive environmental impacts, the use of plastic for protection of health may also in the long run negatively influence consumer habits.<sup>35</sup> With the economic impacts of the pandemic it is difficult to bring back the awareness of plastic pollution which was a result of a long process.

## **2.4. Environmental consequences of microplastics**

Even though there is still no evidence on widespread pollution of the environment by the presence of microplastics, the fact that there is no part of the environment without microplastics is increasing the future risk of great consequences. The scientific facts known so far show the presence of microplastics in oceans, marine environments, freshwater ecosystems, soil, ice cores and air. Being present there, microplastics directly effect human health.

In January 2019, European Union's Scientific Advice Mechanism<sup>36</sup>, published a comprehensive review of scientific evidence in regards to presence of microplastics in environment called „A scientific perspective on microplastics in nature and society“. The review was preceded by an Initial statement<sup>37</sup> by the

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<sup>32</sup> Jose G.B. Derraik, "The pollution of the marine environment by plastic debris: A review", [2002], *Marine Pollution Bulletin*, 44 (9): 842–852.

<sup>33</sup> Emma L. Teuten and others, "Transport and release of chemicals from plastics to the environment and to wildlife", [2009], *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364 (1526), 2027–2045.

<sup>34</sup> Jiri Jaromir Klemeš and others, "Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19", *Renewable and Sustainable Energy Reviews* 127 (2020) 109883, 2.

<sup>35</sup> *Ibid.*, 5.

<sup>36</sup> The Scientific Advice Mechanism is a service created by the European Commission. Its main task is to provide European Commissioners with the independent scientific opinion in the process of their decision-making. The Mechanism consists of two parts: the Group of Chief Scientific Advisors, an expert group consisting of up to seven leading scientists, and SAPEA, a consortium of five European Academy Networks collectively representing around 100 academies and learned societies across Europe.

<sup>37</sup> Full text of Initial statement available at: [https://ec.europa.eu/info/files/initial-statement-group-chief-scientific-advisors-scientific-perspective-microplastic-pollution-and-its-impacts\\_en](https://ec.europa.eu/info/files/initial-statement-group-chief-scientific-advisors-scientific-perspective-microplastic-pollution-and-its-impacts_en); accessed 25 May 2020.

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group of chief scientific advisors in June 2018 which was serving as a scope paper. Final scientific opinion was informed by SAPEA evidence review report.<sup>38</sup> After publishing of the opinion, in April 2019, the European Commission's Chief Scientific Advisors called for a wider, evidence-based policy response to preempt the growing risks of microplastics pollution and several very important events were organized very soon on the topic of the microplastics impact to the environment.<sup>39</sup>

Research showed that the marine life faces problem with microplastics through enlargement, ingestion, suffocation and general debilitation often leading to death and/or stranding. Very often they become embedded in animal tissue. In that way, they arrive to other organisms in the food chain. Because of their size they are suitable for reaching the bodies of a large number of animal species. Since they are usually not conspicuous by naked eye, they reach the human body the same way.<sup>40</sup>

The presence of microplastics was confirmed in many organisms such as deposit-feeding lugworms (*Arenicola marina*), crustaceans like the shore crab (*Carcinus maenas*) where the microplastics found embedded in their gastrointestinal, respiratory and digestive tracts.<sup>41</sup> Additionally, microplastics were found in different bottom-feeders, such as sea cucumbers<sup>42</sup>, but also Scleractinian corals,<sup>43</sup> zooplankton,<sup>44</sup> tuna and swordfish,<sup>45</sup> parrotfish,<sup>46</sup> seagrass and barrier-reefs, and many others. Huge number of these species are used in human feeding. It was also noted that microplastics can stunt the growth of plants and earthworms.<sup>47</sup>

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<sup>38</sup> Full text of the evidence report available at: <https://www.sapea.info/topics/microplastics/>; accessed 25 May 2020.

<sup>39</sup> Scoping workshop on 26.th April 2018, Expert meeting – Environmental and health risks of microplastic pollution on 10. And 11.th January 2019 in Brussels, Roundtable of G7 Chief Scientific Advisors on 13.th February in Washington, Stakeholder meeting - environmental and health risks of microplastic pollution, 25th April 2019 in Brussels, Roundtable of G7 Chief Scientific Advisors on 15.th October 2019 in Paris.

<sup>40</sup> See more: Elisabeth Grossman, "How Microplastics from Your Fleece Could End up on Your Plate", [2015], Civil Eats.

<sup>41</sup> Andrew J. Watts and others, "Uptake and Retention of Microplastics by the Shore Crab *Carcinus maenas*", [2014], *Environmental Science & Technology*, 48 (15), 8823–8830.

<sup>42</sup> Stephanie L. Wright and others, "The physical impacts of microplastics on marine organisms: A review", [2013], *Environmental Pollution*, 178: 483–492.

<sup>43</sup> Nora Hall and others, "Microplastic ingestion by scleractinian corals", [2015], *Marine Biology*, 162 (3), 725–732.

<sup>44</sup> Matthew Cole and others, "Microplastic Ingestion by Zooplankton", [2013], *Environmental Science & Technology*, 47 (12), 6646–6655.

<sup>45</sup> Andres Cozar and others, "Plastic debris in the open ocean", [2014], *Proceedings of the National Academy of Sciences*, 111 (28), 10239–10244.

<sup>46</sup> Kat McAlpine, "Have Your Plastic and Eat It Too", [2019], *Bostonia* (Boston University Alumni), 36–37.

<sup>47</sup> Bas Boots and others, "Effects of Microplastics in Soil Ecosystems: Above and Below Ground", [2019] *Environmental Science & Technology*, 53 (19), 11496–11506.

Human's contamination by microplastics comes through cosmetic products, cleansing products, food (especially sea food), packaging (especially food and water), and air. For example, research in China<sup>48</sup> and Spain<sup>49</sup> have shown the great amount of microplastics in different types of salt. The most of it was contained in sea salt, and the most common microplastics found was polyethylene terephthalate (PET). It is believed that contamination by microplastics can cause negative immune response<sup>50</sup>, even though the research on harmfulness of microplastics to human body is still ongoing. Some of the results made so far show the bad influence of Bisphenol A (BPA), which is a substance used for hardening plastics. It is believed that this substance can cause disorders such as cardiovascular disease, type 2 diabetes, and abnormalities in liver enzymes.<sup>51</sup> Other substance called a Tetrabromobisphenol A (TBBPA) is used in many different types of plastics such as those found in microcircuits. This chemical has been linked to disruptions in thyroid hormones balance, pituitary function, and infertility in lab rats.<sup>52</sup>

Above mentioned comprehensive review of scientific evidence published by the European Union's Scientific Advice Mechanism in 2019, states that "little is known with respect to the human health risks of nano- and microplastics, and what is known is surrounded by considerable uncertainty".<sup>53</sup> Stressing the limitations of research and methods, the review concludes that „there is a need to understand the potential modes of toxicity for different size-shape-type NMP combinations in carefully selected human models, before robust conclusions about ‘real’ human risks can be made.”<sup>54</sup>

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<sup>48</sup> Dongqi Yang and others, "Microplastic Pollution in Table Salts from China", [2015], *Environmental Science & Technology*, 49 (22), 13622–13627.

<sup>49</sup> Maria E. Iñiguez, and others, "Microplastics in Spanish Table Salt", [2017], *Scientific Reports*, 7 (1), 8620.

<sup>50</sup> Gabriel E. De-la-Torre, "Microplastics: an emerging threat to food security and human health", [2019], *Journal of Food Science and Technology*, 57 (5), 1601–1608.

<sup>51</sup> Richard C. Thompson and others, "Plastics, the environment and human health: Current consensus and future trends", [2009], *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364 (1526), 2157.

<sup>52</sup> Leo T. M. Van Der Ven and others, "Endocrine effects of tetrabromobisphenol-A (TBBPA) in Wistar rats as tested in a one-generation reproduction study and a subacute toxicity study", [2008], *Toxicology*, 245 (1–2), 76–89.

<sup>53</sup> SAPEA (Scientific Advice for Policy by European Academies): "A scientific perspective on microplastics in nature and society" <https://www.sapea.info/topics/microplastics/>: SAPEA (Scientific Advice for Policy by European Academies), [2019], 12., accessed 30 May 2020.

<sup>54</sup> *Ibid.*, 13., accessed 30 May 2020.

### 3. Regulating the microplastics usage in comparative law

#### 3.1. Defining microplastics in legal acts in comparative law

The very first national act in comparative law which was dealing with microplastics as an environmental issue was American Microbead-free Waters Act which was adopted in 2015. This act prohibited manufacturing and selling of *rinse-off* products that contain “microbeads”. Microbead is defined as “any solid plastic particle that is less than five millimetres in size and is intended to be used to exfoliate or cleanse the human body or any part thereof”<sup>55</sup>.

Therefore the Act restricts its application to a part of cosmetic products and does not address the presence of microbeads in a range of household (e.g., abrasive cleaners and detergents) and industrial products (e.g., abrasives for blast cleaning and

lubricants for petroleum drilling) or fibres from synthetic textiles.<sup>56</sup>

Australia has taken a slightly softer approach, by introducing a voluntary-based expulsion of microplastics in a process of producing cosmetics and other similar products. The idea has been born on in December 2016, during an official meeting of environment ministers (MEM) from federal, state and territory level. The indicative deadline given to companies was July 2018, after which date the Government ought to reconsider further steps in order to restrict or ban the intentionally adding microplastics. In 2017, Australian Department of Agriculture, Water and the Environment commissioned an independent assessment of personal care and cosmetic products<sup>57</sup> sold in supermarkets and pharmacies. The assessment showed that 94 % of stores, supermarkets and pharmacies were selling products that were completely microbead-free.<sup>58</sup> Since, the voluntary- based approach has got the results, the Government did not have to make further steps. In the context of definition, the same Department, on its official web site defines microbeads as “small, solid, manufactured plastic particles that are less than 5mm and don’t degrade or dissolve in water. They may be added to a range of products, including rinse-off cosmetics, personal care and cleaning products.”<sup>59</sup>

South Korea announced a ban on microbeads in *rinse-off* products in October

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<sup>55</sup> Section 2(a) Microbead-free Waters Act of 2015.; Full text available at: <https://www.congress.gov/114/plaws/publ114/PLAW-114publ114.pdf>; accessed 23 May 2020.

<sup>56</sup> Jeremy L. Conkle and others, "Are We Underestimating Microplastic Contamination in Aquatic Environments?", [2017], *Environmental Management*, 61 (1): 1–8, 2.

<sup>57</sup> <https://www.environment.gov.au/protection/waste-resource-recovery/publications/assessment-sale-microbeads-within-retail-market>; accessed 27 September 2020.

<sup>58</sup> <https://www.environment.gov.au/protection/waste-resource-recovery/publications/assessment-voluntary-phase-out-microbeads>; 27 September 2020;

<sup>59</sup> <https://www.environment.gov.au/protection/waste-resource-recovery/plastics-and-packaging/plastic-microbeads>; accessed 27 September 2020.

2016 and in tooth-paste in February 2017, and was the first country to notify the WTO of its proposed prohibition on microbeads in cosmetic products.<sup>60</sup> Taiwan also announced bans and followed notification, using more or less the same definition as the US Microbead-free Waters Act.<sup>61</sup>

Chinese researchers started investigating lakes<sup>62</sup>, and commercially sold sea salt in 2015.<sup>63</sup> After their findings, it was tried to increase the awareness of presence of microplastics in different types of products. In that context, the ban of intentionally adding microplastics is announced to be in force till the end of 2020.<sup>64</sup>

Canada in its Toiletries Regulation banned the usage of microplastics defining them as a “plastic microbeads that are  $\leq 5$  mm in size”.<sup>65</sup> In this definition, microbeads included different forms of particles – meaning solid, hollow, amorphous and solubilized, as well as different functions.<sup>66</sup> On the other hand, other definitions practically included only solid particles under the umbrella term of microbeads. Those solid particles usually have the function of exfoliating and cleansing.

New Zealand defined microbead as a “water insoluble plastic particle that is less than 5 mm at its widest point” in its act called Waste Minimization (Microbeads) Regulations 2017.<sup>67</sup> The act firstly proposed ban on microbeads in “wash down” cosmetic products,<sup>68</sup> but then extended it to cleaning products, such as household, car and industrial cleaning products.<sup>69</sup>

The United Kingdom has announced the Environmental Protection (Microbeads) Regulations 2017/2018, and proposed the ban of rinse-off personal care products

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<sup>60</sup> Esther Kentin, Heidi Kaaerto, “An EU ban on microplastics in cosmetic products and the right to regulate”, Committee on Technical Barriers to Trade, RECIEL. 2018;27:254–266, 257. Fn 15., ‘Notification G/TBT/N/KOR/672’ (6 October 2016) and ‘Notification G/TBT/N/KOR/706’, 1. February 2017.

<sup>61</sup> Ibid, fn 16. Committee on Technical Barriers to Trade, ‘Notification G/TBT/N/TPKM/249’ (14 October 2016), attachment for English text of legislation: [https://members.wto.org/crnattachments/2016/TBT/TPKM/16\\_4322\\_00\\_e.pdf](https://members.wto.org/crnattachments/2016/TBT/TPKM/16_4322_00_e.pdf); accessed 23 May 2020.

<sup>62</sup> See more: Xiong Xiong and others, „Sources and distribution of microplastics in China's largest inland lake – Qinghai Lake“, *Environmental Pollution*, [2018], Volume 235, 899-906.

<sup>63</sup> See more: Ji-Su Kim and others, „Global Pattern of Microplastics (MPs) in Commercial Food-Grade Salts: Sea Salt as an Indicator of Seawater MP Pollution“, *Environmental Science and Technology*, [2018], 12819–12828.

<sup>64</sup> <https://chemicalwatch.com/85303/china-to-ban-microbeads-in-cosmetics-by-the-end-of-2020>; accessed 27 September 2020.

<sup>65</sup> Microbeads in Toiletries Regulations SOR/2017-111, amending the Canadian Environmental Protection Act, 1999 [1 January 2018] <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2017-111/index.html>; accessed 25. May 2020.

<sup>66</sup> Esther Kentin and Heidi Kaaerto, “An EU ban on microplastics in cosmetic products and the right to regulate”, [2018.], 257.

<sup>67</sup> Full text available at: <http://www.legislation.govt.nz/>; accessed 28 May 2020.

<sup>68</sup> Committee on Technical Barriers to Trade, ‘Notification G/TBT/N/NZL/77’, 8 March 2017.

<sup>69</sup> Committee on Technical Barriers to Trade, ‘Notification G/TBT/N/NZL/77/Add.1’, 9 October 2017.

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with defining a microbead as “any water-insoluble solid plastic particle of less than or equal to 5 mm in any dimension”.<sup>70</sup>

The first EU member state that adopted national ban on microplastics was France. France prohibited the sale of rinse-off cosmetic products for exfoliation or cleaning that contain solid plastic particles.<sup>71</sup> What is the most interesting about French ban on microplastics is the fact that definition of microplastics does not provide the size of microplastics, meaning that it can encompass those larger than 5 mm. The ban was notified both to the Commission, under the 2015 / 1535 notification procedure<sup>72</sup> and to the WTO.<sup>73</sup>

The Swedish notification refers explicitly to US restriction, thus the definition is very similar. Microplastics in Swedish legislation is defined as “solid particles of plastic which are 5 mm or less than 5 mm in size and insoluble in water.”<sup>74</sup> The last member state proposing the measure was Italy in its Draft technical regulation banning the marketing of non-biodegradable and non-compostable cotton buds and exfoliating rinse-off cosmetic products or detergents containing microplastics.<sup>75</sup> The measure defines the microplastics as water insoluble solid plastic particles of 5 mm or less, referring to definition in Commission Decision (EU) 2017/1217 of 23. June 2017.<sup>76</sup> It can be concluded that all the mentioned bans are explicitly or implicitly related to adding microplastics to rinse-off products only. The intention is to stop spreading microbeads to the environment through wastewater system.

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<sup>70</sup> Full text available at: <http://www.legislation.gov.uk/uksi/2017/1312/contents/made>; accessed 29 May 2020.

<sup>71</sup> Loi n° 2016-1087 du 8 août 2016 pour la reconquête de la biodiversité, de la nature et des paysages, TA n° 803 <http://www.assemblee-nationale.fr/14/dossiers/biodiversite.asp>; art.124., accessed 27 May 2020.

<sup>72</sup> Council Directive (EEC) 83/189 of 28 March 1983 laying down a procedure for the provision of information in the field of technical standards and regulations [1983] OJ L109/8; Technical Regulation Information System, ‘Notification Number 2016/ 543/F’, 12. October 2016. [https://ec.europa.eu/growth/single-market/barriers-to-trade/tris\\_en](https://ec.europa.eu/growth/single-market/barriers-to-trade/tris_en); accessed 28 May 2020.

<sup>73</sup> Committee on Technical Barriers to Trade, ‘Notification G /TBT/N/FRA/170’, 30. November 2016; 28 May 2020.

<sup>74</sup> Förordning (1998:944) om förbud m.m. i vissa fall i samband med hantering, införsel och utförsel av kemiska produkter; [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-1998944-om-forbud-mm-i-vissa-fall\\_sfs-1998-944](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-1998944-om-forbud-mm-i-vissa-fall_sfs-1998-944); accessed 28 May 2020.

<sup>75</sup> Full text available at: [https://ec.europa.eu/growth/tools-databases/tbt/en/search/?tbtaction=search.detail&Country\\_ID=ITA&num=33&dspLang=en&basdatedeb=11/06/2018&basdatefin=01/07/2018&baspays=&basnotifnum=&basnotifnum2=&bas typepays=ANY&baskeywords=](https://ec.europa.eu/growth/tools-databases/tbt/en/search/?tbtaction=search.detail&Country_ID=ITA&num=33&dspLang=en&basdatedeb=11/06/2018&basdatefin=01/07/2018&baspays=&basnotifnum=&basnotifnum2=&bas typepays=ANY&baskeywords=); accessed 28 May 2020.

<sup>76</sup> Committee on Technical Barriers to Trade, ‘Notification G/TBT/N/ITA/33’ [22 June 2018]; Technical Regulation Information System, ‘Notification Number 2018/258/I’ [6 June 2018] [https://ec.europa.eu/growth/single-market/barriers-to-trade/tris\\_en](https://ec.europa.eu/growth/single-market/barriers-to-trade/tris_en); accessed 28 May 2020.

### **3.2. Conclusions on difference in definitions of microplastics in legal acts**

According to presented proposals and definitions, it is notable that the main differences between proposed or adopted national measures are in defining microplastics (in size, whether it is water-soluble particle or not, and whether it has to be solid or not) and in categories of products that the ban is related to. Those differences are not insignificant and can have implications on other important legal issues, such as implementing of fundamental freedoms.

National measures and proposals are treating different kinds of products. The most frequent classification of products to apply the ban is on rinse-off and leave-on products. The first group includes cosmetic wash-up products, exfoliating products, cleansing products and detergents. The second group includes sunscreen, make-up and other kinds of products. Some measures do not use this classification, but enumerate the products. However, there are no national measures adopted which ban microplastics in leave-on products so far. The decisive fact was that leave-on products would not come to wastewater systems, although they are still entering the human body and making the influence on human's health. On ECHA's workshop in May 2018 on intentionally added microplastics in cosmetic products, The Personal Care Association Cosmetics Europe suggested the restriction of adding microplastics in both rinse-off and leave on products.<sup>77</sup>

ECHA introduced the definition of microplastics as „any polymer-containing solid or semi-solid particle having a size of 5 mm or less in at least one external dimension“.<sup>78</sup> In comparison to other definitions in comparative law, this definition contains the size provided for particles to be considered as microplastics, contrary to French definition, includes semi-solid particles, contrary to US law definition, but does not explicitly encompass hollow, amorphous and solubilized particles, contrary to Canadian law.

It is possible to say, that this definition is finding compromise, but still opens many more scientific and legal questions. This is the minimum expectation of an EU wide regulation. Whether the EU will choose to be a front-runner in the matter and also include application to leave-on products would be highly welcomed but does not seem likely at the moment. The following analysis of effects on the internal market and regulatory autonomy of the EU, will take the minimum definition as a likely standard.

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<sup>77</sup>[https://echa.europa.eu/documents/10162/23964241/02-cosmetic-europe-john-chave\\_en.pdf/28a1a408-4e26-1bb8-4603-9c020a63d31a](https://echa.europa.eu/documents/10162/23964241/02-cosmetic-europe-john-chave_en.pdf/28a1a408-4e26-1bb8-4603-9c020a63d31a); accessed 30 May 2020.

<sup>78</sup>[https://echa.europa.eu/documents/10162/13641/note\\_on\\_substance\\_identification\\_potential\\_scope\\_en.pdf](https://echa.europa.eu/documents/10162/13641/note_on_substance_identification_potential_scope_en.pdf); accessed 30 May 2020.

#### **4. Restrictions of microplastics in the EU law**

##### **4.1. EU Plastic Strategy from 2018**

In 2018, European Commission adopted the first-ever Europe-wide strategy on plastics.<sup>79</sup> The strategy was a part of the transition towards a more circular economy and its aim was to protect planet, defend citizens and empower industry.<sup>80</sup>

The reason that led to the adoption of the strategy was the huge amount of plastic waste generated by the European citizens (around 25 million tonnes per year), from which less than 30% was recycled.<sup>81</sup> “Global production of plastics has increased twentyfold since the 1960s, reaching 322 million tonnes in 2015. It is expected to double again over the next 20 years.”<sup>82</sup> “In the EU, 150 000 to 500 000 tonnes of plastic waste enter the oceans every year.”<sup>83</sup> At the same time, through the different natural and artificial processes, microplastics are formed which all means that different forms of plastics are widespread making a more or less bad impact on the environment, animals and humans. Economic reasons were also present. According to data of European Commission, only 5 % of the value of plastic packaging material retains in the economy, what caused the annual bill accounts for between €70 and €105 billion.<sup>84</sup>

The above-mentioned strategy aims to turn the challenge into innovation. Changes in designing, producing, using and recycling of the plastic should be introduced and it should result by positive economic impact with new jobs created. One of the most important goals is to make all plastic packaging on the EU market recyclable by the age of 2030, as well as reducing of single-used plastics and intentionally added microplastics.<sup>85</sup> On the other hand, the Strategy prioritizes recycling, but fails to take into consideration that the plastics cannot be recycled eternally, and fails to consider energy recovery. The issues of costs of eco-efficient recycling and the quality of the final products also were not discussed in the Strategy.

The concrete measures in regards to microplastics were also proposed:

“– start the process to restrict the intentional addition of microplastics to products via REACH;

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<sup>79</sup> EU Commission, A European Strategy for Plastics in a Circular Economy, COM [2018] 28 final.

<sup>80</sup> See more: [https://ec.europa.eu/commission/news/first-ever-europe-wide-strategy-plastics-2018-jan-16\\_en](https://ec.europa.eu/commission/news/first-ever-europe-wide-strategy-plastics-2018-jan-16_en); accessed 25 May 2020.

<sup>81</sup> EU Commission, Plastic Waste: a European strategy to protect the planet, defend our citizens and empower our industries; [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_18\\_5](https://ec.europa.eu/commission/presscorner/detail/en/IP_18_5); accessed 26 May 2020.

<sup>82</sup> EU Commission, A European Strategy for Plastics in a Circular Economy, COM [2018], 6.

<sup>83</sup> Ibid, 7.

<sup>84</sup> Ibid, 6.

<sup>85</sup> Ibid, 5.

- examination of policy options for reducing unintentional release of microplastics from tyres, textiles and paint (e.g. including minimum requirements for tyre design (tyre abrasion and durability if appropriate) and/or information requirement (including labelling if appropriate), methods to assess microplastic losses from textiles and tyres, combined with information (including possibly labelling)/minimum requirements, targeted research and development funding);
- development of measures to reduce plastic pellet spillage (e.g. certification scheme along the plastic supply chain and/or Best Available Techniques reference document under the Industrial Emissions Directive)<sup>86</sup>
- evaluation of the Urban Waste Water Treatment Directive<sup>87</sup>: assessing effectiveness as regards microplastics capture and removal.”<sup>88</sup>

Considering that globally already several national legislators enacted partial bans on the use of microplastics, the EU is slightly behind in the process. The announced measures will however, finally put the EU on the map of international “environmental justice” on microplastics.<sup>89</sup> Nevertheless, it is not the usual EU ambition to set new standards in environmental protection. All the measures enumerated are still ongoing.

## **4.2. ECHA’s dossier for restricting microplastics in certain products**

The main measure envisaged by the EU Plastic Strategy of 2018, the restriction of microplastics in certain products, shall be adopted after a quite long procedure. European Chemicals Agency (ECHA)<sup>90</sup> at the very end of January 2019 in Helsinki, submitted a restriction proposal<sup>91</sup> “for microplastic particles that are intentionally added to mixtures used by consumers or professionals.”<sup>92</sup> Before the proposal, ECHA assessed the health and environmental risks posed by intentionally added microplastics and concluded that an EU-wide restriction

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<sup>86</sup> Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).

<sup>87</sup> Council Directive 91/271/EEC of 21 May 1991; Commission Directive 98/15/EC of 27 February 1998 amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof.

<sup>88</sup> ANNEXES to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European Strategy for Plastics in a Circular Economy, COM [2018] 28 final.

<sup>89</sup> Davor Petrić, "Environmental justice in the European Union: A Critical Reassessment", [2019], CYELP, 15: 215-267.

<sup>90</sup> <https://echa.europa.eu/hot-topics/microplastics>; accessed 22 May 2020.

<sup>91</sup> Full text of restrictions proposal: <https://echa.europa.eu/registry-of-restriction-intentions/-/dislist/details/0b0236e18244cd73>; accessed 22 May 2020.

<sup>92</sup> <https://echa.europa.eu/-/echa-proposes-to-restrict-intentionally-added-microplastics>; accessed 23. May 2020.

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would be justified.<sup>93</sup> The final result of the implementing these proposals would be reduction in emissions of microplastics of about 400 thousand tonnes over 20 years.<sup>94</sup>

ECHA concluded that “the persistence and the potential for adverse effects or bioaccumulation of microplastics is a cause for concern. Once released, they can be extremely persistent in the environment, lasting thousands of years, and practically impossible to remove. Currently it is not possible to determine the impact of such long-term exposure on the environment.”<sup>95</sup>

“The European Commission has identified more than 130 synthetic polymers that may be added as microplastics to products and the first challenge will be to determine the definition of microplastics for restriction.”<sup>96</sup> The procedure for adoption of the proposal will last for some time, while several EU member states already have introduced microplastic bans with the emphasis on the intentionally added microplastics in co called *rinse-off* or *wash-off* cosmetic products.<sup>97</sup> These legislative measure will be analysed further below. It should be expected that the definition of microplastics from the national legislation of the Member States will influence the EU regulation.<sup>98</sup>

A public consultation on the ECHA's proposal was open for six months and closed on 20 September 2019, with the submission of 477 individual comments. ECHA's Committees for Risk Assessment (RAC) and Socio-economic Analysis (SEAC) announced to take further 15 months to adopt their final opinions on the restriction proposal. The Commission will consider the opinions and whether the conditions for the restriction are met. It will then prepare a proposal to amend Annex XVII to REACH, which Member States can vote on in the REACH Committee. The vote is followed by a period of scrutiny by the European Parliament and the Council before the restriction measure can be adopted.<sup>99</sup> Therefore, today it is not easy to estimate when an EU wide restriction of microplastics will be finally adopted.

### 4.3. Restrictions of microplastics under REACH

REACH is a regulation of the European Union. It stands for Registration,

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<sup>93</sup> Ibid.

<sup>94</sup> Ibid.

<sup>95</sup> [https://echa.europa.eu/-/echa-proposes-to-restrict-intentionally-added-microplastics#:~:text=The%20persistence%20and%20the%20potential,is%20a%20cause%20fo r%20concern.&text=Due%20to%20their%20small%20size,thereby%20enter%20the%20food%20chain.](https://echa.europa.eu/-/echa-proposes-to-restrict-intentionally-added-microplastics#:~:text=The%20persistence%20and%20the%20potential,is%20a%20cause%20fo r%20concern.&text=Due%20to%20their%20small%20size,thereby%20enter%20the%20food%20chain.;); 22 May 2020.

<sup>96</sup> Esther Kentin, "Restricting microplastics in the European Union: Process and criteria under REACH", [2018], *The European Physical Journal Plus*, 133: 425, 6.

<sup>97</sup> National bans on microplastics are adopted by France, Sweden, Belgium and Italy.

<sup>98</sup> Esther Kentin, "Restricting microplastics" [2018], 133: 425,6.

<sup>99</sup> <https://echa.europa.eu/hr/hot-topics/microplastics>; accessed 22 May 2020.

Evaluation, Authorisation and Restriction of Chemicals.<sup>100</sup> It entered into force on 1 June 2007. In principle, REACH does not apply to usage of microplastics only, but to all chemical substances used in industrial processes and day-to-day lives.

The main goal of the REACH is to improve the protection of the environment and human health from the risks caused by using all different types of chemicals, while supporting the competitiveness of chemical industry.<sup>101</sup> It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.

Under REACH a future EU ban would completely harmonize the conditions of manufacture with the goal to keep free trade between member states with no obstacles. After harmonization takes place, no contradictory national measures are allowed to exist. Article 128 REACH provides that the member states „shall not prohibit, restrict or impede the manufacturing, import, placing on the market or use of a substance, on its own, in a preparation or in an article, falling within the scope of this Regulation” thus prohibiting any national legislation after EU harmonization. At the same time, article 68 REACH provides the possibility of introducing new and amending current restrictions, again in a harmonized manner on EU level, „when there is an unacceptable risk to human health or the environment, arising from the manufacture, use or placing on the market of substances”.

In order to comply with the regulation, companies must define the risks of the substances they use and demonstrate to ECHA the way those substances can be safely used.<sup>102</sup> The whole burden of proof is on companies.<sup>103</sup> If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted with less dangerous ones.<sup>104</sup> REACH also contains the list of restricted substances, mixtures and/or articles that are set out in Annex XVII to REACH, which shall be amended once the ECHA's proposal is adopted.<sup>105</sup> Microplastics still have the status of „submitted restriction under consideration“.<sup>106</sup>

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<sup>100</sup> Regulation (EC) 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) 793/93 and Commission Regulation (EC) 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

<sup>101</sup> European Commission, REACH in Brief, Why do we need REACH?, [https://ec.europa.eu/environment/chemicals/reach/pdf/publications/2007\\_02\\_reach\\_in\\_brief.pdf](https://ec.europa.eu/environment/chemicals/reach/pdf/publications/2007_02_reach_in_brief.pdf), 4; accessed 25 May 2020.

<sup>102</sup> <https://echa.europa.eu/regulations/reach/understanding-reach>; accessed 25 May 2020.

<sup>103</sup> See e.g. Article 5. of the REACH.

<sup>104</sup> Art 55. of the REACH.

<sup>105</sup> The list of restricted substances can be found on: <https://echa.europa.eu/substances-restricted-under-reach>; accessed 23 May 2020.

<sup>106</sup> See the list: <https://echa.europa.eu/restrictions-under-consideration>; accessed 22 May 2020.

## **5. National bans of microplastics within EU member states**

Several EU member states have already introduced the microplastics restriction in different kinds of products, mainly cosmetic products. The restrictions in EU Member States followed after other, non-EU member states, such as The United States, Taiwan, Canada, New Zealand, etc. already introduced restrictions on microplastics. One of the legal consequences of the individual regulation by Member States is that the definitions of microplastics vary from state to state. This of course leads to bans on EU goods containing such microplastics with the accompanying internal market implications and implications under WTO law. It also opens addresses one of the evergreens in EU Law discussions: EU harmonization competence vs. national autonomy. The scope of the EU measures foremost depends on the definition of microplastics that will be adopted and put under the REACH Regulation. The same is true for the effects on the internal market and possible implications under WTO law. The paper will analyse definitions of microplastics already adopted in EU and non-EU Member States with the goals to estimate the scope of the EU measure and possible implications of it.

## **6. EU ban on microplastics and the regulatory autonomy within the EU**

### **6.1. Possibility of EU member state to maintain in force its current provisions**

The conclusion on a possible definition of microplastics in the EU shows that the minimum solution of application only to rinse-off products and with the size limitation of 5 mm or less will apply. This raises the question if it would still leave the opportunity for member states to introduce restrictions for *leave-on* products or for microplastics in different forms?

Taking REACH into consideration, future EU ban would completely harmonize the conditions of manufacture in order to keep free trade between member states with no obstacles. After harmonization takes place, no contradictory national measures are allowed to exist under Article 128 of REACH. Due to obligation to harmonize national measures with the EU restrictions on microplastics, member states are obliged to determine whether their national measures are compliant with the possible future EU ban on microplastics under REACH.<sup>107</sup> In a case where national measures and EU restriction differ, the latter will be applied due to the blocking effect of EU Regulations.<sup>108</sup> If interpreting so, national authorities would not be allowed to regulate the ban on microplastics besides REACH, not

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<sup>107</sup> Commission v the Netherlands, (7-234/04), ECLI:EU:C:2007:335, para 60.

<sup>108</sup> Case 34/73 *Fratelli Variola S.p.A./ Amministrazione italiana delle Finanze (Variola)* [1973] ECR-982.

just differently, but they would not be allowed to regulate it at all.<sup>109</sup>

The only exception of the mentioned rules, is the situation when the regulation itself gives the competences to the national authorities in the specific field. In fact Article 128 (2) REACH explicitly states that “nothing in the Regulation shall prevent member states from maintaining or laying down national rules to protect workers, human health and the environment applying in cases where this Regulation does not harmonize the requirements on manufacture, placing on the market or use.”<sup>110</sup> The provision allows protection of workers, human health and the environment, but only within areas not harmonized by the Regulation. The provision clearly leaves the door open for Member States to adopt more rigid provisions on microplastics which do not fall under the scope of the definition to be adopted in the EU. Nevertheless, it would be more difficult to argue that it also allows for more rigid prohibitions, e.g. widening the application also to leave-on products, considering that this would be a harmonized area but with less strict sanctions.

Finally, the member state may be entitled to adopt more rigid measures under the article 114 (4) TFEU which gives the member state possibility to maintain its current national provisions on the grounds of environmental protection.<sup>111</sup> At this very moment, France has already opted the more stringent approach by adopting the definition of microplastics with no size threshold and adopting a mandatory nanomaterial reporting in the absence of a Union-level registration system. If a member state wants to provide a higher level of protection in an urgent matter, than it is prescribed by EU ban (after its adoption), the legal ground that it can rely on is the article 129 (1) REACH, so-called safeguard clause. According to this article, purpose of the measure has to be to respond to an urgent situation to protect human health or the environment. In order to act, member state needs to follow several steps: submit the scientific or technical information on which the measure is based, inform the Commission, ECHA and other member states and submit reasons to its decision.

France was the only state up till now that applied for derogation under the safeguard clause. In 2013., France adopted a ban on using cellulose wadding insulation materials containing ammonium salts adjuvants.<sup>112</sup> The main justification of the French measure was the fact that ammonium salts may emit ammonia, which can be corrosive, and boric salts can be toxic to reproduction.<sup>113</sup> After the Commission authorised the measure, and got the proposal for EU-wide

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<sup>109</sup> Zlatan Meškić and Darko Samardžić, 188.

<sup>110</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1907&from=EN>; accessed 27 May 2020.

<sup>111</sup> Esther Kentin and Heidi Kaarto, 259.

<sup>112</sup> See more: <https://www.huntonak.com/images/content/3/0/v3/3016/REACH-Safeguard-Clause-First-Use-by-France.pdf>; accessed 27 September 2020.

<sup>113</sup> *Ibid.*

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restriction, in 2015 French measure was replaced by EU prohibition.<sup>114</sup>

Another derogation mechanism is application of article 114 (5) TFEU. In order to fulfil the requirements of this provision, the member state must introduce “new scientific evidence relating to the protection of the environment or the working environment on grounds of a problem specific to that Member State arising after the adoption of the harmonisation measure”, and “notify the Commission of the envisaged provisions as well as the grounds for introducing them.”<sup>115</sup> Even though, the provision of article 114 (4) does not explicitly require introducing new scientific evidence in order to fulfil requirements for introducing national measure, the Court found it necessary, too.<sup>116</sup> In a case of *Land Oberösterreich and Austria v Commission*,<sup>117</sup> the Court examined the requirement of problem being “specific to that Member State” and “arising after the adoption of the harmonisation measure”.<sup>118</sup>

Consequently, the EU approach to microplastics will remain under pressure of national legislation of EU Member States if it opts for a minimum level of harmonized protection. This is also good news for environmental protection, because the long procedures under REACH will not hinder more prompt responses from individual EU Member States.

### **6.2. Legal implications of restrictions in relation to the internal market**

Restrictions on microplastics in different kinds of products have an implication on fundamental freedoms – specifically freedom of goods. The currently existing and future different national bans (different member states using different definitions of microplastics, or prescribing the ban for different kind of products) would be hindering the freedom of goods and thus violating Art 34-36 TFEU.<sup>119</sup> Potential justifiable ground that can be used for justification of national measures on microplastics are: the protection of health and life of humans, animals or plants (Treaty-based ground under Art 36 TFEU) and the

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<sup>114</sup> Commission Regulation (EU) 2016/1017 of 23 June 2016 amending Annex XVII to Regulation (EC) 1907/2006 of the European Parliament and of the Council concerning the Restriction, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards inorganic ammonium salts [2016] OJ L166/1.

<sup>115</sup> See Commission Decision 2008/62/EC relating to Articles 111 and 172 of the Polish Draft Act on Genetically Modified Organisms, notified by the Republic of Poland pursuant to Article 95(5) of the EC Treaty as derogations from the provisions of Directive 2001/18/EC of the European Parliament and of the Council on the deliberate release into the environment of genetically modified organisms [2008] OJ L16/17, para 45

<sup>116</sup> C-3/00, *Denmark v Commission (Danish Additives)*, [2003] ECR I- 2648., para 59.

<sup>117</sup> Joined Cases T-366/03 and T-235/04, *Land Oberösterreich and Austria v Commission* [2005], ECR I-7185, para 65.

<sup>118</sup> *Ibid.*, paras 66-67.

<sup>119</sup> Case 8/74, *Office of the Public Prosecutor/Gustave and Benoit Dasonville (Dasonville)*, [1974], ECR I-838.

protection of the environment (non-Treaty based ground). In regards to Treaty-based grounds, the Court put the protection of health and life of humans as the first and the most important ground, giving the member states autonomy to decide on the level of protection they want to prescribe for their citizens in the fields that are not harmonized on EU level.<sup>120</sup> So, the very important role on deciding whether the measure can be justified have the scientific evidence confirming the health risks of the products.<sup>121</sup> Protection of animals and plants encompass measures that serve to maintain a particular species, whereby the species is not necessarily really threatened with extinction. It is sufficient that there is a scientific or other interest in maintaining a rich population at that location.<sup>122</sup> On the other hand, the general well-being of animals, which may be endangered by measures, is also protected.<sup>123</sup> Among mandatory requirements that can be used for justification of non-discriminatory measures on microplastics are *public health* and *protection of the environment*.<sup>124</sup> Further the measures would have to pass the proportionality test,<sup>125</sup> which would here again depend on the scientific evidence on the danger to human health.

Considering the EU legislative activities to adopt a restriction on use of microplastics, the legislation of the few Member States who do have measures in place is certainly justified and allowed. There is no alternative but to allow Member States to keep the national bans until an EU regulation is in place, especially considering that none of the Member States imposed truly rigid measures on the matter. Once the restrictions are harmonized on EU level, the REACH allows stricter measure only in non-harmonized areas under Art 128 REACH or in case of urgency under Art 129 REACH. Urgent measures falling under the safeguard clause of Art 129 REACH would more easily be able to pass the proportionality test. The measures adopted in non-harmonized areas protecting workers, human health or the environment need under Art 128 (2) REACH need to find the right balance, considering their immediate negative effect on the free movement of goods.

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<sup>120</sup> Case 104/75, *Criminal Proceedings against Adriaan der Pejiper (de Pejiper)*, [1976], ECR - 613, 14/18.

<sup>121</sup> Case 17/93, *Criminal Proceedings against J.J.J. Van der Veldt*, [1994], ECR I-3537, 17.

<sup>122</sup> Case 67/97, *Criminal proceedings against Ditlev Bluhme (Bluhme)*, [1998], ECR I- 8033, para 34.

<sup>123</sup> Zlatan Meškić and Darko Samardžić, *Pravo Evropske unije I*, [2012], 330 and 331. See also: Ulrich Becker in Jürgen Schwarze (ed.), *EU-Kommentar*, (Baden, Baden 2009.)

<sup>124</sup> Case 379/98, *Preussen Elektra AG/Schlesweg AG (PrussenElektra AG)*, [2001], ECR I-2099., 73-81.

<sup>125</sup> The legal concept of proportionality is recognised as one of the general principles of European Union law by the European Court of Justice since the 1950s. It was first recognised in Case C8/55[20] *Federation Charbonniere de Belgique v High Authority* [1954] ECR 245 and in Case 11/70 *Internationale Handelsgesellschaft v Einfuhr- und Vorratsstelle Getreide* [1970] ECR 1125, and then further developed, notably in Case C-331/88 *R v Minister of Agriculture, Fisheries and Food ex parte Fedesa* [1990] ECR I-4023.

## 7. Implication of EU restrictions on microplastics to countries of Western Balkans

European Union has introduced international contracts with the countries of Western Balkans named Stabilization and Association Agreements. Those contracts are part of the EU enlargement policy for the purpose of future membership of a state party, free market, or for the purpose of development of the state party.<sup>126</sup> At the very moment, Albania, Serbia, Montenegro, and North Macedonia are in the status of candidate countries, Croatia is already a member state, while Bosnia and Herzegovina and Kosovo are considered as potential candidates.<sup>127</sup>

In a case of Bosnia and Herzegovina, Stabilization and Association Agreement has been signed in Luxemburg on 16 June 2008 and entered into force on 1 June 2015.<sup>128</sup> One of the most important requests of the Agreement for the state party is to approach to effective harmonization and enforcement of the whole corpus of legal heritage of EU (*EU acquis*) that emerged during the past six decades. Basically, even though the country is not a member state, it has an obligation of harmonizing its legal system to EU law. In the process of fulfilling mentioned obligation, Bosnia and Herzegovina has adopted strategies on harmonization of regulations with the *acquis communautaire* in the field of environmental protection of Bosnia and Herzegovina on a state level, entity levels and level of Brčko District of BiH.<sup>129</sup> Furthermore, Bosnia and Herzegovina also have implemented several directives of EU concerning environmental issues, implicitly dealing with the microplastics: Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy<sup>130</sup>, Council Directive of 21 May 1991 concerning urban waste water treatment<sup>131</sup>, Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption<sup>132</sup>, Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources<sup>133</sup>, Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and

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<sup>126</sup>Zlatan Meškić and Darko Samardžić, *Pravo Evropske unije I*, (TDP, GIZ, MBZ, Sarajevo 2012), 459., fn 2707.

<sup>127</sup> [https://ec.europa.eu/neighbourhood-enlargement/countries/check-current-status\\_en](https://ec.europa.eu/neighbourhood-enlargement/countries/check-current-status_en); accessed 26 October 2020.

<sup>128</sup> Full text of the Agreement:

[http://dei.gov.ba/dei/direkcija/sektor\\_strategija/sporazum/glavni\\_text/default.aspx?id=19710&langTag=en-US](http://dei.gov.ba/dei/direkcija/sektor_strategija/sporazum/glavni_text/default.aspx?id=19710&langTag=en-US); accessed 26 October 2020.

<sup>129</sup> <http://mvteo.gov.ba/Content/Read/vodni-resursi-zastita-okoline-strateski-dokumenti>; accessed 26 October 2020.

<sup>130</sup> Official Journal L 327 , 22/12/2000 P. 0001 – 0073;

<sup>131</sup> Official Journal of the European Communities, No L 135/40, 30. 5. 91;

<sup>132</sup> Official Journal of the European Communities; L 330/32, 5.12.98;

<sup>133</sup> Official Journal L 375 , 31/12/1991 P. 0001 – 0008;

repealing Directive 76/160/EEC<sup>134</sup>, Directive 2006/11/EC of the European Parliament and of the Council of 15 february 2006 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community<sup>135</sup>, Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks<sup>136</sup> and Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).<sup>137</sup> Council of Ministers of Bosnia and Herzegovina issued an act in 2012 which contained answers to questions of the European union concerning environmental issues.<sup>138</sup> The whole chapter of the act was devoted to chemical substences and enumerated laws and bylaws dealing with the issue. None of them explicitly deals with microplastics as an issue, but generally they follow the intensions and standards of the Union. Many other EU directives are also capable to be a legal framework to restrict the microplastics in some kind of products. The main point is, that the EU restriction or ban of microplastics will be applicable not just in member states, but also, at some point ought to be applicable in the countries of Western Balkans, that are in a position of potential candidate, and even more in the countries that already have status of candidates in the same area and Turkey as well. Since the Stabilization and Association Agreement also considers establishing the zones of free market between EU and the state party, (for example, in a case of Bosnia and Herzegovina, for huge spectrum of industrial and agricultural products), with or without the harmonization of law concerning the microplastics, the restrictions on the EU level will have its implications on Bosnian market too, as well as other potential candidates and candidate countries.

## **8. Economic implications of EU microplastics bans and restrictions**

One of the very important reasons, besides the protection of the environment and human health, for adopting *European Plastic Strategy* from 2018<sup>139</sup> is also an economic implication of the issue. European Commission published the information that, according to estimates, only 5% of the value of plastic packaging material retains in the economy, the rest is lost after a very short first-use. The annual bill accounts for between €70 and €105 billion<sup>140</sup>, and

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<sup>134</sup> Official Journal of the European Union, L 64/37, 4.3.2006;

<sup>135</sup> Official Journal of the European Union, L 64/52, 4.3.2006.

<sup>136</sup> Official Journal of the European Union, L 288/27, 6.11.2007.

<sup>137</sup> Official Journal of the European Union, L 164/19, 25.6.2008.

<sup>138</sup> <http://aarhus.ba/sarajevo/images/docs/Odgovori%20na%20listu%20pitanja%20EU%20-%20Okoli.pdf>; accessed 26 October 2020.

<sup>139</sup> EU Commission, A European Strategy for Plastics in a Circular Economy, COM [2018] 28 final.

<sup>140</sup> Ibid.

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explicitly stated when presenting the strategy: "Europe cannot afford this".<sup>141</sup> So the first indicators seems to show that even the economic perspective speaks in favour of a EU regulation, at least when it comes to plastic in general.

But what is the situation with microplastics or nanoplastics? What kind of economic implications are to be expected if adopting and applying ban on microplastics? At this very moment, there are two relevant aspects of questioning the economic implications. The first one is emphasizing on the economic losses that are suffered because of the use of microplastics. The plastic waste represents a loss of material value to the economy in the shipping sector, e.g. fouled motors, lost output and repair costs, fishing, e.g. 'ghost fishing' by lost and discarded nets, but also loss of revenues in tourism, because of polluted beaches.<sup>142</sup> The opposite aspect is prediction that is more likely to expect decreasing of profit, throughout the making of producing process more complex, but also through the eventual implications on the internal market. It would increase, at least temporarily, the costs of producers because of replacing of current procedures, building in filters, but also cleaning-up the current waste.<sup>143</sup> That is the reason why producers in some countries like Denmark are calling the national authorities to wait for the EU ban before adopting national measures on the issue.<sup>144</sup> On the other hand, according to the suggestions of Institute of European Environmental Policy,<sup>145</sup> "plastic microbeads in cosmetics can be replaced by ground nut shells, marble particles or naturally-grown polymers, and plastic blasting in shipyards can be replaced by ultra high pressure water jets."<sup>146</sup> Those proposals with similar characteristics should ensure low-cost alternatives that are suitable to keep the main characteristics of the products.

The above-mentioned numbers show that plastic waste costs Europe a lot. On the other hand, restrictions in microplastics will have its own economic implication. In the process of balancing between those two groups of costs, the protection of the environment, including protection of animal, plants and human health are the reason for prevailing in favour of imposing new regulations.

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<sup>141</sup> [https://ec.europa.eu/commission/news/first-ever-europe-wide-strategy-plastics-2018-jan-16\\_en](https://ec.europa.eu/commission/news/first-ever-europe-wide-strategy-plastics-2018-jan-16_en); accessed 30 May 2020.

<sup>142</sup> UN Environment [2017], Marine Litter Socio Economic Study, United Nations Environment Programme, 8, [https://wedocs.unep.org/bitstream/handle/20.500.11822/26014/Marinelitter\\_socioeco\\_study.pdf?sequence=1](https://wedocs.unep.org/bitstream/handle/20.500.11822/26014/Marinelitter_socioeco_study.pdf?sequence=1) accessed 20 June 2020.

<sup>143</sup> Ibid, 11 and 12.

<sup>144</sup> <https://chemicalwatch.com/90226/denmark-reboots-ban-on-microplastics-in-rinse-off-cosmetics>; accessed 30 May 2020.

<sup>145</sup> Institute for European Environmental Policy (IEEP), Plastics Marine Litter and the Circular Economy, [https://ieep.eu/uploads/articles/attachments/15301621-5286-43e3-88bd-bd9a3f4b849a/IEEP\\_ACES\\_Plastics\\_Marine\\_Litter\\_Circular\\_Economy\\_briefing\\_final\\_April\\_2017.pdf?v=63664509972](https://ieep.eu/uploads/articles/attachments/15301621-5286-43e3-88bd-bd9a3f4b849a/IEEP_ACES_Plastics_Marine_Litter_Circular_Economy_briefing_final_April_2017.pdf?v=63664509972); accessed 30 May 2020.

<sup>146</sup> Patrick ten Brinck et al., "Plastics Marine Litter and the Circular Economy"; [http://minisites.ieep.eu/assets/2126/IEEP\\_ACES\\_Plastics\\_Marine\\_Litter\\_Circular\\_Economy\\_briefing\\_final\\_April\\_2017.pdf](http://minisites.ieep.eu/assets/2126/IEEP_ACES_Plastics_Marine_Litter_Circular_Economy_briefing_final_April_2017.pdf); accessed 30 May 2020.

## **9. Conclusion**

Scientific research in several last decades have proven that the presence of microplastics in the environment is overwhelming. First findings were limited to marine environment and oceans, but the results caused great worry when microplastics have been found in different organisms, confirmed and quantified in bodies of fish, birds and many other organisms. Finally, the microplastic were found in human waste. Although the research on the health impacts of microplastics in humans, animals and plants is still ongoing, considering the chemical characteristics of the plastics the concerns are already present.

Surprisingly, the economic debate is not merely focused on the temporary costs of a ban of microplastic in the cosmetic industry, considering the changes an adaptation in the production process that need to be made. It is instead emphasizing on the on economic savings, because of the enormous costs of plastic waste, because most of the plastic loses its value already after one use. The national legislators needed more than four decades to adopt a first national ban on one part of microplastics. The EU insofar only follows the recent trend but will be several years behind other national legislators across the globe, considering the long legislative process and the limited scope of the announced regulation.

An EU wide ban on the use of microplastics will according to the REACH Regulation aim for full harmonization and will not allow Member States to provide for a higher level of protection. With regards to questions not harmonized by the REACH Regulation, the Member States may have their own regulations if they aim to protect workers, human health and the environment. However, the initial proposal reveals that the EU will only introduce a ban on intentional adding of microplastics in some kind of products – initially rinse-off products, with possible widening on leave-on products and other categories of product containing microplastics. At least for now, it will leave enough room to the Member States to introduce own measures. With further research on negative impact of microplastics to the human health and life of animal and plants, it is expected that the EU will take a bolder position on microplastics. EU certainly did not decide to be a front runner on microplastics, like it does on recycling and other areas of plastic pollution.

The COVID-19 pandemic caused a huge increase on plastic waste, especially of potentially contaminated medical waste. It should serve as a warning for a quicker and more comprehensive regulation of microplastics on EU level. If the medical waste serves the purpose of protecting human life from immediate danger of COVID-19, the balance needs to be achieved by having stricter measures of human life and environment protection in the long run and the EU ban of microplastics is an important part of it.

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**OGRANIČENJA EU NA NAMJERNO DODATU  
MIKROPLASTIKU  
– MALA PLASTIKA, NISKA AMBICIJA**

**Sažetak**

U radu se govori o potrebi zabrane mikroplastike u cijeloj Evropskoj uniji. Fokus je na najavljenom Uredbi EU o zabrani namjerno dodate mikroplastike. U radu su najprije prikazani objavljeni rezultati prirodnih nauka o raširenosti onečišćenja mikroplastikom i njegovom utjecaju na zdravlje ljudi i život životinja i biljaka. Ovi se nalazi koriste za analizu iz pravne perspektive u kojoj mjeri postoji potreba za EU zabranom mikroplastike, koliki bi trebao biti obim takve regulative i koji su potencijalni ekonomski i regulatorni učinci. Povećanje onečišćenja plastikom uzrokovano pandemijom COVID-19 u ovom se radu analizira kao važan faktor za strožiji pristup EU prema mikroplastici. EU je za sada odlučio zabraniti samo upotrebu mikroplastike u proizvodima koji se ispiraju (*rinse-off* proizvodi), a ne i u proizvodima koji ostaju na koži (*leave on* proizvodi). EU nije pokazala ambiciju da bude predvodnik po ovom pitanju, unatoč ekonomskim prednostima i svom statusu predvodnika u recikliranju. Komparativna analiza potvrđuje da EU do sada reagira samo na već donesenu zakonsku regulativu u drugim dijelovima svijeta.

**Ključne riječi:** mikroplastika, proizvodi koji se ispiru, Strategija EU za plastiku, COVID-19, zaštita okoliša