International Association of Oil & Gas Producers

SEPTEMBER 2020

IOGP input to the consultation on restricting the use of intentionally added microplastics

Introduction

The European oil and gas industry recognizes the importance of addressing uncontrolled microplastics releases to the environment and is committed to evaluating further the scale of microplastics emissions and a potential possibility for the development and usage of alternative substances. We appreciate incorporating our comments from the previous consultation to the SEAC draft opinion on the Annex XV dossier proposing restrictions on intentionally-added microplastics. We are glad to see that SEAC draft opinion from June 2020 addresses several important issues for our industry, however further improvements are necessary to avoid disproportional measures and unjustifiable implementation costs.

The ECHA proposal is estimated to reduce emissions by at least 85% and prevent the release of 500 000 tonnes of microplastics over the 20 years following its introduction. Intentionally added microplastic particles are used in a range of products placed on the EU market, such as certain types of fertilizers, plant protection products, leave-on, and rinse-off cosmetic products, household and industrial detergents, cleaning products and paints. **Some chemicals used in applications and processes by the oil and gas industry contain microplastics, as defined by ECHA in the proposed restriction. The usage of such chemicals is relatively modest, and therefore, the potential contribution from our sector to reach the ECHA target will be limited. However, when possible, we are committed to seek available substitutes to decrease microplastics releases to the environment.**

IOGP key messages:

- We support the efforts of ECHA to find a clear and concise definition of 'microplastics' that will provide guidance for chemicals downstream users to report estimated discharges based on a calculation using information received from the suppliers. We strongly emphasize the need to include a lower size limit in the 'microplastics' definition, given the existing analytical and measurement limitations unable to demonstrate that there are no microplastics of very small sizes present and therefore making any subsequent compliance challenging.
- We strongly support the derogation from the restriction for "substances or mixtures containing microplastics for use at industrial sites" applicable to all industrial uses of microplastics, including onshore and offshore oil and gas sites.
- We strongly recommend that microplastics releases to the environment are incorporated into the already well-established environmental reporting practices under the supervision of the national Competent Authorities, making it more efficient and cost-effective rather than a new and stand-alone 'chemicals' reporting process as proposed in the ECHA restriction.
- We strongly recommend that a reporting deadline for downstream users is aligned with national environmental reporting practices aiming to be the end of May rather than the unachievable end of January.

Oil & Gas industry and sector usage of microplastics

The majority of the oil and gas production in Europe comes from offshore operations (approximately 90% of oil and over 60% of gas)[1] from which most originates from a broader region of the North Sea and North Atlantic. The oil and gas industry operates in a highly regulated framework on the national level, ensuring the safe use of chemicals and reporting of discharges.

Risk Management for Handling and Storage of Chemicals in offshore and onshore operations is indicated in the Best Available Techniques Guidance Document on upstream hydrocarbon exploration and production (February 2019). It outlines the best risk management approaches for the handling and storage of chemicals.

According to the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals and OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF), offshore chemical suppliers must provide the national authorities with data and information about chemicals to be used and discharged offshore. Based on the information provided by the chemical supplier, the national Competent Authority will carry out the pre-screening and take appropriate regulatory actions. Only registered chemicals under HOCNF can be permitted for use.

Under OSPAR, oil and gas end-users report the quantity of mixtures and substances (used/released) to their Member State Competent Authorities, who then provide the consolidated information to the OSPAR Secretariat on an annual basis. In 2019, OSPAR amended the HOCNF to integrate a microplastics category. Since January 2020, suppliers (or whoever is registering the chemical for use) submit a HOCNF that provides information on the composition of the mixture containing microplastics to their national Competent Authority.

However, we have to highlight the fact that other regions, not covered by the OSPAR registration requirement, as far as we know, have not established similar practices related to the identification of chemicals containing microplastics in the oil and gas operations. Although most oil and gas operations do occur in the OSPAR region, other regions should not be overlooked, especially as outlined in the ECHA restriction proposal background document that, for instance, the Mediterranean region has a high potential for an increase of oil and gas operations in the future.

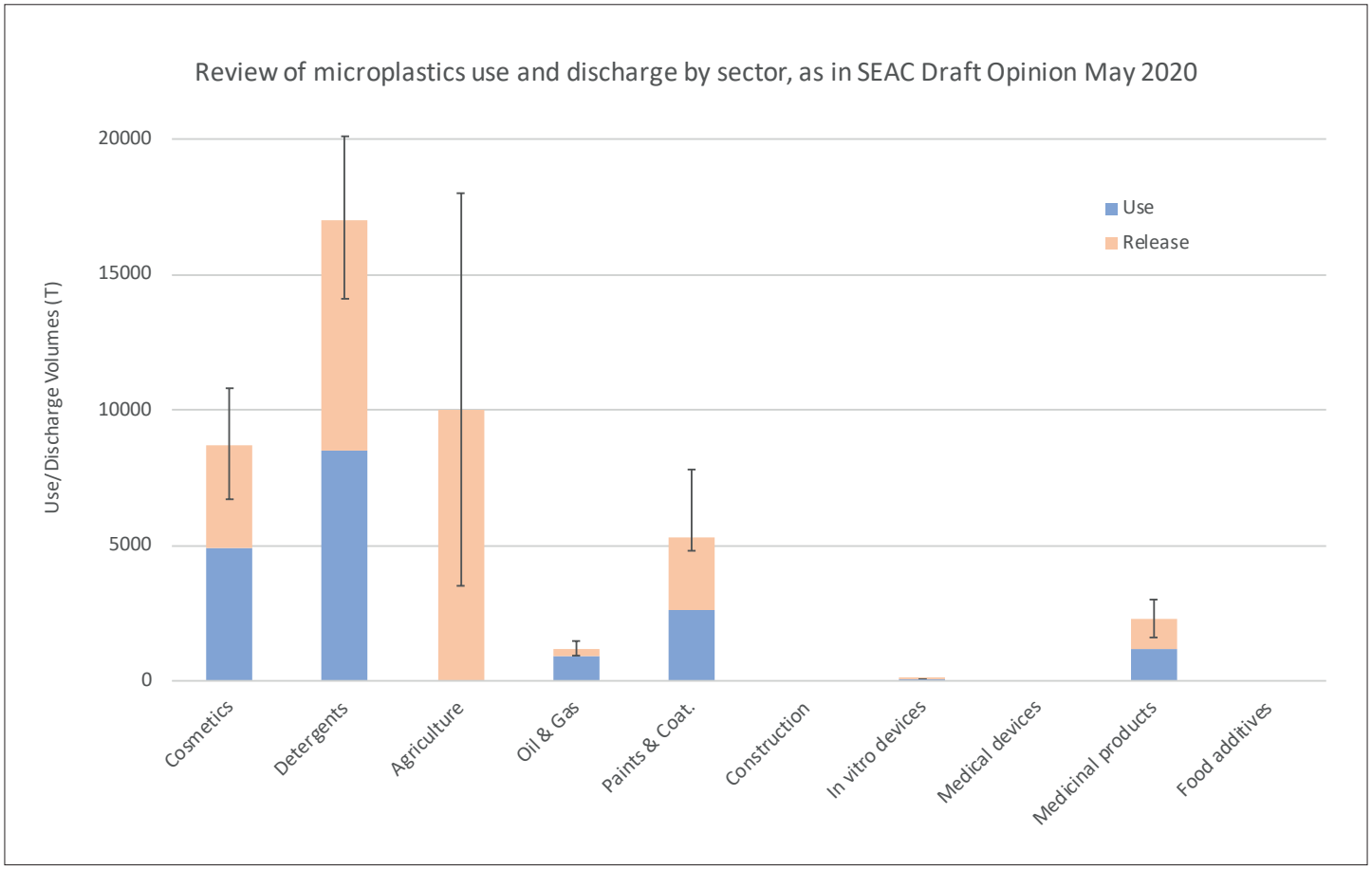
The offshore oil and gas industry is a downstream user and not a producer of substances that may contain microplastics. We are not able to identify the polymers in question because the chemical suppliers do not share the necessary information due to business confidentiality reasons. In 2018, IOGP participated in a cross-industry effort to collate information to quantify the chemicals used and potentially discharged, and the proportions of those that may contain intentionally added microplastics[2]. This effort included the European Oilfield Speciality Chemicals Association (EOSCA), Oil and Gas UK, and relevant OSPAR contracting parties. The data collated covered the whole of offshore exploration and production in the North Sea. Use and discharge data at the product level[3] was collated from the national regulators for relevant OSPAR contracting parties. Based on that data, a total figure for the use and discharge of microplastics by the industry was calculated, amounting to around 400-1000 tonnes of microplastics used per year and resulting in discharge emissions of approximately 100-270 tonnes annually. It is our understanding that the data in the SEAC draft opinion and RAC opinion are higher due to the extrapolation of these estimates to the entire EEA region (use: 1 200 (300 – 2 000) tonnes/year; discharge: 270 (~0 – 550) tonnes/year). Overall, these estimates indicate that the European oil and gas industry uses comparatively minimal quantities of chemicals containing microplastics, especially if we put these numbers into context.

The RAC opinion and SEAC draft opinion estimate that in 2017, around 145 000 tonnes of microplastics were used in the EEA area per year with a lower and upper range of 35 000 to 255 000 tonnes, respectively.

[1] EC2017

[2] Definition of 'microplastics' used in the 2018 data review was an earlier version (EC's June 2017 Working Group Definition). We believe that the definition as it now stands would capture less quantities used and discharged (e.g. the highest volume in the review was calculated for demulsifiers, where a polymeric material is dissolved in an organic solvent, these substances are no longer included in the current definition).

[3] Product level refers to use and discharge data of the product as a whole, rather than its individual substances.



Source: Updated from Robinson & Malin (EOSCA, 2019) using data from RAC & SEAC Opinion on an Annex XV dossier proposing restrictions on intentionally-added microplastics, Table 2, (ECHA, 2020).

In the extraction and treatment processes for hydrocarbons in the (offshore) upstream oil and gas industry, intentionally added microplastics or products containing microplastics can be found mainly in:

- **microbeads** used in friction reducers, viscosity modifiers and cement additives
- **released polymer microfibres** used in loss circulation materials and cement additives
- **plastics coated micro particles** used for proppant material

The focus is on the offshore upstream oil and gas operations, as onshore operations tend to be less chemically intensive with negligible emissions[4]. However, it is also worth noting that the oil and gas industry might be using products (chemicals or various mixtures) containing microplastics throughout its value chain in various processing operations (such as greases, paints and lubricant products and other) which will have to be further identified.

Therefore, although the oil and gas industry's contribution to the figures for use and discharge of intentionally added microplastics is very low, there are opportunities, and intentions to reduce these figures further where possible and the industry has already taken the first steps towards better understanding the magnitude of the issue and information to make informed product selection, through the OSPAR identification of microplastic components contained in the oil and gas production chemicals during the course of the mandatory registration process.

[4] RAC and SEAC Background document (June 2020), p.319/320: *"Onshore oil operations tend to be less chemically intensive than offshore. It can be estimated that the use of microplastics in the EEA oil & gas sector is between 300 to 2 000 tonnes annually. Emissions from these uses as a result may be negligible (primarily due to non-intentional releases) to up to 550 tonnes per annum. For the purpose of this analysis, the central values will be taken: respectively 1 150 tonnes of microplastics use and 270 tonnes emissions."*

Definition of 'microplastics'

There is currently no harmonised definition of "microplastics" in the EU or internationally. We recommend that at EU level (whether EU regulations or regional seas conventions) a harmonized definition should be adopted.

Overall, **we support the efforts of ECHA to find that a clear and concise definition of 'microplastics' as the basis for a regulation that, at the end of the day, has to meet the societal goals set by the European Commission.**

For the companies represented by IOGP (downstream users in terms of the proposed regulation) the current definition included in the SEAC draft opinion (June 2020): *"'microplastic' means particles containing solid polymer, to which additives or other substances may have been added, and where ≥ 1% w/w of particles have (i) all dimensions 0.1µm ≤ x ≤ 5mm, or (ii), for fibres, a length of 0.3µm ≤ x ≤ 15mm and length to diameter ratio of >3."* will allow an impact analysis of the future requirements.

We acknowledge and support that the definition applies to the substance as placed on the market (as per para 1 of restriction), hence if a polymer is dissolved in a solvent before it gets into the supply chain, then it is not classed as a microplastic under the proposed restriction.

However, we have to highlight that in case of reporting obligation (paragraph 8 of the restriction proposal), **it will only be possible for downstream users to report estimated discharges based on a calculation using information received from suppliers. Given the already existing analytical and measurement limitations, we strongly emphasize to include a lower limit for microplastics in the definition.**

Derogation for 'industrial site'

We strongly support the derogation for *"substances or mixtures containing microplastics for use at industrial sites."*

Based on REACH legal text referring to industrial and professional use [activity] in the definitions in Articles 3(13), 3(25) and 3(35), as well as section 6 of Annex VI and further specified by ECHA R12 Guidance and the related criteria, IOGP would like to stress the compliance of oil and gas Exploration and Production (E&P) with the definition of "industrial site", both onshore and offshore.

The number of oil and gas E&P locations (industrial sites) is well identified. All site operators are subject to robust and well-established safety, health and environment management systems: explicitly operators in Europe apply the strict Health, Safety and Environment (HSE) management system as defined by IOGP (Guidance N° 510) that requires for clear management (supervision), instructions and training for all operational aspects, including health, safety, environment and chemicals management. This is also a requirement from European national authorities requiring the implementation of an HSE management system as a prerequisite for granting a license to operate.

We would like to reiterate and highlight the importance of the statement mentioned in the RAC&SEAC Background document from 11 June 2020, that the intention of the Dossier Submitter (in this case ECHA) was that the term 'for use at industrial sites' included in Paragraph 4a of the proposal would apply to all industrial uses of microplastics, including onshore and offshore oil and gas sites. It is, therefore, our understanding that subsea installations associated with offshore oil and gas platforms (deck and the subsea part) production will be included under the definition of either 'industrial site' or 'industrial installation' regardless of its status under the Industrial Emissions Directive (IED).

Instructions for use and disposal

As mentioned, the oil and gas industry is a user and not a producer of substances that may contain microplastics. Therefore, it is our understanding that the requirement of 'instructions for use and disposal' is intended to inform the oil and gas industry (users of the chemicals containing microplastics) about appropriate conditions of use to minimise releases of microplastics to the environment. The mentioned instructions should be received from the chemical suppliers and used by the oil and gas companies to fulfill the 'reporting obligation'.

The 'instructions for use and disposal' requirement will be to a certain degree similar to the information that the chemical suppliers have to register, from January 2020 to the national Competent Authorities in the OSPAR contracting parties[5]. The registration data will also be shared with the end-users.

It should be taken into consideration that other regions in the EEA, outside of OSPAR contracting parties, will have to establish a new framework. That framework would have to accommodate the ECHA requirement, but at the same time it should be coherent with the OSPAR requirements to achieve the highest level of harmonization of the data provided by the chemical suppliers to the downstream users.

Regarding the information provided by the suppliers, we would be interested in the development of the proposed spERC (specific environmental release category) concept on the sectoral level as a worst-case basis for sectoral releases estimation.

Reporting requirement

The restriction proposal introduces an extensive set of reporting requirements to a large number of derogated uses, including the oil and gas applications.

We would like to express doubts if the annual reporting requirement should be part of the proposed ECHA restriction proposal. At this stage, the implementation of the reporting requirement is somewhat unclear and relatively uncertain. Its effective implementation and enforceability would represent a challenge due to the complex and global oil and gas supply chain.

We acknowledge that measures are necessary to understand the full extent to which the microplastics are used and released to the environment. However, currently, it is not clear how such a reporting system would work for our industry and how it would correlate with the 'instructions for use and disposal'. It should be clarified which parts of the supply chain would fall under which requirement, especially to minimize the administrative costs and avoid double or even triple reporting obligations.

We strongly recommend that the reporting requirement is based on the existing environmental reporting practices under the supervision of the national Competent Authorities. This would be the most effective, efficient, and less costly arrangement for the industry, and the EU and its member states authorities and administration. The advantages also include benefiting from existing data collection mechanisms that took many years to establish, including mechanisms of verification and measurement of data quality. Moreover, the Competent Authorities are in the best position to compile the data and protect its confidentiality.

The oil and gas industry is already reporting discharges to water and emissions, such as hydrocarbons, ammonia, phenols, total suspended solids (TSS). Microplastics discharges to the environment would be treated similarly to other pollutants released during the operations in terms of reporting. Therefore, releases of microplastics to the environment could be integrated with existing reporting obligations. Such integration would have the potential to reduce the additional compliance costs and minimize the administrative burden for all involved parties.

Otherwise, the establishment of an entirely new 'chemicals' reporting practice for downstream users of microplastics would create unjustifiably high costs, estimated at around 100k EUR/company initially to establish the system and another 100k EUR/year to maintain it. These rough estimates have been submitted by an IOGP member[6] and would further depend on the level of harmonization of national, regional (OSPAR) and the EU reporting requirements and the quality of the information received from the suppliers. Moreover, additional indirect costs need to be considered, for example, the renewal of risk assessments for all existing mixtures due to the additional identification of microplastic content on Safety Data Sheets (SDS).

[5] It has to be noted that, under OSPAR requirements, some substances might be registered only at the end of 2022, as the chemicals permit renewal is three years, therefore given that the obligation to register microplastics was added to the HOCNF list in January 2020, substances with valid permits will only have to be submitted in 2022. That also means that complete OSPAR data on microplastics usage and discharge will be available circa 2023.

[6] IOGP member from an EU country with no chemical reporting requirements for industrial users of chemicals

Disclosing the quantity of microplastics needs to fully comply with the EU competition law and requires the necessary confidentiality safeguards. Acknowledging the sensitivity of the Confidential Business Information (CBI), the oil and gas industry would like to emphasize that we will be able only to report the information available and provided by the supplier under their obligation 'instructions for use and disposal'. We would like to note that if the information provided includes a range of % of microplastics, the reporting will be a worst-case estimate, and not the accurate representation of what is being discharged.

Based on our extensive experience in reporting to Competent Authorities, we expect that the proposed reporting date, end of January for the previous year, will be challenging to achieve, as time is required to collect, compile, and quality check the data. To provide quality data, **we strongly recommend that a reporting deadline is aligned with national environmental reporting practices aiming to be the end of May rather than the unachievable end of January.**

The industry requires a sufficient transition period to establish its processes to the new reporting requirements. Therefore, we support the proposed extended transition period on obligations for 'instructions for use and disposal' (24 months from EiF) and the annual 'reporting obligation' (36 months from EiF). We hope that these time frames will be sufficient to establish a well-functioning reporting system. Although it has to be taken into account that in many European countries, including Germany, there is no specific reporting requirement for chemicals or polymers (microplastics) used by the industry. Therefore, some member states and key stakeholders will require additional time to put in place an appropriate legislative framework to comply with this particular reporting obligation.

Substitution

The industry, together with its service partners and chemical suppliers, is ready to look for substitutes and reduce microplastics usage. However, it is essential to note that currently, there are no market-ready and commercially available like-for-like substitutes for microplastics used in oil and gas E&P operations.

Moreover, the application of alternatives to chemical products containing microplastics will not be possible to be implemented across the whole industry, as each installation design, well-flows, and the hydrocarbons product produced means that a specific mixture of chemicals fulfills its function in one installation and may not work elsewhere. The existing chemical substitution framework within OSPAR recognizes this complexity and is designed to manage it.

The industry is looking at the potential for using naturally occurring materials; however, the criteria for demonstrating biodegradability for microplastics have still not been finalized (ECHA 2019).

Once the criteria and test methods for demonstrating biodegradation are provided, then this may be an area of potential alternatives for some applications. Other polymers failing under the new microplastics definition are used because of their advantageous properties (e.g. durability), which makes them ideal for high temperature and high-pressure applications.

Overall, research, development, and deployment of alternative solutions will take a minimum of 4-6 years per substance and create substantial costs for producers and users. Estimates submitted by one IOGP member indicate that the cost for substitution in three different applications (corrosion inhibitor, demulsifier, antifoam) could range from 0.7 to 2.1 million EUR. These costs would include laboratory functional performance testing, compatibility testing, chemical use permits, assessment of the impact on product quality, environmental impact if discharged, occupational health approval, and procurement system setup. Excluding chemical product development costs incorporated into product price by the manufacturer/vendor and registration costs under REACH. These costs, of course, would depend on the amount of chemical substances used containing microplastics. The 2018 data review, conducted by EOSCA, Oil and Gas UK, and relevant OSPAR contracting parties, identified that 149 products in use potentially contained microplastics.

The substitutions need to be carefully considered, and tools such as Life Cycle Analysis (LCA) comparisons made to be sure that the best environmental option overall is being selected.

For example, for some operations, the development of currently used special chemicals or mixtures took many years (e.g., corrosion inhibitor for deep sour gas wells ~20 years to full performance). Typical time demand is 5-10 years, including lab and field testing. This time framework is necessary to establish a workable formula that is effective and safe for usage.

Polymers were introduced in the recipes of oil and gas specialty chemicals to reduce health and environmental risks, improve the performance of new technologies, and eliminate substances with higher hazards e.g., mineral-oil based corrosion inhibitors.

A substitute for a substance to eliminate microplastics by another with potential greater environmental risk or impacts is contrary to the substitution principles and, therefore, not an option. A substitute has to be better than the original substance/mixture.

Once the initial microplastics have been substituted, significant resources may be required to replace more critical products that rely on the microplastic properties they contain. There is also the possibility that the functional purpose of the microplastics cannot be achieved by other practical means. There is a precedent for this situation with some chemicals uses in the oil and gas industry e.g. pipe dope for connecting well tubulars. In some cases, the use of LCA comparative assessments may be required to show that there is likely to be a less environmental impact from the controlled continued use of critical microplastic containing products than available alternatives[7].

Final Remarks

IOGP supports the ambition to decrease microplastics emissions and would like to continue the constructive dialogue to ensure appropriate regulatory framework and cost-efficient implementation.

More clarity is required regarding how companies operating in global and complex value chains are supposed to comply with the 'instruction for use and disposal' and 'reporting obligations'.

IOGP recommends using existing national legislation and reporting regimes under the supervision of the national Competent Authorities as the primary channel of gathering data on microplastic releases to the environment.

We look forward to cooperating with all the relevant stakeholders, sharing our reporting experience, and gathered data on microplastics.

[7] For example: in the past, instead of microplastics, gel/jelly products were used, which were approximately 75% less effective and posed greater safety risk due to highly flammability and higher environmental impact due to higher toxicity.