

Estimation of the effort and costs for the detergent industry in Germany due to the digital product passport (DPP) based on the planned Detergents and Surfactants Regulation

Updated project report

1. Background and reason for the project

On 28 April 2023 the European Commission (COM) published its proposal for a new Detergents and Surfactants Regulation.¹ This proposal provides provisions for a "product passport" for detergents and surfactants in Chapter V (Articles 18 to 21) and Annex VI, which is not yet required by the current Detergents Regulation (EC) No. 648/2004.

On 27 February 2024 the European Parliament (EP) concluded the first reading of the COM's proposal with a legislative resolution,² that provided 150 amendments to the COM's proposal, including the product passport. The Member States of the European Union ("Council") also began to discuss this proposal and make amendments in the first half of 2024. In the meantime, the term "**digital product passport**" (DPP) is also generally used in connection with this proposed regulation.

As far as The German Cosmetic, Toiletry, Perfumery and Detergent Association (IKW) is aware, the COM has not carried out an assessment of the costs and benefits of the DPP for detergents and surfactants.

Therefore, in May 2024, the IKW Technical Committees for Cleaning and Maintenance Products and Detergents commissioned a working group to conduct a project to estimate the effort and costs that certain requirements of the DPP for detergents will cause for members of IKW placing detergents on the market.

In the first part of the project (June to August 2024), the costs and effort involved in creating a

¹ European Commission, Proposal for a Regulation of the European Parliament (EP) and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004; 28 April 2024, eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:52023PC0217 (accessed 6 September 2024)

² European Parliament, P9_TA(2024)0091, Detergents and surfactants, European Parliament legislative resolution of 27 February 2024 on the proposal for a regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004 (COM(2023)0217 – C9-0154/2023 – 2023/0124(COD)); https://www.europarl.europa.eu/doceo/document/TA-9-2024-0091_EN.pdf (accessed 6 September 2024)

separate DPP for each batch of detergents were evaluated, as envisaged by the COM in its April 2023 proposal (**Scenario 1**).

In the complementary part of the project, which was carried out in January and February 2025, additional effort and costs were estimated for the following scenarios:

- Changes to a DPP based on the model composition with reference to
 - the new Annex V (ingredient labeling on the packaging), **Scenario 2**
 - the new Annex IV (data sheet for medical personnel), **Scenario 3**
- additional access rights for authorities

This was based on the above-mentioned proposal of the COM as well as the amendments adopted by the EP and, in addition, the Council document of 14 June 2024 with the proposed amendments.³

Eight companies were represented in the working group and company representatives were interviewed individually by employees of the IKW office. The results of the survey are summarised below in anonymised and aggregated forms.

2. Estimation of effort and costs for detergent manufacturers in Germany in relation to certain requirements of the DPP

2.1 Updating the product passport for each batch or model of detergent

2.1.1 COM proposal: Batch reference (Scenario 1)

In its proposal, COM envisaged that a separate DPP would have to be drawn up for each batch of a detergent, even though batches of detergents with the same formulation do not differ in terms of their properties and composition.

The number of batches per detergent varies greatly among the companies of the working group members, **from one batch per year to 3,750 batches per year** (15 batches per day on 250 working days).

As a new so-called "data carrier" (e.g. a QR code) would have to be applied to the packaging for each new DPP, the data carrier could not be printed on the labels or packaging created in advance but would have to be printed on the filled packaging after filling, which would lead to enormous acquisition costs for high-performance printers (see Section 2.2).

In the opinion of the members of the working group, the creation of product passports for each individual production batch

³ General Secretariat of the Council, Outcome of Proceedings, Interinstitutional File 2023/0124(COD), 11205/24, 14 June 2024, <https://www.consilium.europa.eu/media/dhlfmbkq/st11205en24.pdf> (accessed 9 September 2024)

- **Neither makes sense**, as individual batches of a detergent are practically indistinguishable from one another,
- **Nor is it manageable**, as **up to several thousand batches** of detergent are produced **per year**, which would result in just as many product passports.

2.1.2 Amendment to the EP: model reference (**Scenario 2**)

Amendment 97 of the EP states that the product passport normally refers to a detergent model. Amendment 43 introduces the term "model" and defines it as follows:

“(34a) ‘model’ means a group of detergents or surfactants that meet the following conditions:

- *they are under the responsibility of the same manufacturer;*
- *they have the same content, in accordance with Part A of Annex V, and are manufactured using the same manufacturing processes;*
- *they are intended to have a uniform composition when tested in accordance with the same test methods; and*
- *they are clearly defined by a type number or other element allowing their identification”*

This model definition refers to the composition of the detergent as listed on the packaging. If this information changes, a new DPP must be created.

The members of the working group assume that, on the basis of amendments 43 and 97 of the EP, a new DPP and thus a new data carrier would only be required every 1 to 5 years due to the reference of the DPP to a "model", since the formulation to be indicated on the packaging of a detergent also only changes every 1 to 5 years during this period.

2.1.3 Amendments proposed by the Council on 14 June 2024: Model reference (**Scenario 3**)

In June 2024, the Council discussed that a DPP should be created per model rather than per batch.⁴ However, the Council linked the definition of the term "model" in relation to the composition to Annex IV Module A No. 2.2 letter e, "Data Sheet on Ingredients", which corresponds to the current "Data Sheet for Medical Personnel". As this ingredient datasheet also requires CAS numbers and the chemical and INCI names of each ingredient, it is **expected to result in one to three packaging changes per detergent per year** for the new data carrier. **This means that the Council's proposal could lead to up to 15 times more frequent packaging changes per product than EP's proposal.**

2.2 Investment costs for the application of the "data carrier" after filling in the detergent

The more frequently a DPP must be updated or a new DPP must be created, the more frequently the data carrier on the packaging changes. If a DPP had to be created for each individual batch (see Section 2.1.1) of a detergent, then in most cases, it would not be possible to attach the data carrier to the label

⁴ Council of the European Union, 2023/0124(COD), 10740/24 of 7 June 2024.

or directly to the packaging in advance, as the production of labels or packaging would lead to disproportionately high effort and high production costs because of the small order size. However, even according to the Council's amendment proposal (see section 2.1.3), minor changes to the formulation – e.g. the replacement of a surfactant that is temporarily unavailable on the market with an equivalent one with a different CAS number – would lead to a change in the "model" of the detergent and packaging with a new data carrier would have to be used from this change onwards.

Members of the working group estimated the costs incurred for printing a QR code as a data carrier directly after bottling the detergent.

It should be noted that printing QR codes after filling is not possible for certain packaging forms (e.g. pouches, refill pouches, tubes). In addition, members of the working group reported that the first attempt to print such a QR code after filling led to rejection rates of over 50 per cent.

Depending on the type of printer, members of the working group estimate investment costs of around €50,000 to €250,000 per filling line for printers, cameras for quality control, and devices for rejecting products where the QR code is not readable. This range includes the costs for the necessary conversion of the filling line if the location in the filling line building must first be created for printers and cameras. It does not include the costs incurred by the personnel to maintain an additional system.

The members of the working group assume for the range described previously (€50,000 to €250,000) an average cost for printers etc. of **€100,000 per filling line**.

This means that for approximately **130** IKW member companies producing detergents, with an estimated average of **five** filling lines per company, a **total investment of $5 \times 130 \times \text{€}100,000 = \text{€}65$ million** for printers, cameras for quality control, and remodelling will be expected for Scenarios 1 and 3.

In addition, sleeve and fold-over labels as well as refill bags cannot be printed after filling. Based on the current state of technology, it cannot be guaranteed that a data carrier will be indelible if it is printed after filling.

In **Scenarios 1 and 3**, the data carrier has to be applied to the packaging later, which could significantly restrict the filling process in production. To avoid impairing production speed and thus the economic sales of producers, up to five additional filling lines and possibly additional production facilities and sites have to be purchased, and extra staff need to be hired. This would involve extensive planning and approval processes and along with that a lack of available system engineers, especially if many companies had to expand their production simultaneously. For small and medium-sized enterprises, such additional costs are not feasible or implementable. Motivation to relocate production facilities outside the EU could increase significantly.

In **Scenario 2**, as proposed by EP, the data carrier can be applied to the packaging before filling. Working group members therefore assume that no investment in printers, cameras for quality control, or devices for rejecting products in the event of illegible data carriers is necessary.

2.3 Estimation of the costs for additional personnel required in Germany to create and update the DPP

The personnel resources required to create and update new digital product passports, including manual maintenance of data and photos, depend greatly on the number of different detergents a company offers and the frequency with which the digital product passports (and thus the respective data carrier on the packaging) need to be updated.

For **Scenario 2**, the members of the working group estimated that there is a need for 0.5 to 5 new permanent full-time positions per company. In Germany, the cost per full-time position is estimated to be €100,000 per year. For **Scenario 3**, an additional demand factor of three to five is assumed, whereas the additional demand for **Scenario 1** is even higher, but cannot be reliably estimated.

Assuming an average of one full-time position per company for Scenario 1 and two to five full-time positions for Scenario 3, the total costs for the 130 IKW member companies would be

- **€13 million per year for Scenario 2**
- **€39 million to €65 million per year for Scenario 3.**

2.4 Expected additional costs of commissioning external DPP service providers

On 14 June 2024 in a document based on the Ecodesign for Sustainable Products Regulation (EU) 2024/1781, the Council proposed the requirement of depositing backup copies of all digital product passports with a so-called DPP Service Provider. These external DPP service providers must guarantee in accordance with the requirements that they can provide all digital product passports stored with them over a period of 10 years.

The members of the working group expect very different costs for this additional requirement depending on the following scenarios:

- Scenario 1: significantly higher than Scenario 3
- Scenario 2: €50,000 per year
- Scenario 3: €150,000 to €250,000 per year (factor 3 to 5 compared to Scenario 2)

This results in additional costs for the 130 IKW member companies, depending on the scenario:

- Scenario 1: significantly higher than Scenario 3
- Scenario 2: €6.5 million per year (€1,000 x 50 product passports per year x 130 IKW members = €6.5 million per year)
- Scenario 3: €19.5 million to €32.5 million per year (factor 3 to 5 compared to Scenario 2)

2.5 Additional costs for in-house IT software for creating or providing the DPP

According to the interpretation of the IKW, EU legislation does not currently require product passports to be managed and published via a central portal, such as the “PCN portal”, which is maintained by an official European Union agency. The working group estimated that implementing an interface between the portal and company data would involve initial investment costs of up to €500,000 per company for all three scenarios.

From the perspective of some members of the working group, it would be an enormous simplification and saving of resources if an official central EU system, including IT software, would be provided instead of numerous parallel IT systems developed by manufacturers or digital service providers. Such a centralised IT system would also have the advantage that an official EU body could guarantee that digital product passports would be available as long as required by the regulation after the detergent was last placed on the market, for example, 10 years, as proposed by the European Commission. A central public portal would eliminate the additional costs estimated in section 2.4 at €6.5 million per year, for the detergent manufacturers represented in the IKW for the storage of backup copies by commissioning DPP service providers.

Other working group members see the following possible disadvantages of an official centralised system:

- Problems with data integration;
- After importing the data from the data-providing company, the authority would have to provide the URL where the data can be accessed so that companies can generate the QR code (or another data carrier) and apply it to packaging.
- The layout and presentation are fixed and may not be adaptable to the corporate design of companies.

A realistic estimation of the costs involved in developing and providing software for creating digital product passports could not be made within the scope of this project. The initial cost for setting up such an interface for all three scenarios would be up to 65 million euros in total.

2.5.1 Additional costs for protected authority access to the DPP

In amendments 147 and 150, the EP calls for technical documentation and the results of the conformity assessment procedure to be mandatory parts of the product passport. However, it should only be accessible to certain groups, such as competent authorities of the member states, market surveillance authorities, and the COM.

The members of the project group assume the following additional costs for all three scenarios.

- Personnel: €300,000 to €500,000 per year per company or €39 million to €65 million per year for 130 IKW member companies; even minor changes to formulations require the provision of updated formulation data and test reports.
- External service provider per member state for encoding and regular updates per license: €50,000 to €200,000 per year per company or €6.5 million to €26 million per year for 130 member companies of the IKW;
- Additional costs for licences for personnel in ministries and authorities (e.g. in Germany, licences for 40 people in ministries and authorities of the federal government and the 16 federal states), assuming that there are two different service providers: $2 \times 40 \times 50,000$ to 200,000 euros per year equals 400,000 to 1.6 million euros per year.

Moreover, additional costs that cannot currently be estimated are expected for

- Special security protection against unauthorised access and data protection regarding trade secrets (prevention of screen captures);
- the translation of test reports into the official languages of EU member states in which the products are placed on the market (at least 20 euros per page);
- review of translation by an internal quality control system;
- the administration of identification documents for government personnel, which may need to be time restricted;
- setup and administration of two-factor authentication;
- setting up and administering two-factor authentication;
- providing the data for at least 10 years;
- the administrative burden of responding to enquiries from authorities (member companies do not expect a reduction in costs compared with current enquiries from authorities, as there may be an increase in enquiries in cases of uncertainty regarding reaction mixtures of formulation components).

If access to a DPP is granted upon request, it is considered much more efficient to send the desired information directly to the authorities, as is currently the case.

2.6 Energy requirement for storage and retrieval of digital product passports

The European Commission's proposal provides in Annex VI (c) that a colour image of sufficient clarity is part of the DPP to allow identification of the detergent or surfactant.

The members of the working group assume that at least two photos per package are necessary to enable identification of the detergent, for example, one of the front and one of the back for bottles. For other forms of packaging, such as laundry detergent packs, photographs of the six sides have to be included. In addition, the question arises of how different countries and language variants of a recipe should be depicted.

The members of the working group expected an average storage requirement of 10 MB per DPP for the photos. The question arises as to how much energy is required to store all digital product passports for detergents, for example, for 10 years in each case. Additionally, energy is required when such large amounts of data are downloaded. In this context, it would be important to know how many retrievals of digital product passports the COM expects per year to estimate the energy requirement.

2.7 Realisation period required to implement a DPP

The members of the project group assume that the implementation of digital product passports for detergents will take at least 48 months from the time when all necessary standards have been published, and all regulations still to be published by the COM in connection with the DPP have entered into force. The transitional periods of 18 months from entry into force currently envisaged by



the EP are not considered feasible.

3. Summary and outlook

The additional costs estimated as part of this project serve to evaluate some of the requirements of the COM's proposal on the DPP for detergents, amendments of the EP, and amendments proposed by the Council Working Group in June 2024.

The full costs incurred by companies in the laundry and cleaning detergents manufacturers in Germany as part of the implementation of the DPP for detergents cannot be estimated at the time, as many aspects are still unclear, and the standards and regulations required for preparation and detailed guidelines for the practical implementation of the DPP have not yet been established.

The cost estimates were prepared to the best of the knowledge of the working group members and their existing experience in the implementation of the already prescribed notification and labelling system in accordance with Annex VIII of Regulation (EC) No. 1272/2008 ("CLP").

For the respective scenarios, the following total investment costs and additional operational costs would be imposed on the 130 detergent manufacturers organised in the IKW:

Scenario	Total investment costs in millions of euros	Running costs per year in millions of euros	Ongoing costs for access to public authorities in millions of euros	Total running costs per year in millions of euros
1 (COM)	up to 155	immensely higher than scenario 3	45.5 to 91.5	immensely higher than scenario 3
2 (EP)	up to 65	19.5 to 29	45.5 to 91.5	65 to 120.5
3 (Council)	up to 155	56.5 to 97	45.5 to 91.5	102 to 188.5

The costs in the first year of implementing a DPP (130 million to 343.5 million euros according to scenario 2 or 3) correspond to about 3 and 7 percent of the turnover in Germany of the companies represented in the IKW that produced detergents for private households in 2024. According to scenario 1, immensely higher costs and thus an immensely much larger share of sales would be expected. The impact on companies that market detergents in Germany but are not members of the IKW was not included in the assessment in the context of the two parts of the project.

For the companies represented in the IKW, the enormous costs associated with the DPP for detergents raise the question of whether the potential costs and estimated expenses for companies are proportionate to the public benefit of a DPP for detergents.



4. Members of the working group

The working group consisted of the following participants:

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