

Voluntary Agreement on Workers Exposure to Formaldehyde

Final campaign – Results

Following the launch of the Formacare Voluntary Agreement in 2019 to implement an occupational exposure limit for formaldehyde, it is now time to present the third and final results as the entry into force of the new Binding Occupational Exposure Limit (BOEL) is around the corner.

To respond to a lack of harmonised protective value for workers, Formacare decided in 2019 to proactively launch a voluntary Agreement to implement an Occupational Exposure Limit (OEL) for formaldehyde. The limit was set at 0.3 parts per million (ppm) for the 8-hour TWA OEL¹ and 0.6 ppm for the STEL OEL², the pan-European maximum exposure recommended by the European Scientific Committee on Occupational Exposure Limits (SCOEL). This proposed value was adopted by EU policy makers to be the new EU Binding Occupational Exposure Limit (BOEL), which enters into force on July 11th, 2021.

Just ahead of the legal deadline, Formacare delivers the final results covering the most recent available data from the second half of 2020:

99.9% of the covered workers in the 2020 data reported were not exposed to levels beyond target occupational exposure limits of 0.3 ppm:

- **53% of the workforce was not exposed at all in 2020, as they are working at sales, purchasing or administrative departments.**
- **41.8% of the workforce was exposed at a level at or below 0,15 ppm.**
- **4% of the workforce was exposed from 0,2 until 0,25ppm.**
- **1.1% of the workforce was exposed at the OEL limit level of 0,3ppm.**
- **Finally, 9 workers (or 0.01% of the workforce) were exposed to levels exceeding the limits of the voluntary agreement, i.e. above 0.3 ppm.**

These results are based on data shared by company members of Formacare resulting from the implementation of national requirements in all affected plants. How often a reassessment of the data needs to take place is determined by national requirements. Re-assessments can also be carried out in the event of significant changes in the manufacturing process, which may have an impact on exposure levels. Depending on the results of the assessment, Formacare members had agreed since 2019 to set up an action plan for improving worker prevention and protection, if reported OEL values are above the level of 0.3 ppm.

¹ *Time Weighted Average.* A TWA exposure limit is the limit for the average exposure over a specified period, typically 8 hours, which represents a standard work shift.

² *Short Term Exposure Limit.* A STEL exposure limit is the limit for the average exposure over a shorter period of time, typically 15 minutes. These limits often apply to substances that produce acute (or fast acting) effects on the human body. Many organic solvents have both STEL and TWA exposure limits.

Formacare members remain committed to sharing the best available technical know-how with other members that may have faced difficulties in improving their results. This technical assistance commitment was intended to ensure that all Formacare members would be able to fulfil the new and low OEL, within the shortest possible time and ahead of the compliance period on July 11th, 2021.

These new results show a decline in the number of workers exposed to formaldehyde emissions above the legally established value at EU level of 0.3 ppm - from 22 workers to 9 - compared to the previous results shared in May 2021. These are very good but not yet perfect results. Formacare sought clarification from the members concerned. They reported that these exposure measurements were due to extraordinary (i.e. not normal and unexpected) operations at the workplace. These results were not supposed to happen and the companies in question have launched internal investigations to avoid repetition in future. Formacare also received reassurance that measurements to be performed in 2021 are expected to provide results in line with the 0.3 ppm legally binding exposure levels to formaldehyde.

The OEL measurement procedure

In all EU countries where Formacare members are producing formaldehyde, OEL measurement procedures are done in a similar, standardised and nationally regulated way.

The technique in all these EU member states is very similar and is described below:

1. A committee identifies the workplaces with exposure to formaldehyde that needs to be measured.
2. The committee members consist of the plant manager, hygiene department, and members of the workers' council.
3. The measurement is done with personal air samplers by an internal or external department/institute with a national accreditation.
4. The OEL reports and results are communicated to the workers and stored safely in the HR departments for at least 10 years (up to 40 years in some countries).

The responsible liable person is in any case the plant manager. The measurements are done by an internal or external specialised laboratory. In all cases, the laboratories must be accredited and independent and the entire process is transparent to the workforce, works council or ombudsman.

The measurement equipment are personal air samplers and tubes (for STEL). The equipment and absorber material may differ slightly due to the national requirements. In any case, it follows high technical standards and procedures (see below).

The inspecting authorities regularly control the data while visiting sites. In some EU countries these data are sent to the authorities proactively. If one single OEL exceeds the limit, corrective measurements have to be immediately performed. If this requires some time, personal protective equipment (e.g. breathing mask) will be used for the interim period. The frequency repeating the OEL-measurement differs within EU countries, although it has to be repeated after OEL-relevant technical changes occur in the plant.

The OEL measurement standards

The norm of the method slightly varies according the national requirements, in all cases the measuring principle is a personal air-sampler DNPH³ certified. A non-exhaustive list of norms can be established as follows:

- **NIOSH 2016, IFA 6045/7520, NS-EN-689, IBGIA 6045, EPA TO-11/A, TRGS 420, OSHA 1007, NEN-EN 689.**

The scope

Signing of the voluntary agreement

In this final round of data collection and at the date these results were published, **96 % of the Formacare members**, i.e. 25 companies, signed the voluntary agreement, against 79% in 2019.

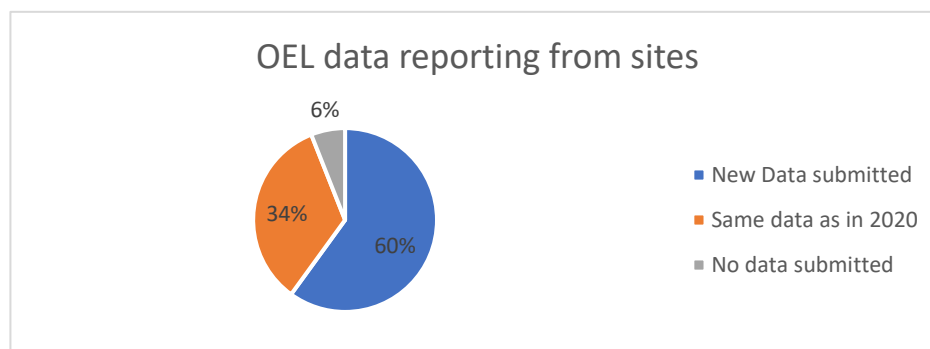
The remaining 4% of the membership could not sign the Formacare agreement by the established deadline, due to internal legal reviews or other constraints, e.g. changes in the management or in the ownership of the company at the time of the request. Formacare continues to discuss with these companies; and will provide updated results in the coming weeks, when needed.

OEL-data reporting

94% of the members submitted new OEL-data to Formacare or re-confirmed existing 2020 data ahead of the legal deadline on July 11th.

Data reported represents a total of 7444 workers, both exposed and non-exposed population. In comparison with the +/- 30000 persons that work in the formaldehyde value chain, the number may seem on the lower end, but with 96% of the Formacare membership covered by the agreement, the current campaign already reports for the vast majority of the formaldehyde production in Europe (EU 27 + Norway & UK).

A very limited number of members which signed the agreement did not manage to send the required information on exposure in time, or declared they were not in capacity to provide data for internal reasons. For measurements performed prior to July 11th but provided after this date, Formacare envisages to publish revised results accordingly.

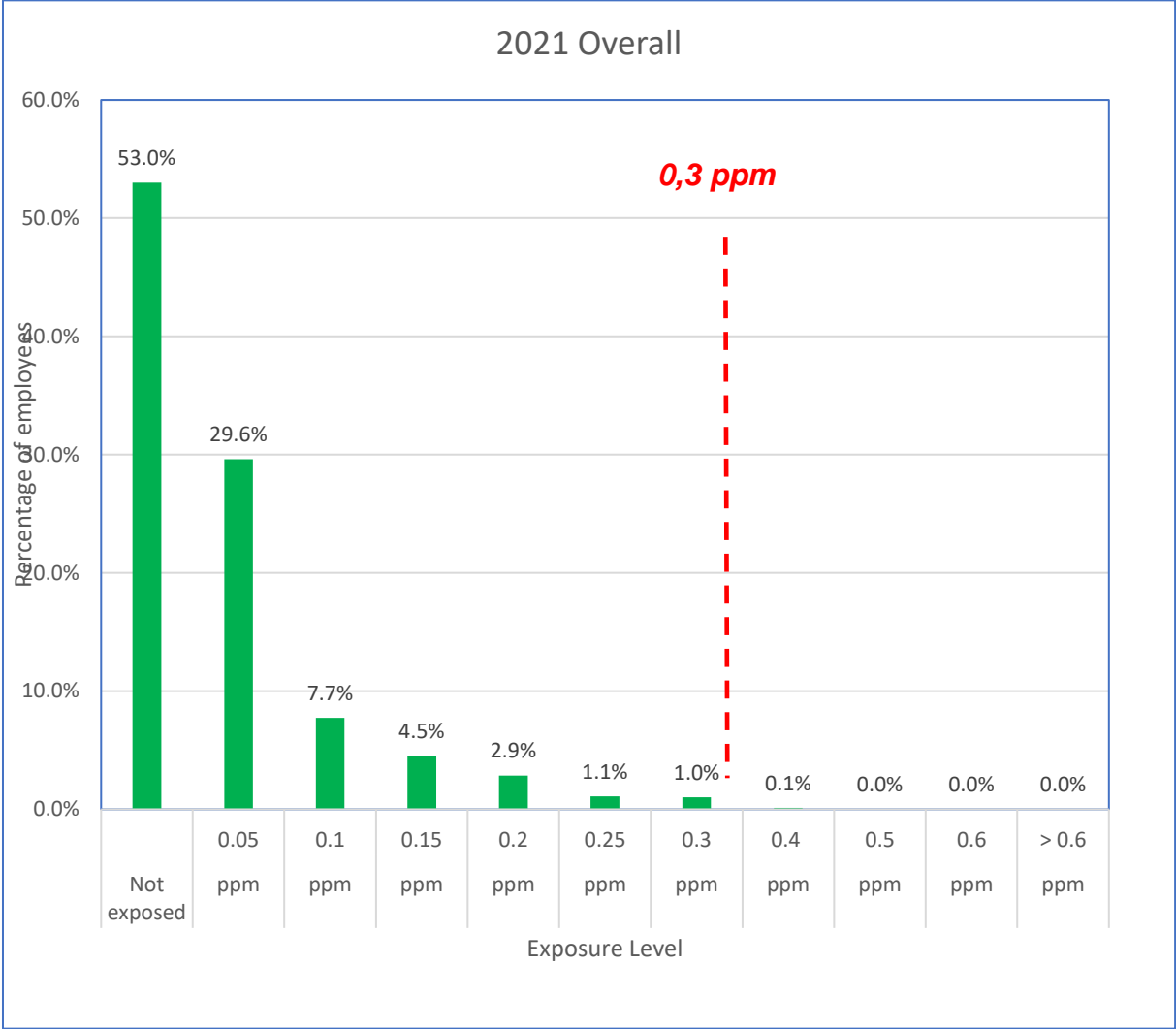


³ DNPH stands for 2,4-dinitrophenylhydrazine.

The combined results

The following histogram shows the results of **16 EU countries with formaldehyde productions** (against 13 countries in 2020). These countries are Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Norway, Netherlands, Poland, Portugal, Spain, Sweden & the UK.

The overall results are summarised in the following graphic:

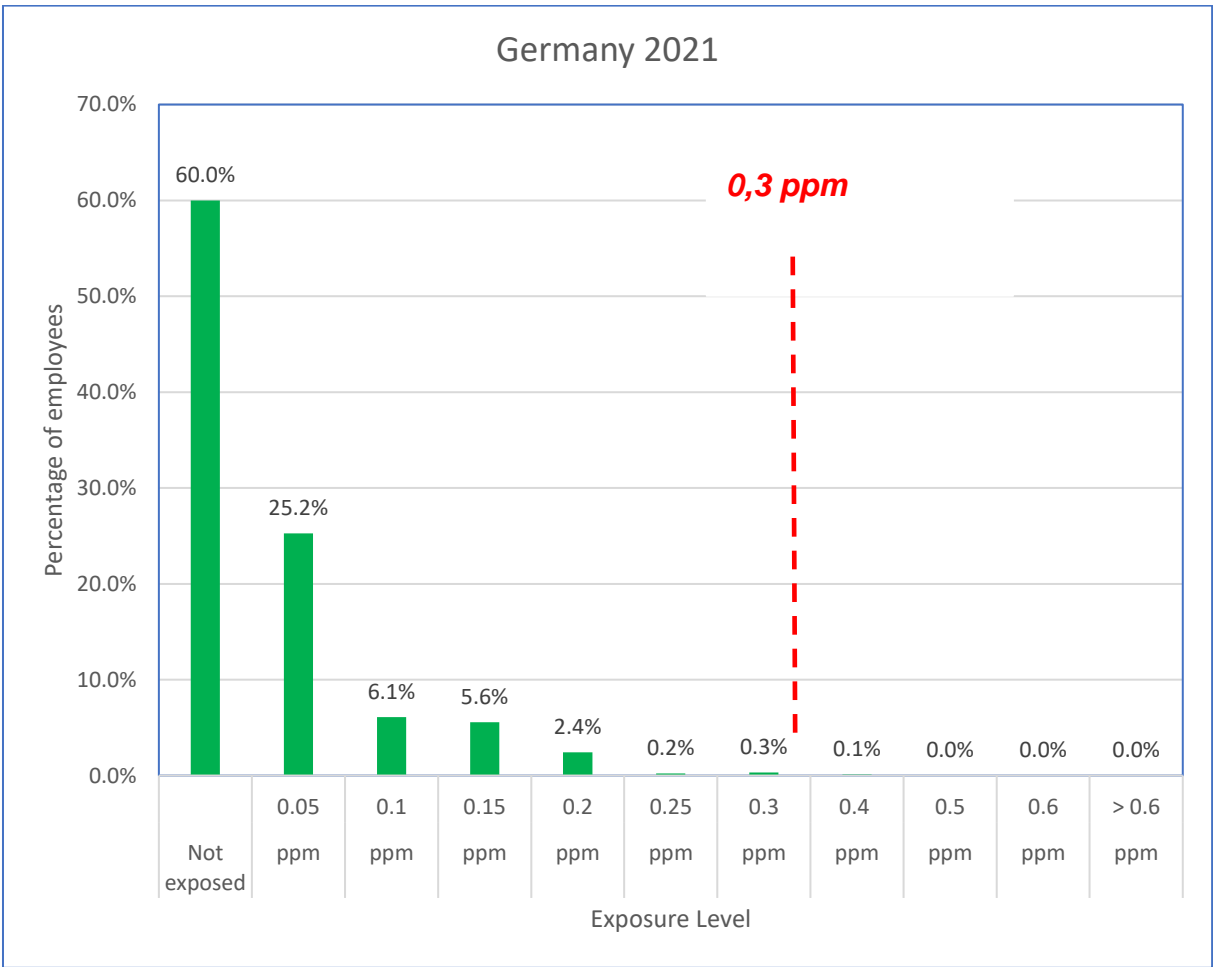


In compliance with competition law requirements, it is not possible to show national data for countries where at least 5 companies are producing.

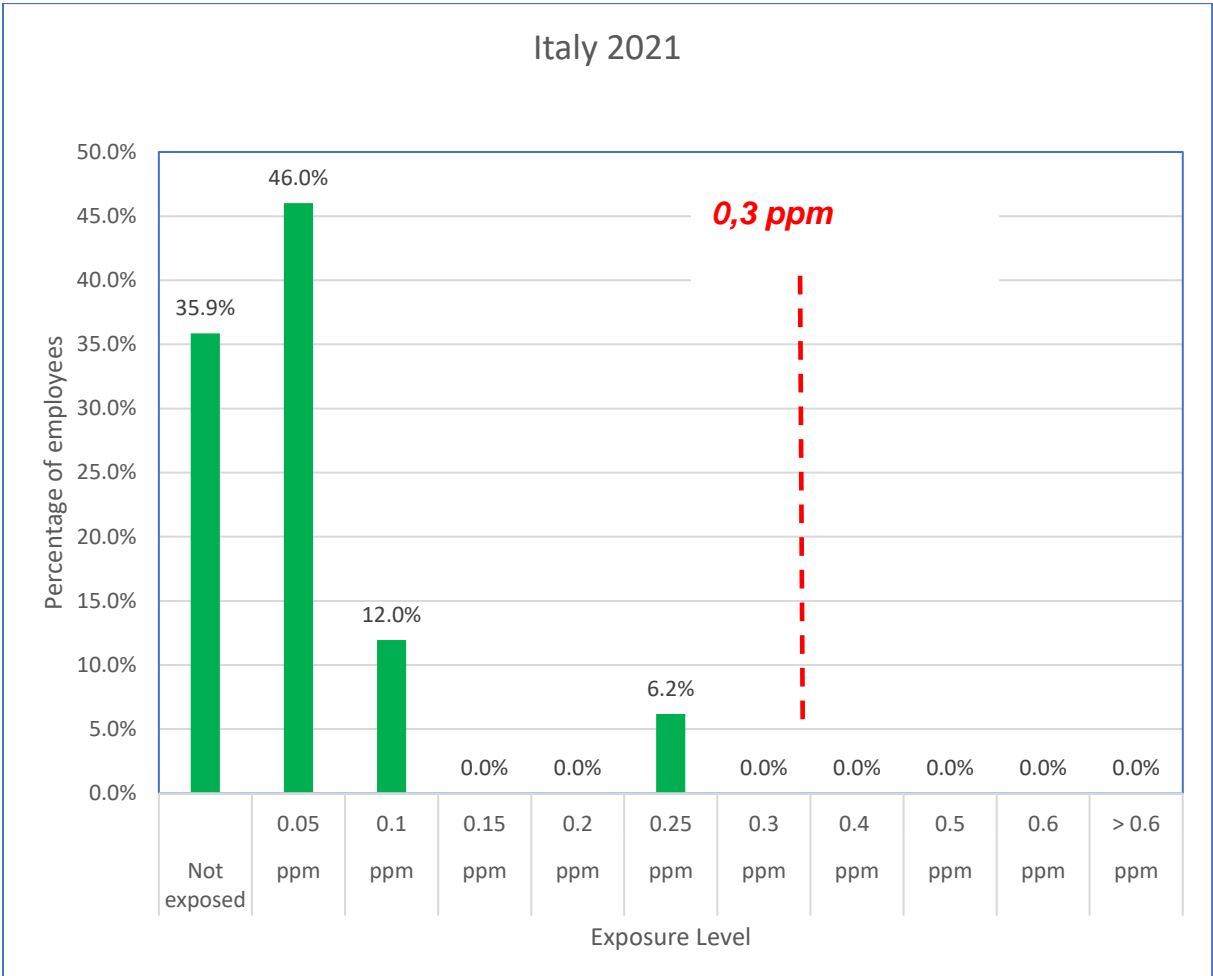
Therefore, we are able to provide reported numbers for both Germany and Italy while the other 14 countries had to be grouped in clusters for Central/Northern and Western Europe.

Germany

A few non-compliant cases were reported above the 0.3 ppm exposure limit. Formacare engaged with the concerned companies to clarify the situation. Internal investigations were conducted and measures adopted to ensure these situations will not occur again.

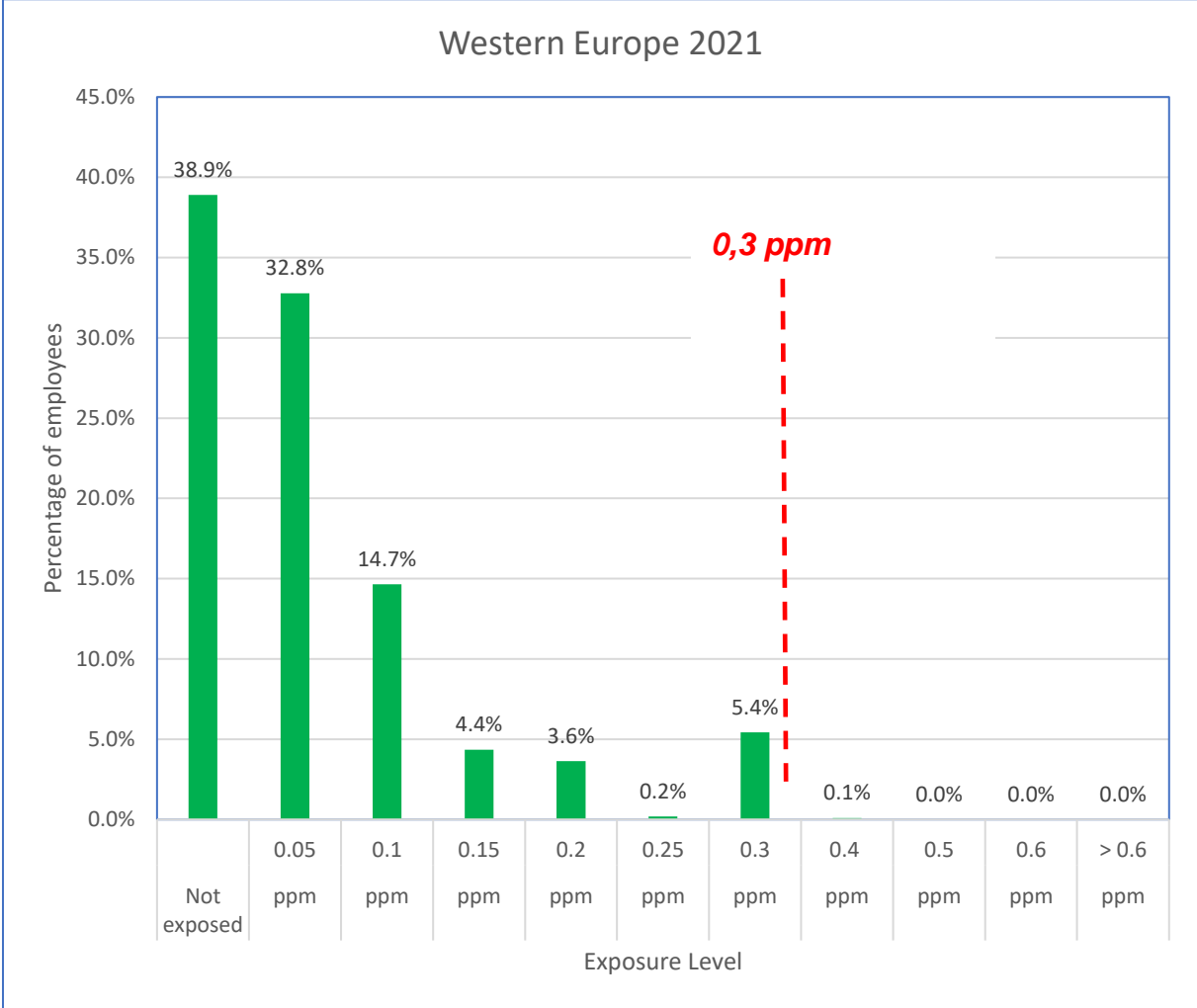


Italy



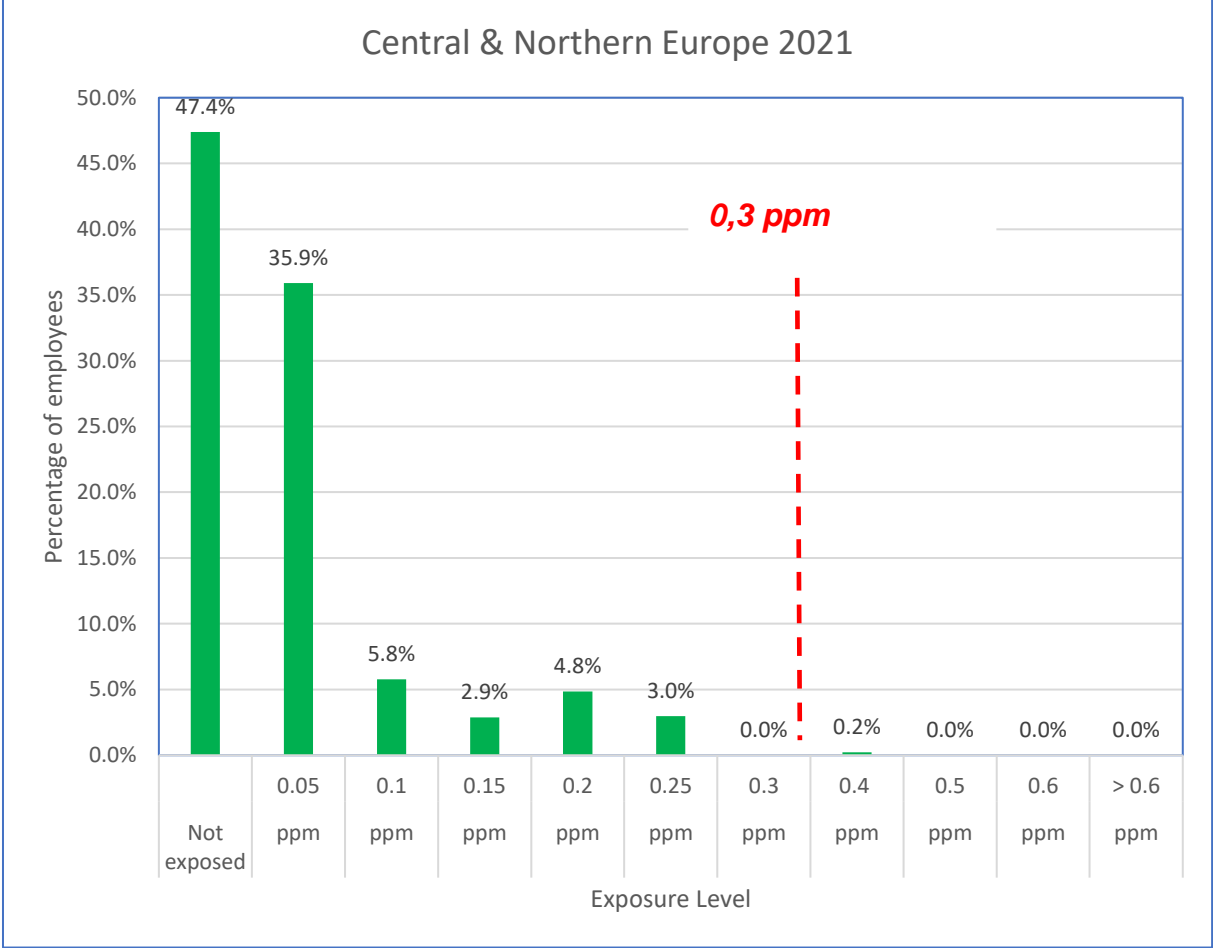
Western Europe - Belgium, Denmark, France, the Netherlands, Norway, Portugal, Spain & the UK

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Central & Northern Europe - Sweden, Finland, Poland, Austria, Hungary, Czech Republic

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About Formaldehyde

Formaldehyde is a naturally occurring chemical widely produced for applications such as glues for wood panels, coatings for paints, lubricants, high-end plastics, etc. The formaldehyde value chain provides direct jobs to 30,000 people in Europe, with as many as 1,7 million jobs in downstream sectors being supported by formaldehyde applications.

About Formacare

Formacare is the formaldehyde sector group of the European Chemical Industry Council (Cefic) representing key European producers of formaldehyde, aminoplast glues and polyols. Made up of representatives from large chemical and manufacturing companies across Europe, Formacare promotes the safe use and manufacturing of formaldehyde in accordance with the strictest health, safety and environmental regulations.

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