

Project title: **Chemical Safety Management Training Hub for Chemicals Users**

Project Acronym: **ChemSM-HUB**

Project number: **2017-1-PL01-KA202-038432**

## **Output1 Final Report**



**ChemSM-HUB**

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Hamburg, 14.09.2018

**Content**

- 1. Introduction..... 3
- 2. Analysis of educational opportunities in the field of CSM across Europe based on the literature review ..... 4
- 3. Target group identification..... 5
- 4. Analysis of educational opportunities in the field of CSM across Europe based on the survey ..... 6
- 5. Analysis of educational gaps and needs in the field of CSM across Europe based on the survey ..... 9
- 6. Practical experience of the partners ..... 11
- 7. Conclusions..... 12
- 8. Annexes ..... 14
  - Annex1: Research guide ..... 14
  - Annex2: Survey guide ..... 14
  - Annex3: Survey questionnaire ..... 14
  - Annex4: Survey results as an excel file..... 14

## 1. Introduction

The aim of this report is to specify and present relevant needs of employees responsible for chemical safety in DU and of D of chemicals in vocational training on chemical safety management (CSM) in the context of the training programs and opportunities that exist within EU. The report highlights what exists and what is needed and discuss the gaps and training requirements as well as the basic skills needed in chemical safety management.

The aim was achieved in two stages:

1. Literature review - each partner was allocated with the task to review their country on the educational opportunities in CSM. To ensure quality of this work, specific guide was devised by the output leader in order to conduct the review of available training. It is attached to the report as [Annex1](#). The guide includes aim, information on how to perform the literature review, literature relevance and selection of literature. It also provides a common template for reporting results to ensure uniformity.

2. Participatory research with target groups which was asked to participate in a survey (on-line, face-to-face, phone and post interviews). A survey guide was developed by the output leader and followed by the partners. The guide includes setting the objectives, expected outcomes, target group definition and the timeline. It is attached to the report as [Annex2](#). A preliminary understanding of relevant training opportunities and gaps specified in literature review was serve as a basis for the questionnaire design. The survey questionnaire was developed between all partners under the leadership of the output leader. The translations of the questionnaire into national languages were prepared by relevant partners. It is attached as [Annex3](#).

## 2. Analysis of educational opportunities in the field of CSM across Europe based on the literature review

Analysis of educational and training opportunities in the field of CSM across Europe was the first step of O1 implementation and was done by all project partners with the leadership of KOOP. The literature and the internet review of the topic showed that although CSM trainings is conducted at the EU level including all project partner countries.

At the EU level, raining offers are organized only in English language and due this fact they are limited available for the majority of stakeholders from target groups. The most common form of these trainings are e-learning and online courses with the duration of 1-2 hours. They are free of expense. An exception are numerous guidance related to REACH from the European Chemicals Agency (ECHA). They are free available as a pdf and were translated into all Member States languages.

Most often, offers in project partner countries are commercial trainings conducted in national languages. Trainings are usually conducted by specialized training educational services. In Poland and Greece trainings are offered also by universities. The most common form of trainings are face-to-face one-day trainings. The availability of online trainings (e-learning, webinars) is small, but it seems to be insufficient.

Among the partner countries, online trainings in the field of CSM are only conducted in Greece and Poland. In Greece, an online course was held for farmers regarding the use of insecticides and fungicides, lasting 14 sessions for 4 hours. Two other webinars for students and relevant public health sectors were identified. In Greece numerous helpful guidance in CSM were identified.

In Poland two online courses were found, both with one-month access to training materials, which was addressed to health and safety specialists and owners of SMEs from the chemical industry. The first one, organized by CIOP-BIP - National Research Institute, included 12 modules related to health and safety (legal issues, safe working conditions, workplace accidents, risk assessment, ergonomics, workplace psychological hazards, air quality, and fire protection). The second one available online was in the form of modules with lectures and tasks related to the fulfilment of obligations under the REACH Regulation by the company.

In Romania and Germany, no online trainings was found. In Romania only 7 face-to-face trainings were identified, of which 6 lasted longer than 1 day (2 - 3 days).

### 3. Target group identification

Target group - the beneficiaries of the project - identification was a very important step in the process of developing training materials.

Consortium assumed that the project will be designed for the two target groups:

1. OSH specialists among downstream users (DU) and distributors (D) of chemicals, and
2. Downstream users and distributors of chemicals involved in Chemical Safety Management activities.

The sectors covered by the project have been specified by the partners as follow:

- Wood, furniture, products of wood and cork
- Glass and ceramic
- Paper and paper products
- Rubber and plastic products
- Construction
- Motor vehicles and other transport equipment
- Chemicals and chemical products; dyes, paints, detergents, toilet preparations and man-made fibres
- Coke and refined petroleum products; manufacture of non-metallic mineral products and basic metals,
- Agriculture; pesticides, biocides, fertilizers
- Fabricated metal products, machinery and equipment
- Printing, photographic activities
- Transportation and storage
- Wholesale and retail trade
- Washing and dry-cleaning, repair services, hairdressing and other service activities.

In addition (during the survey), other target groups were included:

- supervisory bodies e.g. sanitary inspectorate,
- universities,
- consulting companies, research offices and institutes, analytical laboratories, environmental protection services, and
- other groups such as health services including hospitals, food industry, producers of disinfectants and producers of windows, textile industry.

## 4. Analysis of educational opportunities in the field of CSM across Europe based on the survey

One of the main objectives of this study was to identify the educational opportunities among target group (see previous chapter) based on survey questionnaire.

The survey was based on the questionnaire. A part of the interviews was conducted in direct contact with the participants (face-to-face interviews) so that conditions of the interview situation and the working environment can be taken into account. Some interviews were conducted online, via phone, Email or post. The survey was conducted in national languages. 253 participants taken part in the survey. The kind of the interviewee's organisation was as follow in the table below:

Table 1: The kind of the interviewee's organisation

Organisation	Responses
Company	54,3%
Supervisory body (e.g. Sanitary Inspectorate)	26,3%
University	10,7%
Other	12,6%

A great success of the survey is the fact that 54,3% of survey participants are operated in companies representing all company sizes: companies with < 10 employees, < 50 employees, < 250 employees, > 250 employees.

Survey results are presented in **Annex4**. The survey was conducted using SurveyMonkey<sup>1</sup> and analysed through quantitative statistical analysis.

Majority of them (36%) are operated in chemical sectors (chemicals and chemical products, dyes, paints, detergents, toilet preparations and man-made fibres). The average respondent is female, between 30 and 50 years old, and has a university degree.

Target group representatives take part regularly in trainings in the field of CSM. 73,8% of respondents finished <3 trainings sessions in the last five years.

The results of survey indicates a great interest in trainings in the field of a new EU regulation in CSM. 57,1% of survey participants are attended the trainings because of changes in legislation. To other reasons belong employer ordinance or own interest, or mixture of these (see the next figure).

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<sup>1</sup> <https://www.surveymonkey.com/>

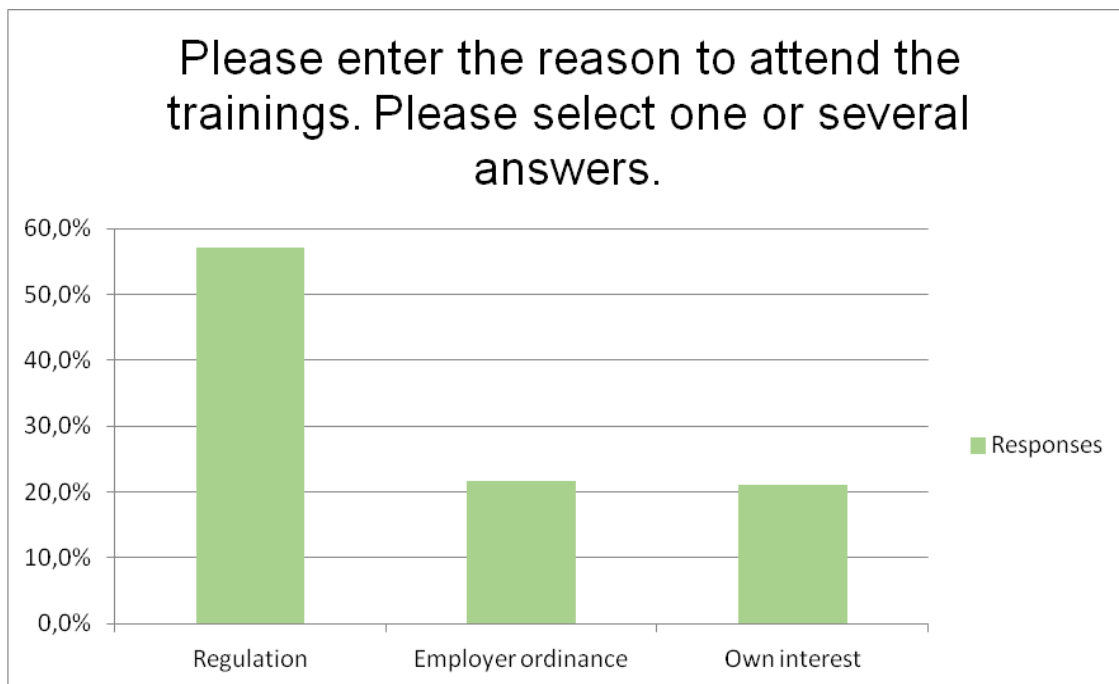


Figure 1: Reason to attend the trainings

The above facts suggest that stakeholders from target group already have some background in the field of CSM and are willing to continue their education.

The most common form of training as the kind of the last training is face-to-face following by in-house and online training. It was found that only about 7% of respondents chose online training. See the table below.

Table 2: Kind of the last training of respondents

Answer	Responses
Face-to-face (outside the own company)	64,7%
Online	7,2%
In-house	28,1%

The survey revealed the great usefulness of the last training in the work, although it was only one-day training. The most common duration of trainings are 1-day trainings (70,7% of responses). 50,3% of respondents said that the knowledge acquired during the last training was very useful for your work. However, only 33,7% of participants are very satisfied with the content discussed during the last training.

The content of the offered training is specified in the next table. The most popular issues that received more than 25 votes are highlighted in the table below.

Table 3: The content of participant's last training

Content of the training	Responses
REACH and CLP regulations, obligations and requirements	100
Classification and labelling of substances and mixtures according to CLP regulation	95
Obligations of manufacturers, importers and downstream users of substances and mixtures according to the REACH regulation	84

Reading und understanding Safety Data Sheets	68
Development of Safety Data Sheets	26
Correct classification of dangerous goods	56
Information on the transport of hazardous chemicals in the safety data sheet	23
Reading and understanding Exposure Scenarios	25
Development of Exposure Scenarios	15
Substance bans and restrictions according to the REACH regulation	34
Carrying out a risk assessment	34
Control of chemical hazards/ prevention measures	43
Emergency procedures	31
Reporting occupational accidents and diseases	0
Development of a chemical inventory	29
Storing chemicals, obligations of storekeepers according to the REACH Regulation	35
Information on appropriate disposal of chemicals in the safety data sheet	19
Environmental liability	27
Other, please specify:	10

Majority of respondents considered practical exercises in the field of CSM as very useful. However, training offers in field of CSM already existing on the market do not usually include practical exercises. The last training of participants, in only 13,4% of cases, was contained a practical exercise for the issues like the:

- Creating exposure scenarios, modelling exposure levels on the PC
- Classification / marking & transportation
- Development of safety data sheets
- Conducting a risk assessment of a chemical agent
- Creating a REACH dossier
- Checking the mixture classification by calculation method
- Classification of mixtures
- Classification and labelling
- Reading and understanding exposure scenarios
- Workshops, development of labels with labelling
- Exercises in the classification of mixtures.



## 5. Analysis of educational gaps and needs in the field of CSM across Europe based on the survey

The main objective of this study was to identify the needs and expectations among target groups based on survey questionnaire.

The survey results indicates a great interest in trainings in the field of a new EU regulation in CSM. There are needs to provide more trainings for beginners (121 responses) and intermediate (131 responses).

Majority of respondents considered practical exercises as very useful. The study of preferences regarding the inclusion of practical exercises in the training materials showed the need for such exercises in all five proposed by the project team thematic issues:

- Classification and labelling of substances and mixtures
- Development of Safety Data Sheets
- Classification of dangerous goods
- Development of Exposure Scenarios
- Carrying out a Risk Assessment.

To issues proposed by participants, relevant for the project, belong:

- Selection of proper personal protective equipment (PPE), e.g. gloves
- Assessment of chemicals and substitution of hazardous substances
- Notification of substance classification to ECHA, stepping up the REACH registration procedure.

The study has shown that there is a great need in all issues of chemical safety management proposed by the project team to develop and make available to the general public materials covering these issues with exception of *reporting occupational accidents and diseases*. To issues proposed by participants, relevant for the project, belong:

- Risk communication, rights and obligations of chemical policy-makers (including socio-economic aspects, social trends in decisions, such as glyphosate), toxicology
- Import and export of chemicals outside the EU, customs procedures, Prior Informed Consent (PIC) procedure in practice, registration of substances in practice, how to prepare internal training for production workers from the safe use of chemicals
- More (textile) industry-specific topics.

To the most preferred kind of training belong face-to-face (outside the own company) training as presented in the table below.

Table 4: Kind of preferred training

Kind of preferred training	Responses
Face-to-face (outside the own company)	74,6%
Online	10,8%
In-house	14,6%

The survey's participants favor one-, two-, and three-day trainings. The survey show that trainings with the duration up to 5 days are also conceivable for them.

To participant's suggestions for a training concepts in the field of CSM that are considered relevant and that could be achieved, belong:

- Information about bans on collectively storage of chemicals
- Presentation of REACH registration. Analysis of the topic "Waste" in the context of registration i.e. when the waste is no longer a waste and who is responsible for the registration
- Proceeding in case of chemical agents not included in the safety data sheets, and disclosed in the study of the work environment
- Including information like efficient navigation of relevant databases, information sources
- Examples of safety data sheets prepared in other European countries, information about where to report irregularities of these cards or labelling of substances and mixtures.

## 6. Practical experience of the partners

**Department of Chemical Safety, Nofer Institute of Occupational Medicine**, has practical experience in conducting vocational training. In the field of REACH and CLP regulation, the following studies and courses were conducted:

1. Postgraduate studies in REACH, two semester long, 2 editions.
2. Courses on classification according to CLP and GHS.
3. Courses for Sanitary and Epidemiological Stations regarding the implementation of REACH.
4. Courses on the implementation of the Regulation on carcinogens or mutagens.

The preferred form of training, according to the participants' opinion, is a two-three-day stationary training lasting no longer than 8 hours a day, in which lectures are supplemented with exercises, case studies and tests for independent examination of the acquired knowledge. The thematic scope must be adapted to the level of knowledge presented by participants, for example basic or advanced level of training. On the other hand, employers prefer short one-day training, which is associated with the fact that longer one generates higher costs for employers associated with, for example, the absence of employees at work. On-line training with unlimited access proposed in this project can be a good proposition for all employers interested in self-improvement and trainers in enterprises, especially small and medium-sized enterprises.

According to **output leader experience**, an online training to be inviting for the project target group has to include following features:

- The training materials should use the „participants's language“ and include examples that are meaningful and relevant to them
- Training content should be formatted and delivered into small segments
- Practical exercises - *already in planning by NIOM*
- Multimedia means utilizing images, video, audio, and other content formats to keep things interesting
- Online learning assessments should be conducted in the form of quizzes, tests, projects, writing assignments, games, etc. to test participant's knowledge post-course - *already in planning by NIOM*
- Discussion boards to pose questions, find answers, etc.
- Prioritizes flexibility by allowing participants to access content on their own schedule, at their own pace, and on any device.

The guide for trainers should include following information:

- How to prepare trainings for participants (*Preparation of internal trainings for employees belong to participant's suggestions*)
- How to access the content
- Time frame of the training session and activities
- Complementary materials for participants (e.g. SDS)
- Glossary.

**Prolepsis Institute** experience comes in line with the reported experience and accompanied suggestions of the project Coordinator. In brief, a three day training lasting no longer than 8 hours per day is usually reported as the ideal training duration by the participants of training-related projects. What is more, the practical assignments during the training is considered of high importance for trainees so as to better acquire the knowledge base provided by the training. Face-to-face training is usually preferred by the trainees, yet the potential of access to on-line training courses (e.g. webinars) and mainly to accompanied training material in the forms of structured informative files divided into small segments, quizzes, videos and other practical modules, is also encouraged.

## 7. Conclusions

The main objective of Output 1 was to identify the needs and expectations among target groups based on the survey questionnaire. The study has been conducted among DU and D of chemicals in selected sectors. Majority of them operate in chemical sectors (chemicals and chemical products, dyes, paints, detergents, toilet preparations and man-made fibers). The results of survey indicate a great interest in trainings in the field of the new EU regulation in CSM, and needs to provide more trainings for beginners and intermediate. Majority of respondents considered practical exercises as very useful. The study of preferences regarding the inclusion of practical exercises in the training materials showed the need for such exercises in all five proposed by the project team thematic issues, including:

- Classification and labelling of substances and mixtures
- Development of Safety Data Sheets
- Classification of dangerous goods
- Development of Exposure Scenarios
- Carrying out a Risk Assessment.

To participant's suggestions for practical exercises that are considered relevant and that could be achieved, belong:

- Assessment of chemicals and substitution of hazardous substances,
- Notification of substance classification to ECHA, stepping up the REACH registration procedure.

The issue *Selection of proper personal protective equipment (PPE), e.g. gloves* should be usually considered using an Occupational Safety and Health (OSH) or Safety Health and Environmental (SHE) management system.

The study has shown that there is a great need in all issues of CSM proposed by the project team to develop and make available to the general public materials covering these issues (with exception of *Reporting occupational accidents and diseases*):

- REACH and CLP regulations, obligations and requirements
- Classification and labelling of substances and mixtures according to CLP regulation
- Obligations of manufacturers, importers and downstream users of substances and mixtures according to the REACH regulation
- Reading und understanding Safety Data Sheets
- Development of Safety Data Sheets
- Correct classification of dangerous goods
- Information on the transport of hazardous chemicals in the safety data sheet
- Reading and understanding Exposure Scenarios
- Development of Exposure Scenarios
- Substance bans and restrictions according to the REACH regulation
- Carrying out a risk assessment

- Control of chemical hazards/ prevention measures
- Emergency procedures
- Development of a chemical inventory
- Storing chemicals, obligations of storekeepers according to the REACH Regulation
- Information on appropriate disposal of chemicals in the safety data sheet
- Environmental liability.

To participant's suggestions for issues that are considered relevant and could be achieved either at the basic or at the advanced level, belong:

- Risk communication, rights and obligations of chemical policy-makers
- Import and export of chemicals outside the EU
- Information about bans on collectively storage of chemicals
- Presentation of REACH registration in practice
- Analysis of the topic "Waste" in the context of registration, i.e. when the waste is no longer a waste and who is responsible for the registration
- Proceeding in case of chemical agents not included in the safety data sheets, and disclosed in the study of the work environment
- Examples of safety data sheets prepared in other European countries, information about where to report irregularities of these cards or labelling of substances and mixtures
- Including information like efficient navigation of relevant databases, information sources.

Other issues like *Prior Informed Consent (PIC) procedure in practice* do not have directly relevance with the REACH or CLP Regulation, or they could be considered using other management systems, e.g. OSH or SHE systems.

It was found that about 11% of respondents chose online training as the kind of the preferred training. There is a great demand for this type of courses. The optimal duration of training is one up to five days depending on the content. However, short trainings with the duration of one or two days belong to the most popular.

## 8. Annexes

Annex1: Research guide

Annex2: Survey guide

Annex3: Survey questionnaire

Annex4: Survey results as an excel file