

Descriptive overview of the HazChem@Work survey

During the survey 29 exposure data sources (72.5%), 6 production and use data sources (15%) and 5 disease data sources (12.5%) have been identified.

40 database providers took part in the survey. Three types of categories of data providers can be differentiated:

- **Exposure data sources** (measurement data, description of context at the work place level, rarely disease or production / consumption data on the level of sectors or states) (29 x)
- **Production and use data source** (sectoral and national production and use data, no exposure data) (6 x)
- **Disease data sources** (diseases, occupational diseases, occupations and sectors, rarely exposure data) (5 x).

General information

The legal background for data collection is mainly national or European legislation.

Reasons for data collection are mentioned in Table 1.

Tab. 1: For what reasons is the data collected?

Answer Options	Response Percent	Response Count
Regular compliance monitoring	39,5%	15
Post compliant and accident check	18,4%	7
Notification of exposure due to legal requirements	42,1%	16
Disease notifications	21,1%	8
Other, please explain	47,4%	18

Most data sources can be used free of charge, more complex requests may involve some costs. For several data sources access is limited to certain authorities or the data base owners.

Four from 35 databases have no constraints for using the data source at all. For several data sources access is limited to certain authorities or the data owners. For some data sources only the raw data are not publically accessible. However, anonymised data and non-confidential parts are available for several data sources or yearly data analysis reports are published.

Tab. 2: Are there constraints for using the data source?

Answer Options	Response Percent	Response Count
No constraints	11,4%	4
There are constraints for using certain parts of the data (e.g. due to confidentiality).	37,1%	13
Only accessible for specific user groups (e.g. authorities etc.).	48,6%	17
Other constraints.	14,3%	5

Substances/substance groups/mixture covered in the data source

Chemical registers often include any kind of substances or mixtures classified as hazardous (according to the CLP Regulation). Some data sources are focused on substance groups like pesticides and biocides, asbestos or minerals (general) dust, quartz, cristobalite and tridymite. More cancer-related data sources mainly include carcinogenic and mutagenic substances (as defined by the CLP Regulation) or more general 'known (but not specific) sensitisers', 'biological agents' and any 'hazard' that may cause occupational cancer. Data sources on occupational exposures cover air concentrations of solvents, inorganic elements, dust, welding fumes, diesel exhaust, silica, oil mist, PAH, inorganic gases, microorganisms, isocyanates, aldehydes, VOC and more as well as biological monitoring of lead in blood and mercury in urine or organic and inorganic substances that are suitable for monitoring using biological monitoring.

Most providers use the CAS-numbers (58%), 18% also the EC- and 15% the Index-Number. Many other specifications are common, e.g. due to a thematic focus or based on a national classification system.

The legal criteria for the inclusion of substances in the data source can be found in Table 3.

Tab. 3: Please specify the legal criteria used for substance inclusion in the data source.

Answer Options (multiple answers possible)	Response Percent	Response Count
Carcinogens classified according to Regulation (EC) 1272/2008 (CLP Regulation)	57,1%	16
Mutagens classified according to Regulation (EC) 1272/2008	53,6%	15
Substances toxic to reproduction classified according to Regulation (EC) 1272/2008	35,7%	10
Process generated substances (e.g. welding fumes, diesel exhaust emissions etc.)	28,6%	8
Others	64,3%	18

Other legal criteria mentioned were chemical products (substances and mixtures) classified according to the CLP Regulation or art. 31 of the REACH Regulation as well as Directive 2008/50/EC on ambient air quality and cleaner air for Europe, Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) and Directive 2004/42/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in decorative paints and varnishes and vehicle refinishing products.

One data source included substances that in specialist physicians' judgements have caused or aggravated the work-related respiratory conditions and the work-related skin conditions. More general criteria were chemical agents that pose a risk to workers or customer requests for biological monitoring. One data source included hardwood (oak, beech).

Exposure measurement and contextual data at enterprise level

Following exposure measurement details and results that have been found in the data sources are summarised in table 4.

Tab. 4: Please specify the type of exposure measurement details and results that can be found in the data source.

Answer Options	Response Percent	Response Count
Measurement method	31,0%	9
Measurand (measured quantity or object)	31,0%	9
Matrix	13,8%	4
Peak values	3,4%	1
Average values	27,6%	8
Airborne measurements	34,5%	10
Biomonitoring	24,1%	7
Other, please explain:	65,5%	19

Other details mentioned were:

- Data from employer: 1) employer's name and address; 2) list of carcinogenic and mutagenic substances, what are used in the enterprise 3) work processes or technologies (description of purpose) 4) quantity of these chemicals 5) number of employees, who work with these chemicals, type of exposure and exposing time; 6) safety measurements, PPE
- Self-reported pesticide use
- Self-reported use of pesticide; frequency and duration of use in previous year.
- Self-reported job (within the asbestos industry)
- The employee indicates whether he or she is exposed never/sometimes/often/Always.
- Dermal exposure assessment, if applicable.
- Measurement reports annexed, if available.

Additional information about the work includes the type of work place, number of workers, route of exposure, average time of exposure, quantity of substance per year/enterprise, profession, enterprise, economic activity, the number of employees, department, working conditions during sampling, risk management measures, method of application and use of personal protective equipment. For one data source information about the types of workplaces, where the maximum admissible concentrations levels of the chemical agents were exceeded, are specified along with information about the administrative order to stop the activity of the particular workplace, section or the whole plant.

The data sources provide the number of workers in different ways, such as numbers per area (e.g. voivodship, target organ, region), per participating company site, per prevention measures adopted and per disease. Only some information regarding the number of exposed workers is provided by disease data sources and production and use data sources.

About 23% of the data sources provide information on duration and frequency of exposure. 40% of the data sources have no information about duration and frequency of exposure. In 37% of the cases the answer was partly along with the following comments: Mean level of exposure (quantitative, long-term, 1-year average, concentration of exposure to the agent among the exposed workers, according to the usual tasks performed and the working environment for their occupational category) and prevalence of exposure (% of workers in the job code exposed) are the estimations. Very general information on past use of pesticides for the whole cohort and more detailed

information on use for a sub-set of the cohort is provided for one data source. One report contains a free-text narrative, which may or may not contain additional details of exposure episodes; there is no legal requirement to provide. For two data sources the questionnaire requests information on frequency and duration covering the previous year and the employee indicates whether he or she is exposed never/sometimes/often/always. For one data source the time spent in the suspected occupation is reported.

Almost 50% of the databases provide information on risk management measures. 31% provide information on personal protective equipment (PPE), 17% on exposure monitoring, 11.4 on health surveillance, 9 % on substitution, 20% on technical measures (e.g. ventilation), 14% on organisational measures (e.g. employee training, written working instructions, changes of working procedures).

Production and use of chemicals at national or EU, EFTA, EEA level

About 17% of the data sources provide information on total production at national level (but not at European level), for 80% it is not provided. Information on consumption along with data on export and import is provided for about 10% of the data sources, information on uses is provided by 16% of the data sources.

Disease data and adverse effects

Diseases covered by the databases include cancer, respiratory diseases (e.g. asthma, bronchitis, inhalation accidents) and skin diseases (e.g. contact dermatitis, contact urticarial, folliculitis, infective skin diseases) (see table 5).

Tab. 5: Which types of diseases are covered in the data source?

Answer Options	Response Percent	Response Count
List of occupational diseases related to chemicals	30,8%	8
Adverse effects	3,8%	1
Cancer	23,1%	6
All diseases	23,1%	6
Other diseases, please specify	65,4%	17

Types of data collection used were specific registers (69.2 %), collection data from medical examinations (3.8%) and about 46% use other types of collection (e.g. case reports from consultants, legal employer reporting, national registers for deaths and cancers, surveys among employees).

The different types of contextual data are provided in the databases are shown in table 6.:

Tab. 6: Which type of contextual information is provided?

Answer Options	Response Percent	Response Count
Work history	22,7%	5
Work place conditions	36,4%	8
Exposure to chemicals	45,5%	10
Other, please explain:	59,1%	13

Other information includes industry, occupation where exposure to suspected causal agents occurs, very general information on exposure to chemicals and duration of exposure, calendar period, smoking. For one data source a questionnaire is used on working conditions, so various topics including sickness absence and accidents at work, are asked. 55.8 % of the databases provide information on sector and occupation, 25.8% provide partly and 19.4 % do not provide such information.

Information provided on the type of workers or specific groups are mentioned in table 7.

Tab. 7: Is information provided on the type of workers/specific groups?

Answer Options	Response Percent	Response Count
Gender	61,8%	21
Age	50,0%	17
Qualification	17,6%	6
Migrant workers	8,8%	3
Young people	5,9%	2
Workers with medical conditions	8,8%	3
New workers	8,8%	3
Maintenance workers	5,9%	2
Pregnant or breastfeeding workers	0,0%	0
No	32,4%	11
Partly, please explain:	11,8%	4

Sector and occupation data

Twelve data sources use NACE codes (2- or 4-digit). Two Polish data sources use the Polish Classification of Activities (PKD) codes, which are based on the NACE system. Five data sources from the UK use the UK Standard Industrial Classification (UK SIC 2007). Data source from Portugal is used the Maximum disaggregated level (5 digits). The Romanian data source uses the coduri CAEN.

For about 82% of the data sources the size of the enterprise is not provided, for about 12% it is provided according to EU categorisation (micro <10, small < 50, medium-sized < 250) and for about 15% other categorisations were used (1-4, 5-9, 10-19, 20-49, 50-99, 100-249 (from 2014 onward), 250-499, 500-999, 1000+, number of workers on site, number of employees per participating enterprise, total employers at the Local Units).

Occupational information is categorised using ISCO codes up to four levels (eight database sources). A Spanish data source uses the Spanish Classification of Occupations (CNO94), a national system based on ISCO88. Three data source from the UK use the Standard occupational classification 2010 (SOC10) or the previous version (SOC2000). A Portuguese data source uses the number of employers for a local unit of the same enterprise.

Reporting of data according to the Carcinogens and Mutagens Directive

70.8% of the respondents said that their competent authorities request from employers to report data on the exposure to carcinogens or mutagens at work (Carcinogen and Mutagens Directive). 20.8 % partly request from employers to report data on exposure to CMRs, for example when the labour inspector asks it. Only in 8.3% cases no such data are requested.

Obstacles to generate data on constraints for using data

Obstacles to generate exposure data at enterprise level and to make it available to all stakeholders are mainly the confidentiality of data/data ownership, risk of identification of individuals, workplaces or physicians. Other obstacles mentioned are: no legal obligation to generate data or report data, costs, lack of funding for quantitative exposure measures, no common format for collecting and classifying data.

Proposals to overcome possible obstacles were inter alia: technical and financial support from the EU, EU centralised database opens new and interesting potentials, harmonised standards for exposure data collection and storage, national databases with clear data governance policy, promoting the benefits to employers, simple tools for assessment, obligatory systems of reporting data on exposure.

Some proposals for other data to be collected were: data on poisoning, nanomaterials (production and import data), gender issues, protective equipment and measures.