



Nordic Council
of Ministers

Identification and assessment of exposure scenario minimum requirements

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This publication is also available online in a web-accessible version at <https://pub.norden.org/temanord2022-567>.

Summary

In this report, recommendations are made regarding minimum requirements for Exposure Scenarios (ESs), which are required as part of chemical assessments according to Article 14-3 of Regulation (EC) No. 1907/2006 (REACH). Based on previous work done on this topic, a list of minimum requirements was proposed and two practical ES examples were prepared. The two ES examples were prepared with two specific hazardous substance groups in mind. The proposed list of minimum requirements together with the two practical ES examples were distributed together with a survey, to companies both within the SME and non-SME sector. The survey contained general questions regarding the respondents' experience with and understanding of ESs, and specific questions to the proposal for minimum requirements and practical ES examples. The survey and related documents were created in English and translated to Norwegian, Swedish, and Danish.

Responses were received from 70 companies, of whom about half were SMEs and half not, in terms of number of employees. All in all, the proposal for minimum requirements and the practical examples were well received. According to the respondents, existing ESs show a high degree of variation, and the respondents were clearly in favour of a harmonisation/standardisation of ESs. The survey uncovered a significant need for a raised understanding and more knowledge on ESs, particularly among SMEs.

It is concluded that harmonisation is recommended, e.g. in terms of legal requirements for ES contents. Based on the survey findings, specific recommendations are given to ES compilers, downstream users, industry/trade associations and authorities.

Glossary

Chemical	In the context of this report, chemical can refer to substance or mixture
CLP	Classification, Packaging and Labelling
ECHA	European Chemicals Agency
ENES	Exchange Network on Exposure Scenarios
ERC	Environmental Release Category
ES	Exposure Scenario
eSDS	Extended Safety Data Sheet
ESIG	European Solvents Industry Group
FEICA	Association of the European Adhesive and Sealant Industry
NEXPO	Nordic Exposure Group, Human Health and Environment
PC	Product Category
PROC	Process Category
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
SDS	Safety Data Sheet
SME	Small or Medium-sized Enterprise. For the purpose of this report, the only factor used to differentiate between SMEs and non-SMEs is the employee number (staff headcount), i.e. an SME has up to 250 employees and a non-SME has more than 250 employees. Financial factors (turnover, balance sheet total) have not been taken into account.
SPERC	Specific Environmental Release Category
SU	Sector of Use
SVHC	Substance of Very High Concern
SWED	Sector-specific Worker Exposure Descriptions

1 Background

This report is a result of the project "Identification and assessment of exposure scenario minimum requirements", initiated by the Nordic Exposure Group, Human Health and Environment (NEXPO), and funded by the Nordic Council of Ministers through the Nordic Chemicals Group. Kiwa Kompetanse AS has had the role as project consultant in the project.

The aim of the project, as described in the project mandate, has been to contribute to building a clearly defined structure on minimum requirements for exposure scenarios (ES) required as part of chemical assessments in accordance with Regulation (EC) No. 1907/2006 (REACH), Articles 14(3) and 14(4). This would allow for a systematic approach for ES development, where in the least the essential and relevant information would be recommended to be provided by the registrants. Establishing a set of minimum requirements, which are both practical and enforceable, as the basis for ES preparation would significantly improve the information level for all ES prepared in EU/EEA and reduce the problem of ES lacking vital safe use information. Nonavailability of a structured approach for ES preparation has been a problem affecting both suppliers (manufacturers/importers), users of chemicals as well as being a challenge to enforcement authorities. The project was to focus particularly on SMEs.

More specifically, the objective of the project was to produce the following deliverables:

1. **A list of suggested minimum ES requirements**, building on existing material from earlier work on this subject. The ES layout/format was not to be a focus, but rather the contents which should as a minimum be included in an ES.
2. **Practical ES examples** for substances of high hazard/concern, based on the list of minimum requirements.
3. **A survey for companies** who are (potential) recipients of extended SDSs with ESs to be sent out together with the documents described above, in order to evaluate their usability.

In the current report, the preparation of each these deliverables are described in detail. The findings from the survey are summarised and discussed. Finally, recommendations for the further work on defining minimum ES requirements are given, in addition to some other reflections based on the survey participant's feedback regarding extended SDSs and ESs in general.

2 Methods

Preparation of the list of proposed minimum requirements and practical examples

The list of minimum ES requirements, and the practical examples, were as far as possible based on already available guidance, templates, and other related documents and information, including the following:

- Proceedings from workshop on REACH Review Action 3: Improving the workability and quality of extended Safety Data Sheets (ECHA, 2019a and 2019c)
- REACH Review Action 3: Development Plan (ECHA, 2020) Downstream users' information needs under REACH – Summary of market studies in 2017–18 (ECHA, 2019b)
- Checklist – Exposure Scenarios in REACH, A Nordic Group Project 2016 (NEXPO, 2016)
- Guide on Safety data sheets and Exposure scenarios (ECHA, 2018)
- Annotated templates for an Exposure Scenario, found on ECHA's website¹
- Illustrative example of Exposure Scenarios (ECHA, 2017)
- Mapping of the Conditions of use (input parameters) of the different tools for workers assessment (ENES, 2020)
- Use map elements found in the use map library on ECHA's website², including use maps, sector-specific worker exposure descriptions (SWEDs) and descriptions of specific environmental release categories (SPERCs)
- Existing extended SDSs/ESs publicly available on the Internet

The list of proposed minimum requirements was prepared and two practical ES examples were developed, for the made-up substances "Diisocyanate X" and "Triamine X", representing the following two groups of substances:

Diisocyanates: Group members have CLP hazard classifications (e.g. H317, H334) and specific restrictions which must be followed (cf. REACH Annex XVII). Includes widely used substances in large amounts.

1,3,5-triazine-2,4,6(1H,3H,5H)-trione and 1,3,5-triazine-2,4,6-triamine derivatives: Group members have CLP hazard classification (e.g. H361f), and substances for which SVHC intentions have been submitted. Includes widely used substances in large amounts.

The phrases used in the ES examples, for example to describe the use, were based on a combination of use maps for the relevant sector, already existing ES examples published by ECHA based on Chesar, and harmonised phrases as given by ENES (2020). Regarding use maps, the FEICA (Association of the European Adhesive and Sealant Industry) and ESIG (European Solvents Industry Group) use maps were used as the main sources of appropriate phrases describing the use. It was considered important to base this as far as possible on already available phrases and ES elements from various guidance and ECHA templates, instead of creating

1. <https://echa.europa.eu/support/guidance-on-reach-and-clp-implementation/formats>
2. <https://echa.europa.eu/csr-es-roadmap/use-maps/use-maps-library>

something new which could potentially add to further confusion and complexity. This way, it was possible to investigate how respondents react to phrases and terms already used and available in various guidance.

Preparation of the survey

The survey was created using Microsoft Forms. It consists of in total 28 questions divided into three sections:

1. General company background
2. Experiences with Safety Data Sheets and Exposure Scenarios
3. Questions to the suggested minimum contents of Exposure Scenarios

Sections 1 and 2 were included in order to get a picture of the respondents' background and previous experience and see whether this had any implications for their responses to Section 3. This final section included an attachment with proposed minimum ES requirements and two practical ES examples.

The survey, including the practical ES examples, was finalised after a commenting round within the project steering group (NEXPO).

Languages

The survey was prepared in English and translated to Norwegian, Swedish, and Danish. Ideally, the survey should have been available in all Nordic languages, but this was not deemed possible within the boundaries of the project. It was considered that with these languages, respondents from all Nordic countries should have the possibility to respond. The inclusion of an English version also made it possible to distribute the survey beyond the Nordic countries.

Distribution of the survey

The following methods were used for distributing the survey to potential respondents:

- **Direct e-mails to companies**
Companies within various industries/fields where chemicals are used, were found using a company search at the business information websites www.proff.no, www.proff.se, and www.proff.dk. In order to address primarily SMEs, only companies with a maximum number of employees of 250 were included in the search. The companies were sent an e-mail, using generic e-mail addresses due to GDPR concerns, with information and a survey link. In addition, information about the survey was distributed to companies subscribing to Kiwa's newsletter on chemicals.
- **Distribution via trade associations / branch organisations**
The following trade associations were contacted and encouraged to distribute the survey among their members:
 - The Federation of Norwegian Industries (Norsk Industri)
 - The Confederation of Danish Industry (Dansk Industri)
 - The Danish Association of Cosmetics and Detergents
 - IKEM (Innovation and Chemical Industries in Sweden)
 - The Federation of Icelandic Industries (Samtök Iðnagarins)

- The Chemical Industry Federation of Finland (Kemianteollisuus)
- DUCC (The Downstream Users of Chemicals Co-ordination Group)
- **Open information about the survey** on Kiwa's LinkedIn profile

Analysis of the responses

Responses from the survey versions in all languages were compiled in one Excel document, and everything was translated into English, whereafter distributions of responses were analysed. Since this project has a focus on SMEs in particular, it has been paid attention to whether there are differences in the responses of SMEs vs non-SMEs.

All survey questions, and the accompanying example ESs, are attached as appendices to the report.

3 Results and discussion

In total 70 companies responded to the survey. Responses in all languages were received. The main findings from the three parts of the survey are presented and discussed below, while all survey questions and detailed responses are available in Appendix I.

3.1 Part 1 – General company background

About half of the respondents are SMEs, in that they have up to 250 employees, and half have more than 250 employees and are in the context of this report considered as non-SMEs. Also, about half of the respondents are national and international companies (i.e. have offices in several countries), respectively. Most (81 %) of those with offices in several countries are non-SMEs.

The non-SMEs also have more roles, i.e. many of them both sell, buy and use chemicals. Almost all of the respondents who are manufacturers, are non-SMEs. The non-SMEs more frequently reported that they buy and import chemicals from outside of the EU/EEA – 73 % of non-SMEs buy chemicals from outside of the EU/EEA, whereas 20 % of SMEs report the same. The respondents who are SMEs, are mainly buyers (from companies within the EU/EEA) and users of chemicals. All the non-SMEs handle, i.e. buy, sell, use or produce, many chemicals (50 or more) annually, while there is a larger variation among the SMEs. The SMEs are more diverse regarding the amount of chemicals handled per year.

All but one respondent have some kind of quality system (ISO 9001, 14001 or 45001) or internal routines for the handling of chemicals in place. An inherent aspect of the ISO quality systems is to ensure internal communication, responsibility clarifications and routines in order to be able to comply with relevant legislation. This includes legislation and requirements related to chemicals. Overall, the non-SMEs have more of these systems in place at the same time, whereas the smallest SMEs to a much lesser extent have ISO quality systems – but still, they do have internal routines for chemicals.

A higher number of respondents would naturally have given more robust findings. However, taking into account that this is a complex topic for many companies, especially SMEs, all 70 responses received are highly appreciated. The respondents largely handle many chemicals, have different roles in the supply chain, and have established routines for their handling of chemicals. It could therefore be deduced that this represents a group of respondents who by and large should have a good starting point for, and some experience with, the safe use of chemicals – including related documents. Their responses can in other words provide valuable insight into companies' thoughts on and experience with ESs and their contents.

Since half the respondents are SMEs and half are not, the survey findings give an indication of potential differences between these two groups. Table 1 below sums up general company background differences. Further differences – or lack thereof – are also presented for parts 2 and 3 of the survey.

Table 1. General company background differences between the SME and non-SME respondents

	SMEs	Non-SMEs
Offices in several countries	27 %*	81 %
Manufacture/produce chemicals	18 %	65 %
Buy/import chemicals from outside of the EU/EEA	21 %	73 %
Handle 50 or more chemicals annually	61 %**	100 %
Median number of roles in supply chain (of 5 possible)	2	5
Internal routines for chemicals and/or ISO quality systems	97 %	100 %

* All percentages in the table are percentages of the total number of either SMEs or non-SMEs.

** The remaining 39 % mostly handle 10–50 chemicals per year. A few handle less than 10 chemicals per year.

3.2 Part 2 – Experiences with Safety Data Sheets and Exposure Scenarios

Of all the respondents, about three quarters have received extended SDSs with ESs. More non-SMEs than SMEs have received ESs – 84 % as opposed to 70 %, respectively. Only 13 % of all respondents thought the ESs they have seen (received or seen elsewhere) have looked similar to each other. The rest thought they have varied both length and/or contents/structure – apart from a rather high percentage (21 %, of whom the majority are SMEs) who responded that they do not have any opinion or experience in the matter.

Clearly, most of the respondents prefer that an ES is as short as possible, only containing strictly necessary information. Overall, no differences could be detected between SMEs and non-SMEs regarding the level of detail wanted in an ES. The only difference is that all the respondents stating that they do not have any opinion or experience regarding the level of detail in ESs, are SMEs.

Many of the respondents already have routines in place for checking ESs. However, while 62 % of non-SMEs have such a routine in place, only 27 % of the SMEs do. In fact, 18 % of the SMEs (and only 3 % of the non-SMEs) responded that if they receive an extended SDS with an ES, they will not look at the ES. Most of the respondents, regardless of company size, would take a look at the ES and try to understand it, without following a particular routine.

The majority of the respondents, regardless of company size, find that ESs sometimes contain relevant information for their use. Similarly, the majority experience that it is sometimes easy to find this relevant information. The most notable difference between SMEs and non-SMEs when it comes to finding relevant information in an ES, is that more of the SMEs have responded that they have no opinion or experience.

Of the alternatives presented in the question on general understandability of ESs, the most frequently chosen reply by the respondents (both SMEs and non-SMEs) was that ESs contain too many codes and abbreviations. This is in agreement with the findings from a question in part 3 of the survey, where a clear majority would want a list of abbreviations at the start of an ES. Further, 41 % of all respondents

indicated that ESs generally are difficult to understand. With regard to the background of the respondents, e.g. that many of them should be quite resourceful when it comes to chemicals (about half of them have an established routine for ES checking), it is interesting to note that only 14 % of the respondents think that ESs are generally easy to understand.

The survey also uncovered that 61 % of the SME respondents do not know where to find guidance on how to deal with and understand ESs. For the non-SMEs, more of the respondents know where to find such guidance.

Breakdown of those responding that ESs are generally difficult to understand:

- 65 % are non-SMEs and 35 % are SMEs
- 92 % handle 50 or more chemicals during one year
- All have received extended SDSs, with ESs
- 58 % have an established routine for checking ESs
- 81 % experience variation both in length and contents/structure of ESs
- 81 % think ESs are often too long
- 81 % think there are too many codes and abbreviations in ESs

A clear majority (84 %) of all respondents agree that it could be useful if ESs looked more similar, i.e. had a more standardised format. This can be considered a strong support for ongoing efforts to harmonise the ES contents and format.

84 % of all respondents agree that standardisation of ESs would be useful.

Some examples showing differences and similarities between SMEs and non-SMEs regarding the responses to part 2 of the survey are shown in the Table 2.

Table 2. General ES experience and opinions (some examples), SME vs. non-SME respondents

	SMEs	Non-SMEs
We have received extended SDSs with ESs	70 %*	85 %
An ES should be as short as possible	42 %	49 %
An ES should be detailed	18 %	14 %
We have an established routine for checking ESs	27 %	62 %
We would not look at an ES if we received one	18 %	3 %
It is easy to find relevant information in an ES	21 %	22 %
We do not know where to find ES guidance	61 %	22 %

* All percentages in the table are percentages of the total number of either SMEs or non-SMEs.

3.3 Part 3 – Questions to the suggested minimum contents of ESs

When asked for their first impression on the suggested minimum ES contents with two practical examples, 86 % of all respondents found it to be either good or a step in the right direction. In other words, the proposal and examples were generally well received among the respondents. There were no particular differences between SMEs and non-SMEs in this respect. Please see Figure 1 on the following page for the suggested minimum contents, and the practical ES examples in Appendices IIa-d.

The respondents were also encouraged to give additional explanatory comments. All comments received can be found in Appendix I. Some of the comments given by respondents who found the proposal to be a step in the right direction are shown below:



It should be more user-friendly otherwise people won't use them. In general ES information requirements should be entered in the main body of the SDS.

ES are too complicated to understand by non-experts, HSE services in plants need help from experts. ES must be short, readable and understandable by non-experts.

Better than the 197-page exposure scenarios we have received!

Suggested minimum contents of an ES (Annex to SDS)

General info

Substance identification: Substance name, CAS no., other necessary identification

Short title: Should give a general understanding of what the ES covers

Table of contents: If several ESs are included in the same Annex

List of abbreviations: Brief explanation of the abbreviations used in the Annex

1. Title section (for each ES included in the Annex)

Use name: Short description of the scope of the use – from sector use maps where available.

Processes, tasks, activities covered: A description which is a little more specific.

Life cycle stage:	From REACH guidance R.12. Not necessary if already given in title.
Product categories (PC):	
Sector of use (SU):	From REACH guidance R.12. All contributing scenarios within the ES: PROCs (workers) and ERCs/SPERCs (environment)
Environmental release categories (ERC):	
Process categories (PROC):	

2. Conditions of use affecting exposure (for each contributing scenario)

2.1 Control of environmental exposure: Name of ERC

Product characteristics:	Only what is relevant in order to see whether the downstream user's use is covered. At least daily amount used or emission days per annum should be included.
Amount used:	
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment. Should contain relevant measures to control releases to air/water/soil, and waste treatment.

2.2 Control of worker exposure: Name of PROC

Product characteristics: At least the substance concentration covered by the ES. Characteristics listed in other parts of the SDS need not be repeated here.

Amount used:	Most importantly: how many hours per day of activity the ES covers.
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment.

Conditions and measures related to personal protection, hygiene and health evaluation: Necessary personal protective equipment, for safe use.

Other conditions affecting workers exposure: For example indoor/outdoor use, temperature conditions.

3. Exposure estimation

Calculated exposure values: Not absolutely necessary in all ESs. Where included, it is often presented as a table with exposure values and risk characterisation ratios (RCRs) for each contributing scenario.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Information from the supplier on how you can do scaling, in other words how you can see if you still have safe use if you do not follow all conditions listed in section 2. Must include (or refer to where you can find) information on scaling method, scalable parameters and the boundaries of scaling.

Figure 1. The suggested minimum ES contents, as presented to the survey respondents.

The idea to include a list of abbreviations at the start of the ES was well received. 63 % of the respondents think this is a good idea, with no particular differences between SMEs and non-SMEs. However, 24 % of all respondents (32 % of the non-SMEs) were of the opinion that the abbreviations used in the ES should rather be in a common list of abbreviations elsewhere in the SDS. What is clear, though, based on the responses to part 2 of the survey, is that many think ESs contain too many codes and abbreviations. In cases where the ES is an annex and not incorporated into the main SDS body, it could be argued that it would be simpler for the reader to have the abbreviations presented at the start of the annex.

In the practical examples, ES titles were taken from use maps, chosen based on the foreseen use of the example substances. One of the ES titles used in the examples, taken directly from the FEICA use map, was "Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); small scale application of adhesives, sealants or primers". When asked whether this title describes what the scenario covers in an understandable way, 68 % of the respondents gave a positive answer (no difference between SMEs and non-SMEs).

Similarly, the majority (60 %) also thought the proposed minimum requirements for the Title Section, illustrated by practical examples, give a clear picture of what the scenario covers. It should be noted that more of these respondents were non-SMEs than SMEs. The Title Section examples are presented in Figure 2 on the following page.

Those who thought the Title Section did not give a clear picture (in total 27 %), found that there was too little or too much information, or that it was difficult to understand. The following are some of the explanatory comments received from these respondents:



The title section is good and provides enough information for the exposure scenario presented. ... The issue is that by making it so specific, we might end up with an infinite number of permutations (smaller, as less procs will apply to each), that would make a manufacturer SDS too long. The issue is how many of these scenarios you have to have as a manufacturer of a base substance that has multiple applications? ... More guidance should be provided to formulators to scale and describe those ES in their SDS, but not at the manufacturer level. Better training and understanding how to do SDS and scaling (engage occupational health professionals) would be key for this.

In ES1, the use is described as "small scale application". In "Contributing scenarios, environment" it says "wide dispersive indoor use " and "widespread use". Does this mean that these are examples of scenarios where it is not used as intended in small scale? Difficult to understand. How are these terms defined?

The title section should only contain a use title and the Life Cycle Stage. The use descriptors are useless (e.g. PC and SU are not part of the worker risk assessment, and should therefore not be included, and they don't mean anything to the user.) If the identified use is "use in coatings" LCS: Industrial. would that mean that I cannot use it as a coating if I don't find an applicable SU? If so, how is the SU part of the risk assessment? If an option is chosen "all SU" would that be better?

Descriptions need to be simple, so that a non-expert can understand them.

ES 1: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); small scale application of adhesives, sealants or primers

1. Title Section

Use name	Professional small-scale application of adhesives, sealants or primers	
Description of process/activity covered	Small scale application of adhesives, sealants or primers indoors, with good general ventilation (typical application is 0.3–1 m ² /h)	
Sector of Use	SU22	Professional
Contributing scenarios, Environment	ERC8C FEICA SPERC 8c.3.v3	Wide dispersive indoor use resulting in including into or onto a matrix Widespread use of non-volatile substances in adhesives / sealants - indoor
Contributing scenarios, Worker	PROC10	Roller application or brushing

ES 2: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); large scale application of 2- or multi-component reactive adhesives

1. Title Section

Use name	Professional indoor handling and mixing of 2- or multi-component liquid adhesives	
Description of process/activity covered	Mixing and handling of 2- or multi-component reactive adhesive systems by professionals, indoors, run in a stepwise manner based on the open time of the adhesive. The mixing process is done with a handhold drilling machine in a bucket. This includes also pouring from one bucket into another. The duration is no longer than 4 hours.	
Sector of Use	SU22	Professional
Contributing scenarios, Environment	ERC8C FEICA SPERC 8c.3.v3	Wide dispersive indoor use resulting in including into or onto a matrix
Contributing scenarios, Worker	PROC5	Mixing or blending in batch processes

ES: Use at industrial sites; Use as additive in foams and coatings

1. Title Section

Use name	Industrial use as additive in foams and coatings	
Description of process/ activity covered	<i>Example for PROC8B:</i> Changing of containers, drums or buckets for industrial application equipment	
Sectors of Use	SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
Product Categories	PC9a PC32	Coatings and paints, thinners, pant removers Polymer preparations and compounds
Contributing Scenarios, Environment	ERC5	Use at industrial site leading to inclusion into/ onto article
Contributing Scenarios, Worker	PROC2 PROC8b PROC12	Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions Transfer of substance or mixture (charging and discharging) at dedicated facilities Use of blowing agents in manufacture of foam

Figure 2. A compilation of the three title sections from the practical examples (example 1 contains two ESs and example 2 contains one ES), as presented to the survey respondents.

Regarding section 2, conditions of use affecting exposure, the majority of the respondents (56 %) thought the proposed minimum requirements illustrated by practical examples give a clear picture of what is needed for safe use. Also here, more non-SMEs than SMEs gave a positive answer. One of the Section 2 examples is presented in Figure 3 on the following page.

Those who thought section 2 did not give a clear picture (in total 29 %), found that there was too little or too much information, or that it was difficult to understand. The following are some of the explanatory comments received from these respondents:

”

The headlines for each section are difficult to understand, even if the contents are understandable.

“Covers use up to”, “Covers concentrations up to”, “Covers use at ambient temperatures” – what covers? Does it mean that the information only applies to these conditions? Duration of exposure of 365 days/year – you don’t work 365 days a year, what if you work 67 days? Many questions arise about what this really means.

If the only goal is to see if use is covered, there should be clear criteria for that. What if the use is a bit outside the boundaries? ... Would it not be better to focus on parameters that can be influenced? Workers: amount used is not part of a risk assessment tool, so not relevant at all. Neither is frequency. Measures to be taken is the most important one. However, we already control exposure as required by the OSH legislation. The ES information could be conflicting with our own internal workplace risk assessment. As the OSH workplace risk assessment is specific for the workplace, is that considered the better option?

In addition, several respondents, regardless of whether they thought the Section gave a clear picture or not, commented that the information given in the Section 2 example is similar to what would already be in section 8 of the main SDS body. If there is similar information several places, but this is not completely identical, you would need to look at all the different places and compile your own document. This makes it more difficult to go through the SDS and identify the necessary measures.

The survey furthermore shows the importance of the exposure estimates usually present in Section 3, although this is particularly true for non-SMEs. The SME respondents have to a lesser extent needed to use these numbers. The same applies to scaling – non-SMEs have had the need to do scaling to a larger degree than SMEs.

Table 3. Opinions on the suggested minimum requirements (some examples), SME vs. non-SME respondents

	SMEs	Non-SMEs
There should be a list of abbreviations at the start of the ES	64 %*	62 %
The ES title in the example is easy to understand	70 %	68 %
The Title Section gives a clear picture of what the ES covers	45 %	73 %
Section 2 gives a clear picture of what is needed for safe use	48 %	62 %
We have needed to use exposure estimates from Section 3	21 %	57 %
We have needed to do scaling	9 %	38 %

* All percentages in the table are percentages of the total number of either SMEs or non-SMEs.

2. Conditions of use affecting exposure

2.1 Control of environmental exposure: Wide dispersive indoor use resulting in including into or onto a matrix (ERC8C)

Amount used, frequency and duration of use	Continuous exposure: 365 days/year
Technical and organisational conditions	Connection to municipal sewage treatment plant is assumed. Do not empty the product into drains / surface water / ground water. Dispose of in accordance with local legislation. For further specification, refer to section 13 of the SDS.

2.2 Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	Covers concentrations up to 1 %
Amount used, frequency and duration of use	Covers use up to 4 h/day
Technical and organisational conditions	Provide specific workforce training for the use of diisocyanates, in line with REACH Annex XVII, entry no. 74. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95 %. For further specification, refer to section 8 of the SDS.
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training; Wear protective clothes to protect from splashes, which are impervious in a manner equivalent to the gloves; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF 10). For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Indoor use Covers use at ambient temperatures

Figure 3. Section 2 from example 2, ES 2, as presented to the survey respondents.

As a conclusion of the survey, the respondents were invited to give any further comments on ESs, related to the survey or otherwise. All comments are given in Appendix I. Some examples are presented below:

”

The ES attached to a SDS has no added value to an existing, well written SDS. All ES are much too complex, unclear and not understandable for any end user. Lots of information is repeated several times in several paragraphs of the same ES.

Thank you for initiating this effort. Harmonization of SDS (and even requirements for RMMs) is very useful and might streamline the communication through the value chain.

We support having a harmonised format, as that would improve data collection and customer comprehension. We often have to chase suppliers for the ES, they don't send them out with their SDS, or have them available on their websites. This means we in turn struggle to provide ES to our customers.

ES need to be much easier to understand and use in practice. Also, the legislation needs to be clarified regarding who need to make ES, how they should look and which rules apply from a working environment perspective.

I think that this is still a complicated way for the description how to use a product in a safe way for the "common" professional user.

Exposure scenarios are generally not useful. We often see automatic translations (sometimes it's just comical), which make it impossible to understand the contents.

4 Recommendations

4.1 The suggested minimum ES contents

The list of suggested minimum contents (as presented to the respondents) is repeated below, together with specific comments and recommendations based on the survey responses. The following main findings are particularly kept in mind:

- There is strong support for a harmonisation/standardisation of the ES contents.
- The list of suggested minimum contents with practical examples was all in all well received.
- The ES should be as short as possible or something in between short and detailed.
- Confusion around already available (proposed) harmonised phrases is widespread.

Minimum contents: General info

General info

Substance identification: Substance name, CAS no., other necessary identification

Short title: Should give a general understanding of what the ES covers

Table of contents: If several ESs are included in the same Annex

List of abbreviations: Brief explanation of the abbreviations used in the Annex

Comments based on survey responses:

This introductory information at the very start of the ES is important in order for the readers to be able to navigate in the document and find relevant information. A table of contents (in case of several scenarios in the same annex), as well as a list of abbreviations, should be included for this purpose.

Many respondents lack an understanding of basic phrases which are already harmonised. Examples are confusion regarding "widespread use" and "small scale application" being mentioned in the same ES title. Some think these terms contradict each other, when in fact widespread means that the substance is used at many sites or by many users whereas small scale refers to a small-scale use at each individual site or by each individual user. It is not evident for all that "Covers up to..." refers to the exposure assessment – i.e. that concentrations within this limit are regarded as safe provided that other conditions and measures are in place. Explaining all these terms in the ES annex would on the other hand lead to a very lengthy document. It is therefore instead proposed that more efforts are made to make ES guidance more well-known within the industry, particularly for SMEs.

Minimum contents: Title Section

1. Title section (for each ES included in the Annex)

Use name: Short description of the scope of the use – from sector use maps where available.

Processes, tasks, activities covered: A description which is a little more specific.

Life cycle stage:	From REACH guidance R.12. Not necessary if already given in title.
Product categories (PC):	
Sector of use (SU):	From REACH guidance R.12. All contributing scenarios within the ES: PROCs (workers) and ERCs/SPERCs (environment)
Environmental release categories (ERC):	
Process categories (PROC):	

Comments based on survey responses:

In general, these minimum requirements for the Title Section with examples were mostly found to give a clear picture of what the ESs cover. There are however some general misconceptions around the use descriptors. Some respondents have trouble identifying the right PROCs and ERCs for their use. This points toward the need for more knowledge on ESs among the companies (more on this below). Some think the information should be detailed, while others think too detailed/specific descriptions of e.g. processes, tasks, activities covered necessitate many different ESs and a complex structure, and are therefore in favour of keeping it simple and more generic.

In order to avoid confusion, it is important to ensure that the uses mentioned in the main SDS, section 1, and the uses in the ES, are in line with each other.

An absolute minimum for the Title Section should be the use name, a description of activities covered, PROCs and ERCs/SPERCs. This would allow the end user to see whether their use of a chemical is covered by the ES, and it would give basic information of how the exposure assessment has been done. Basic information on the chemical already given elsewhere in the main SDS body, need not be repeated here.

Minimum contents: 2. Conditions of use affecting exposure

2. Conditions of use affecting exposure (for each contributing scenario)

2.1 Control of environmental exposure: Name of ERC

Product characteristics:	Only what is relevant in order to see whether the downstream user's use is covered. At least daily amount used or emission days per annum should be included.
Amount used:	
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment. Should contain relevant measures to control releases to air/water/soil, and waste treatment.

2.2 Control of worker exposure: Name of PROC

Product characteristics: At least the substance concentration covered by the ES. Characteristics listed in other parts of the SDS need not be repeated here.

Amount used:	Most importantly: how many hours per day of activity the ES covers.
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment.

Conditions and measures related to personal protection, hygiene and health evaluation: Necessary personal protective equipment, for safe use.

Other conditions affecting workers exposure: For example, indoor/outdoor use, temperature conditions.

Comments based on survey responses:

The proposed minimum requirements and practical examples for Section 2 were also all in all well received. However, SMEs in particular had some trouble understanding this section. Comments were received on the lack of clarity, misunderstandings of terms, and the fact that this section contains information which already is, or perhaps should be, in the main body of the SDS. Especially when it comes to conditions and measures related to personal protection, the relationship between Section 8 of the SDS, and Section 2 of the ES Annex, should be considered carefully. According to the survey findings, there is a need for a better understanding regarding the fact that the SDS main body (e.g. Section 8) gives general information on the chemical based on its inherent properties, whereas the ES gives specific information related to particular uses of a substance. In practice, based on examples from existing eSDSs and to some extent based on (proposed) harmonised phrases, this distinction does not always seem so clear. The following is an example of a phrase for harmonised communication to be used in ESs, from ENES (2020):

Wear a respirator which reduces the air impurities by at least a factor of 4 (APF ≥ 4). For further specification, refer to section 8 of the SDS.

For the recipient of the ES annex, it may not be clear why this is not simply inserted into section 8 of the SDS in the first place – if they do not have an understanding of which information belongs where.

Also, some comments were received regarding other languages than English. Understandably, automatic translation is not a good solution. When working with

this report, it was found that harmonised phrases are not easily available in all Nordic languages. Harmonised phrases should ideally be translated in cooperation with end user representatives / trade associations to ensure that they are understandable for the ES recipients.

Minimum contents: 3. Exposure estimation

3. Exposure estimation

Calculated exposure values: Not absolutely necessary in all ESs. Where included, it is often presented as a table with exposure values and risk characterisation ratios (RCRs) for each contributing scenario.

Comments based on survey responses:

The exposure estimates are considered important by many respondents, in particular non-SMEs. Those who have needed to use the information in Section 3, reported that they have needed to see the RCRs and release factors, and of course a reference to the models/calculations used. The SME respondents have less experience with using the information in this section actively – it is not impossible that this partly can be caused by a lack of understanding regarding the exposure estimates and how they should be used.

It could be helpful with an explanation at the start of Section 3, saying that if you do in fact follow all conditions and RMMs, it is not necessary to pay further attention to these numbers.

Minimum contents: 4. Guidance to DU (scaling)

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Information from the supplier on how you can do scaling, in other words how you can see if you still have safe use if you do not follow all conditions listed in section 2. Must include (or refer to where you can find) information on scaling method, scalable parameters and the boundaries of scaling.

Comments based on survey responses:

About a quarter of the respondents have needed to perform scaling – most of them are non-SMEs. Some commented that scaling is too complicated for non-experts. Some had to contact the supplier and ask them to do the scaling. The information here should be as simple and precise as possible. The guidance on what should be included here, as reflected above, is in many cases not followed. It is recommended that these should be parts of the minimum requirements.

4.2 ES contents specifically for the chosen substance groups

The practical examples were created in order to show in an attempted realistic manner how the suggested minimum required contents could be used in practice. The two substance groups are repeated here (read more about this in the Method chapter):

- Diisocyanates
- 1,3,5-triazine-2,4,6(1H,3H,5H)-trione and 1,3,5-triazine-2,4,6-triamine derivatives

In the example ESs, (proposed) harmonised phrases were used as far as possible. These were found in use maps (e.g. SWEDs) for known uses of these groups of substances, in existing ECHA examples and by ENES (2020). Where available, phrases relating to the inherent properties of the substances were used.

Since it was important to focus on SMEs within this project, it was considered the most important to distribute the survey to as many SMEs as possible. Respondents were not chosen based on known use of substances within these two groups. Many of the SME respondents still need more information and a better understanding of ESs and why they are needed, before they can respond in a detailed manner regarding which information to include for which substances. However, the general opinion from the survey is that the examples were useful.

In order for the ES recipients, and ES compilers, to get a better understanding of which ES elements are critical for which substances, it is important to increase the level of knowledge and understanding around use map documents and other sources for harmonised phrases. This also include making translations of harmonised phrases easily available in all languages. Much effort has been invested both by authorities and industry/trade associations, in defining common phrases and use conditions in English. This is not as readily available in other languages. Experiences show that it is hard to find trustworthy translations. Harmonised phrases should ideally be translated in cooperation with end user representatives / trade associations to ensure that they are understandable for the ES recipients.

4.3 The need for increased knowledge on ESs

This point cannot be stressed enough and is vital for the success of ESs for communication in the supply chain. With 40 % of all respondents (61 % of SMEs) not knowing where to find any guidance on ESs, it is clear that effort is needed to make the already abundant guidance more well-known – and also more accessible in all languages. Based on the background of the respondents to this survey, it is anticipated that the real need in the market for basic information about ESs among end users and in particular SMEs, is significant. It could be presumed that the companies who have in fact responded, have more knowledge than many of those who have not responded – since one would need some kind of knowledge on ESs, at least know what they are, to understand the survey e-mail/information.

It is therefore important to emphasise the following: The survey results indicate that in addition to focusing purely on which information items should be present in an ES, there should still be a considerable focus on providing basic guidance and understanding among ES recipients.

Seen from the companies' point of view, they must have the overview over an extensive amount of legislation and requirements. Many are familiar with the "normal SDS" and that this contains the most important information relating to a specific chemical. They already use the SDS as a basis for local risk assessments which must be performed at each workplace.

For many, SMEs in particular, the ES represents a change to the well-known structure of the SDS. Without clear information on which information goes where, and without explanation of why ES information often is in a separate annex instead of being incorporated into the standard SDS body, many companies will be confused. There is a chance that important information from the ES goes unnoticed with the end user, i.e. the intended recipient of this information. The findings of this survey emphasise this point: Several of the respondents commented that they are confused regarding what information to find where, and that they would prefer the ES information to be integrated into the body of the SDS instead of having it as a separate annex.

It is not always a practical, or possible, solution to incorporate ES information into the main body of the SDS, but for those cases where this is possible (e.g. for simpler eSDSs with few uses and where the entire eSDS applies to a single substance), it is recommended to encourage incorporation into the main SDS body.

4.4 Summary of recommendations

Recommendations to compilers of ESs (manufacturers/importers)

1. Use available harmonised phrases when creating the ES. Ensure that all necessary information to describe the use, and necessary conditions to ensure safe use based on the inherent properties of the substance, is included.
2. Seek guidance or training on ESs. ECHA has published several, and useful, ES guidance documents and ES examples.
3. Avoid automatic translations (Google Translate or similar). Use officially translated phrases, or phrases translated by industry associations, where available.
4. Keep the ES short and simple. It should not contain all information from the CSR. Follow (proposed) harmonised templates as far as possible and ensure that the minimum requirements, e.g. as proposed in this report, are included.
5. Remember that the end user might not be familiar with the ES structure and terminology. Include a table of contents to ease the navigation through the ES, and include a list of abbreviations at the start of an ES.
6. For simpler ESs, consider incorporating the ES information into the main SDS body instead of making a separate annex. Keep in mind that the downstream user must comply with ES conditions.

Recommendations to recipients of ESs (downstream users)

1. Seek guidance or training on reading and understanding ESs.
2. Request an open dialogue with suppliers and ask them in case of uncertainty or confusion regarding received ESs.
3. Use industry/trade associations as a source of information, in addition to the authorities. Pay attention to any campaigns or calls for input and participate

actively. It is important that the opinions of SMEs are heard if the ES is going to succeed as a communication document in the supply chain.

Recommendations to industry/trade associations

1. Industry/trade associations can be a useful information hub for many companies trying to understand legislation which is common for the sector or branch. Industry associations have already put considerably effort into mapping uses and providing input to ES guidance. It is recommended to build upon this good foundation and think that national industry associations can be of good help when it comes to raising the general knowledge of the ES concept among their countries' SMEs in particular.
2. It is recommended that harmonised phrases for communication in ESs, and use descriptions from industry use maps, are translated to all EU/EEA languages and made easily available. This is important for the harmonisation/standardisation of ESs. It would lead to less uncertainties for those compiling the ESs as well as a higher degree of recognising familiar phrases for end users. The translation work could be done by the industry itself or as a joint effort between authorities and the industry. The main point is that the translations must be understandable for the end users.

Recommendations to national authorities

1. The requirements for ESs should be more clearly specified than they are today, e.g. as legal requirements. Today, the ESs are varied in contents and length, and this adds to the already widespread confusion around ESs, particularly among SMEs. A clear majority of the respondents welcome a harmonisation/standardisation of ESs.
2. The suggested list of minimum contents presented in this report and as discussed in Chapter 4.1, can be used as a basis for the further work among the national authorities on defining ES requirements. This list is already based on available guidance and examples, and the survey indicates that it is generally well received and supported.
3. It should be acknowledged that to SMEs in particular, but not exclusively, ES terms and phrases used can be difficult to understand. However, taking into account 1) the effort already made by industry associations to map uses and assign harmonised phrases for communication, and 2) that most respondents prefer the ES to be as short as possible, it is not recommended to address this by adding further explanations to the ES and hence elongating it. Instead, it is recommended to focus the further effort on increasing the knowledge and understanding within a broader group of ES recipients, including SMEs (see next point).
4. Information and guidance on ESs should be tailored particularly to SMEs and made available in all languages. This is crucial if the ES is to function as a communication medium in the supply chain. ES recipients need to know how to use the ES information in practice, and they need to understand why they need this document in addition to the standard SDS. There are many misconceptions and misunderstandings around this. It was not an aim of this project to assess how general ES information and guidance should be provided to SMEs, but since it became so clear from the survey responses that there is a major need of an increased understanding of ESs, it would be negligent not to point it out.

Authorities have an important role, and obligations, in providing information to those who are implicated by legal requirements. Ideally, guidance, awareness campaigns on the practical use of ESs, or similar efforts, should be based on a cooperation between authorities and industry representatives such as industry/trade associations, so that the guidance's usefulness can be ensured.

5 References

ECHA (2017): An illustrative example of the exposure scenarios to be annexed to the safety data sheet, Part 2: Example, June 2017. Reference no. ECHA-17-H-06-EN

ECHA (2018): Guide on Safety Data sheets and Exposure scenarios, June 2018. Reference no. ECHA-18-G-07-EN

ECHA (2019a): Workshop on REACH Review Action 3: Improving the workability and quality of extended Safety Data Sheets, 18 March 2019 – Summary of the feedback collected from the workshop participants and material used

ECHA (2019b): Downstream users' information needs under REACH – Summary of market studies in 2017–18, June 2019. Reference no. ECHA-2019-R-14-EN

ECHA (2019c): 2nd Workshop on REACH Review Action 3: Improving the workability and quality of extended Safety Data Sheets, 18 March 2019 – Summary report of the discussions. Final Version, 11 November 2019

ECHA (2020): REACH Review Action 3: Development Plan, Working draft v.3.2; 03.11.2020 (Annex to CARACAL Paper on REACH Review Action 3 – Current State of Play, 37th CARACAL Meeting, CA/60/2020)

ENES (2020): Mapping of the Conditions of use (input parameters) of the different tools for workers assessment, December 2020

NEXPO (2016): Checklist – Exposure Scenarios in REACH, A Nordic Group Project 2016. NA2017:906, ISSN 2311-0562

6 Appendices

Appendix I: [Survey on Exposure Scenarios – all questions and responses](#)

Appendix IIa: [Attachment to section 3 of the survey](#)

Appendix IIb: [Bilaga till del 3 av enkäten](#)

Appendix IIc: [Vedlegg til del 3 av spørreundersøkelsen](#)

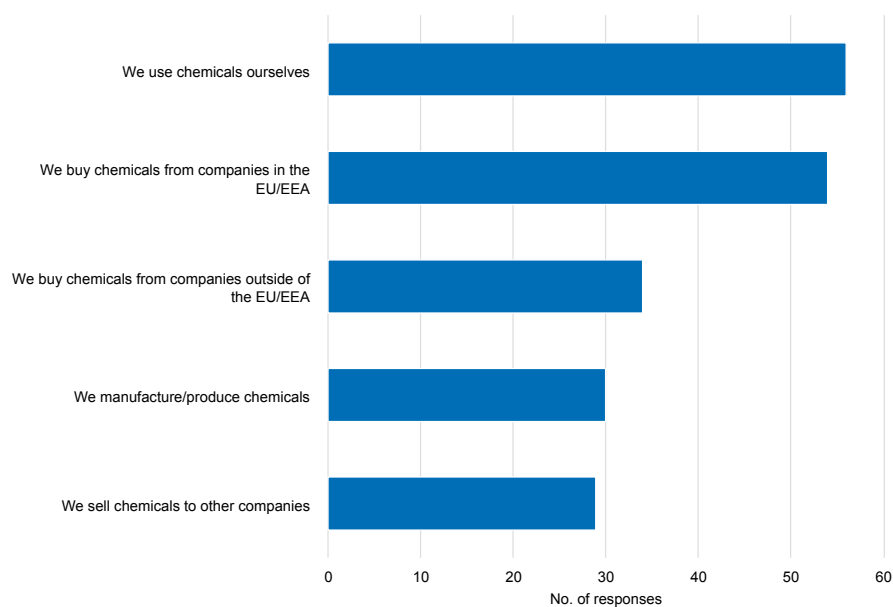
Appendix IId: [Vedlæg til del 3 af spørreundersøgelsen](#)

Appendix I: Survey on Exposure Scenarios – all questions and responses

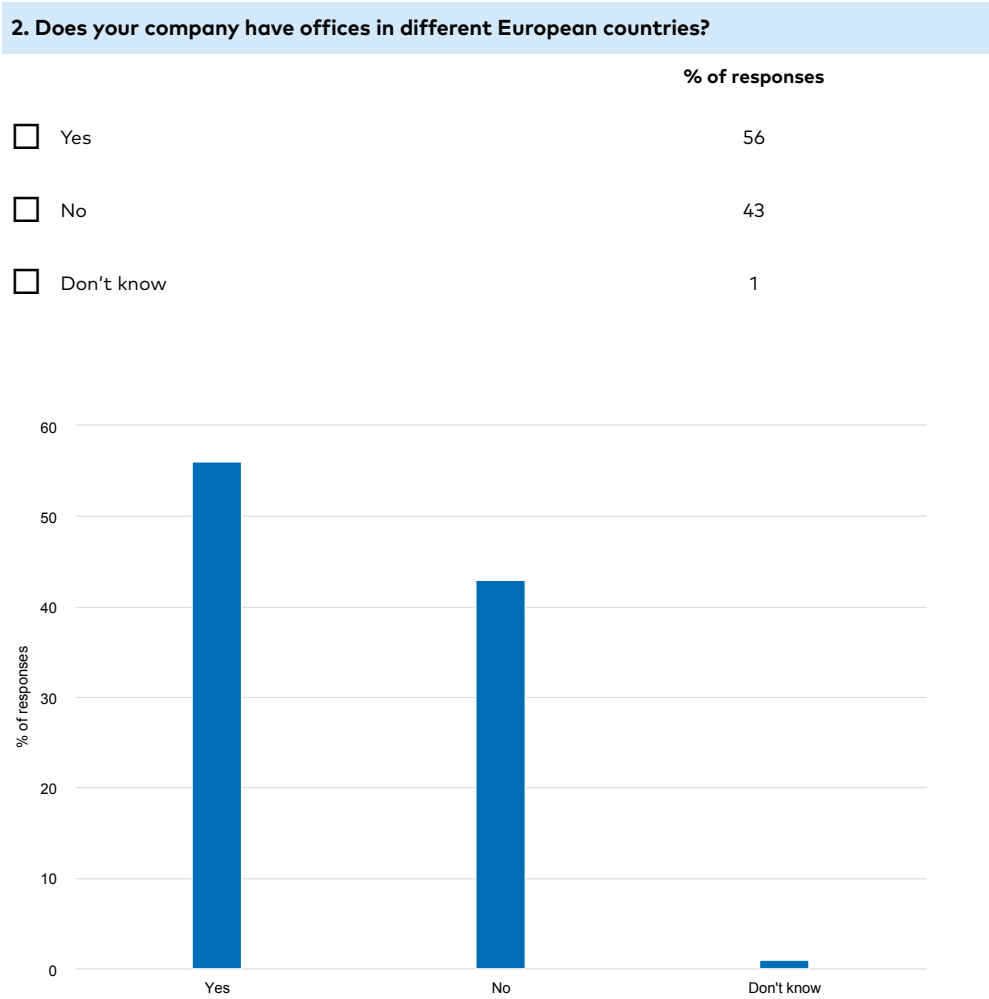
Section 1: General company background

1. Which of the following statements are true for your company? Please tick all relevant boxes.

	No. of responses
☐ We manufacture/produce chemicals	30
☐ We buy chemicals from companies in the EU/EEA	54
☐ We buy chemicals from companies outside of the EU/EEA	34
☐ We use chemicals ourselves	56
☐ We sell chemicals to other companies	29



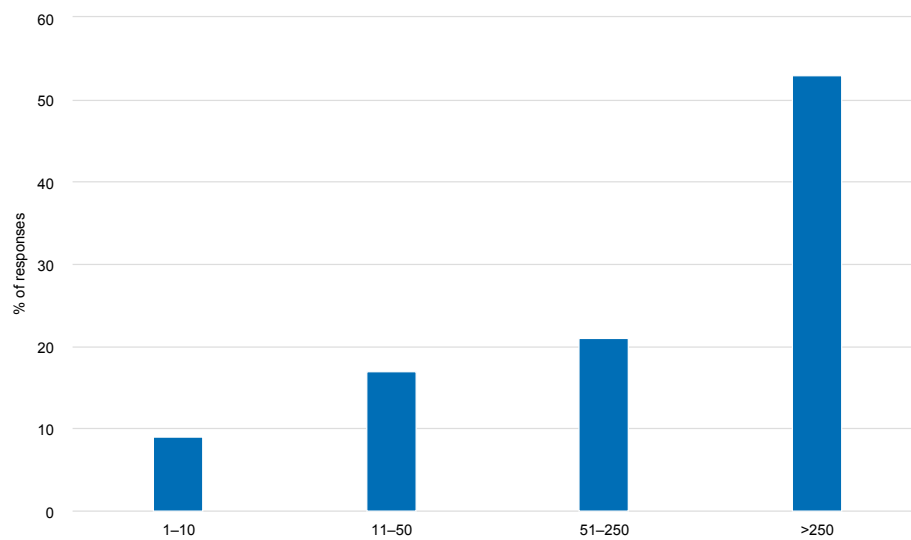
Comment to the chart: Options are sorted after frequency of responses. Multiple answers possible, the x axis represents the absolute number of responses.



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

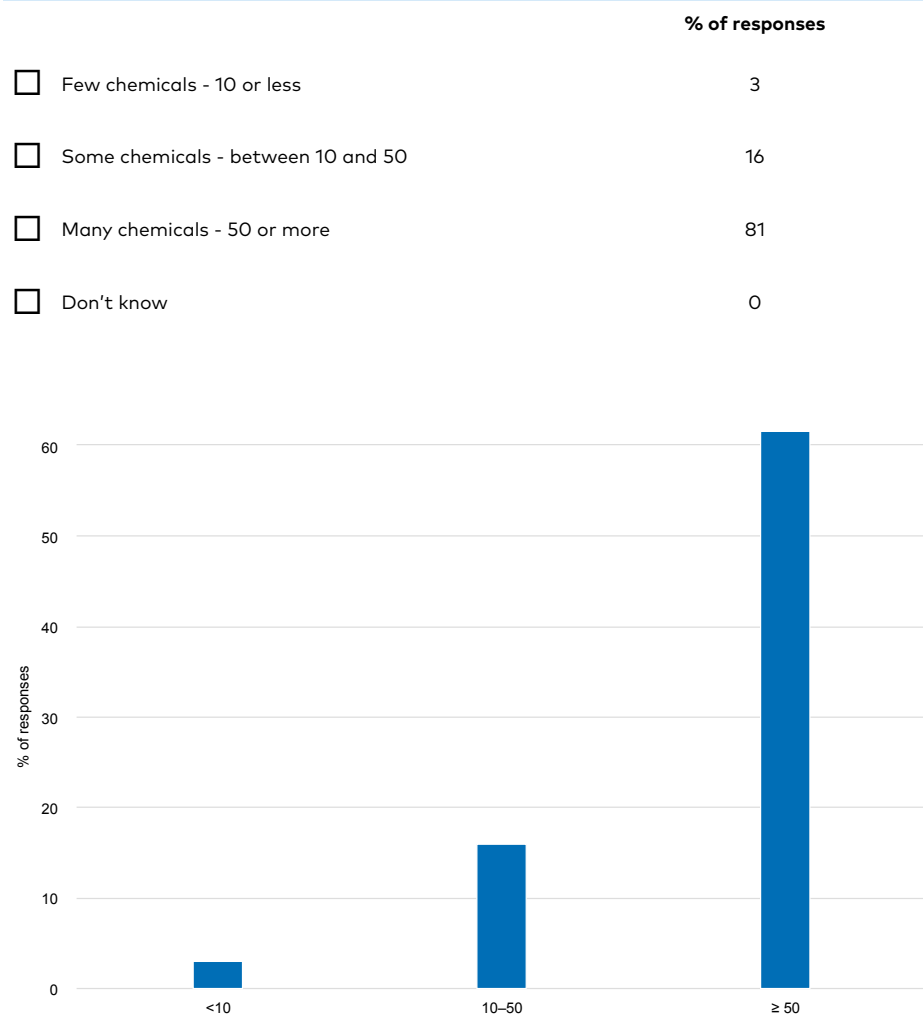
3. How many employees (approximately) are there in your company?

	% of responses
☐ 1-10	9
☐ 11-50	17
☐ 51-250	21
☐ More than 250	53



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

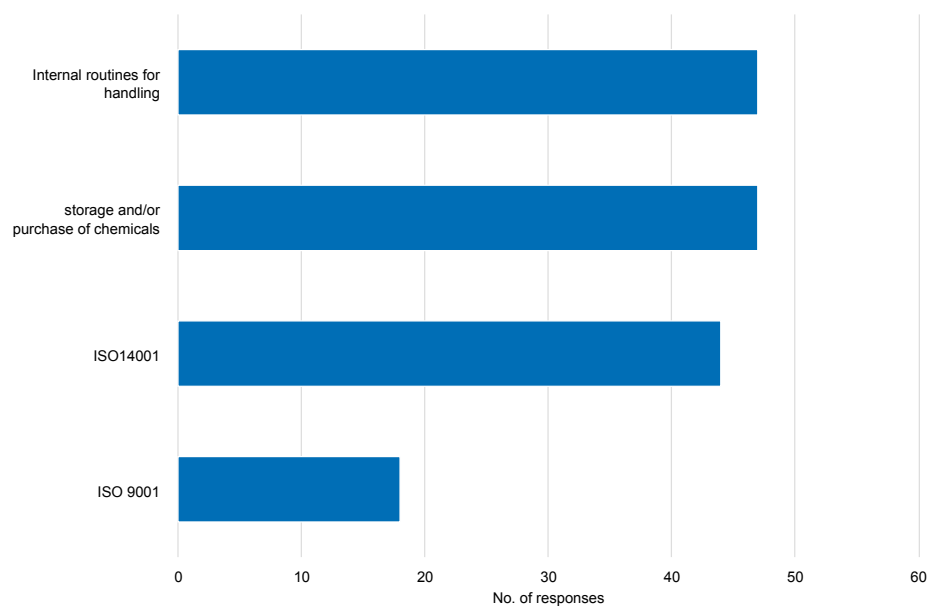
4. Approximately how many different chemicals (substances or mixtures) do you handle (produce/buy/sell/use) in 1 year?



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

5. Do you have any of this in place? Please tick all relevant boxes (leave open if not relevant).

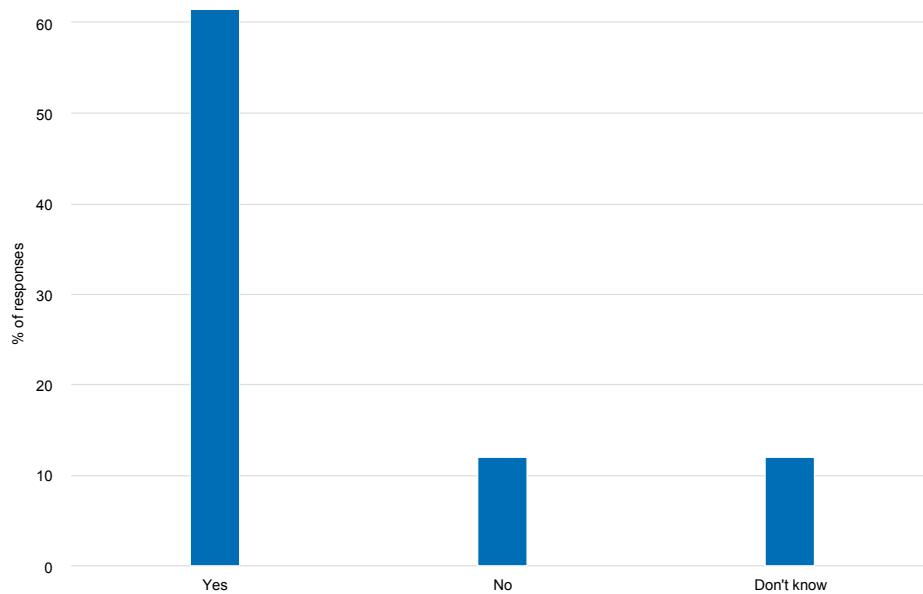
	No. of responses
☐ Internal routines for handling, storage and/or purchase of chemicals	47
☐ ISO 9001	44
☐ ISO 14001	47
☐ ISO 45001	18



Comment to the chart: Options are sorted after frequency of responses. Multiple answers possible, the x axis represents the absolute number of responses.

6. Have you received extended Safety Data Sheets (with Exposure Scenarios)?

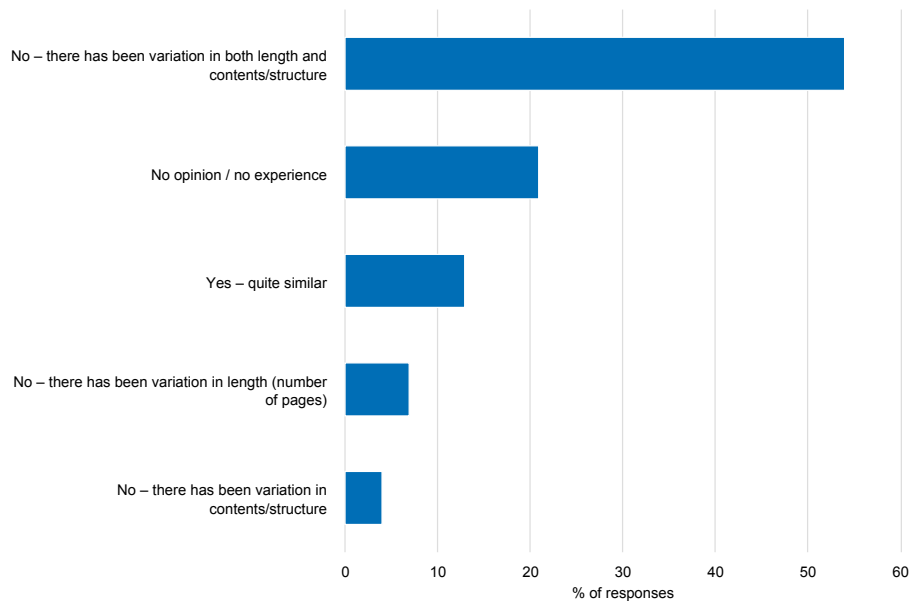
	% of responses
☐ Yes	77
☐ No	12
☐ Don't know	12



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

7. Have Exposure Scenarios you have received or seen elsewhere looked similar to each other?

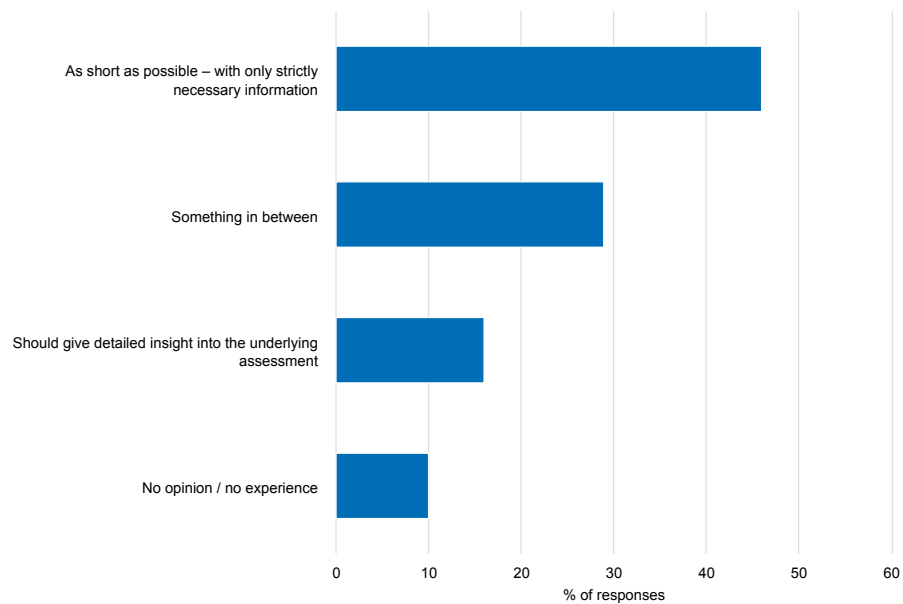
	% of responses
☐ Yes, quite similar	13
☐ No, there has been variation in length (number of pages)	7
☐ No, there has been variation in contents/structure	4
☐ No, there has been variation in both length and contents/structure	54
☐ No opinion / no experience	21



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

8. How much information do you prefer that an Exposure Scenario contains?

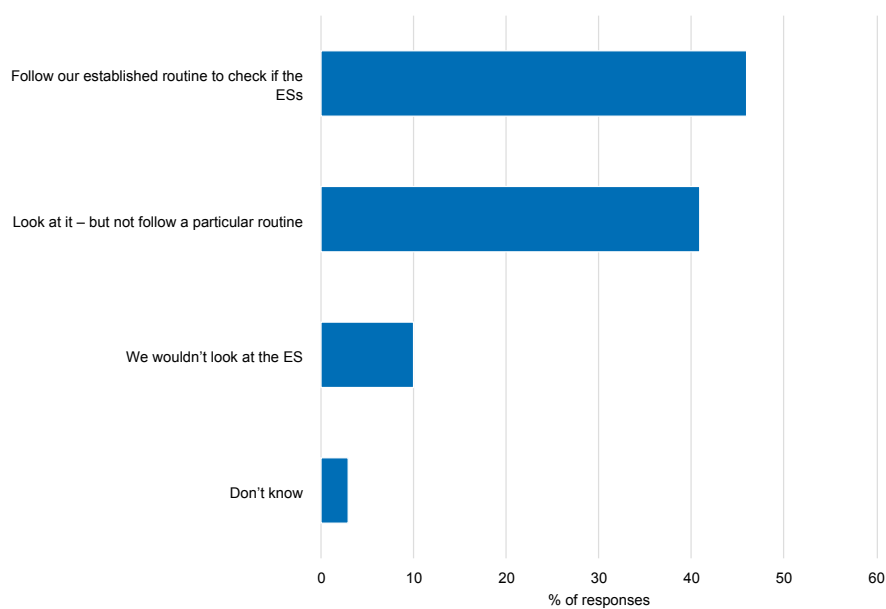
	% of responses
☐ It should give detailed insight into the underlying assessment	16
☐ It should be as short as possible, with only strictly necessary information	46
☐ Something in between	29
☐ No opinion / no experience	10



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

9. If you received a Safety Data Sheet with an Exposure Scenario now, what would you do?

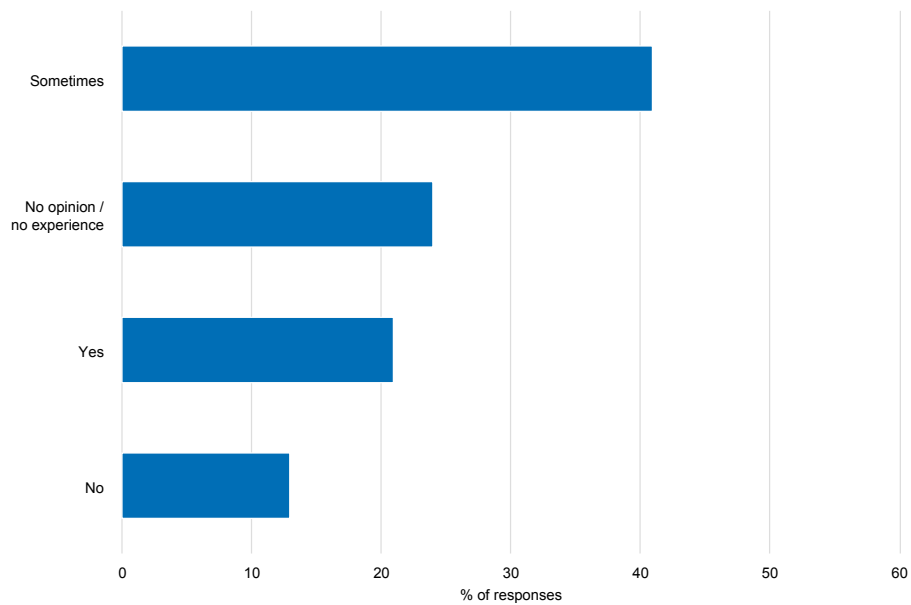
	% of responses
☐ Follow our established routine to check if the Exposure Scenarios cover our use of the chemical and if we are in line with for example risk mitigation measures	46
☐ Take a brief look and try to understand it, but we wouldn't follow any particular routine	41
☐ We wouldn't look at the Exposure Scenario	10
☐ Don't know	3



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

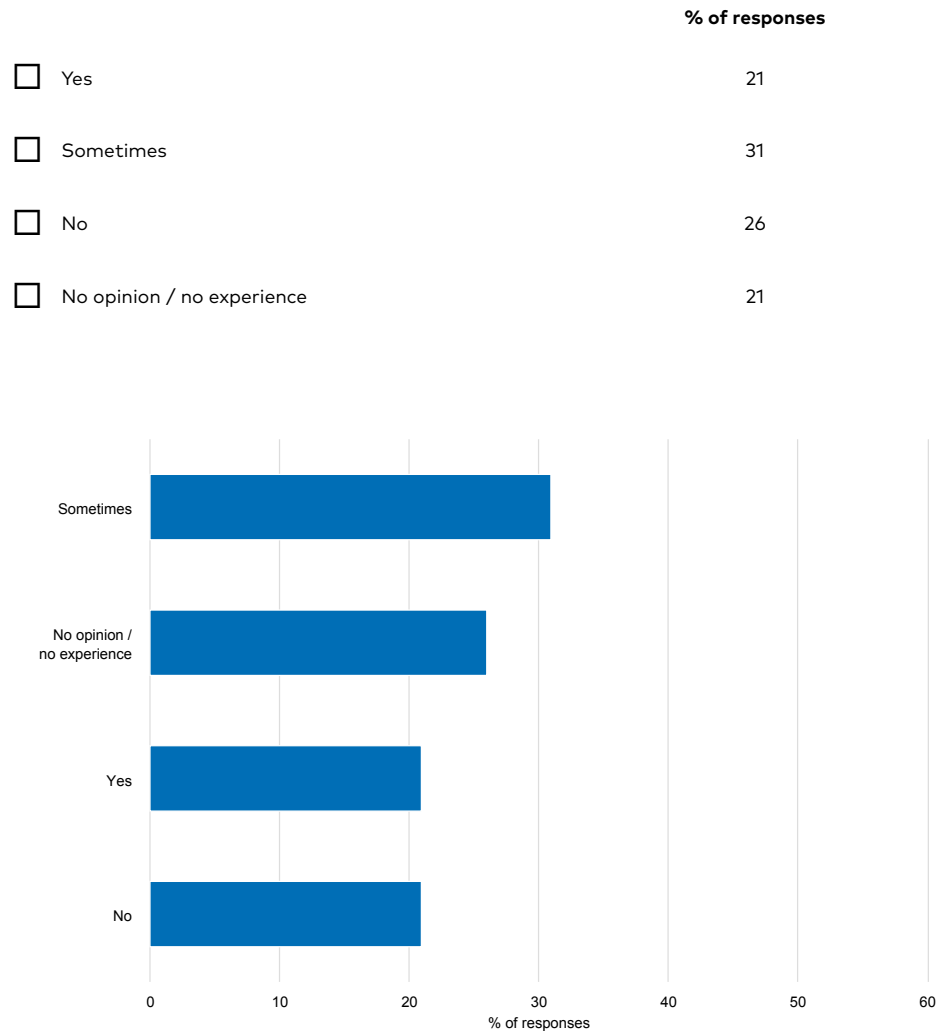
10. In your experience, do Exposure Scenarios contain relevant information for you?

	% of responses
☐ Yes	21
☐ Sometimes	41
☐ No	13
☐ No opinion / no experience	24



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

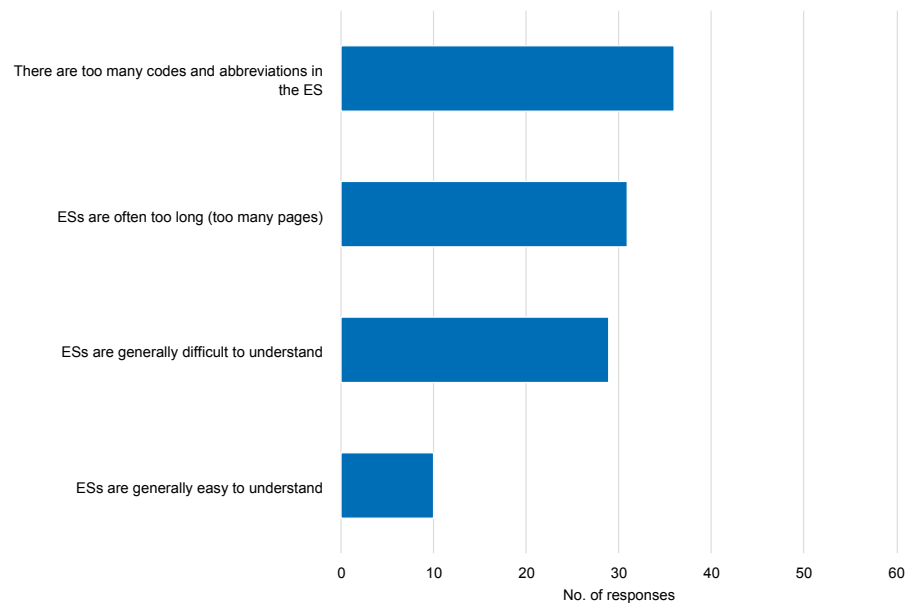
11. Some Exposure Scenarios are made up of many different scenarios. In your experience, is it easy to identify what is relevant for you?



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

12. Do you agree with any of these statements? Please tick all relevant boxes (leave open if not relevant).

	No. of responses
☐ Exposure Scenarios are generally easy to understand	10
☐ Exposure scenarios are generally difficult to understand	29
☐ There are too many codes and abbreviations in the Exposure Scenarios	36
☐ Exposure scenarios are often too long (too many pages)	31



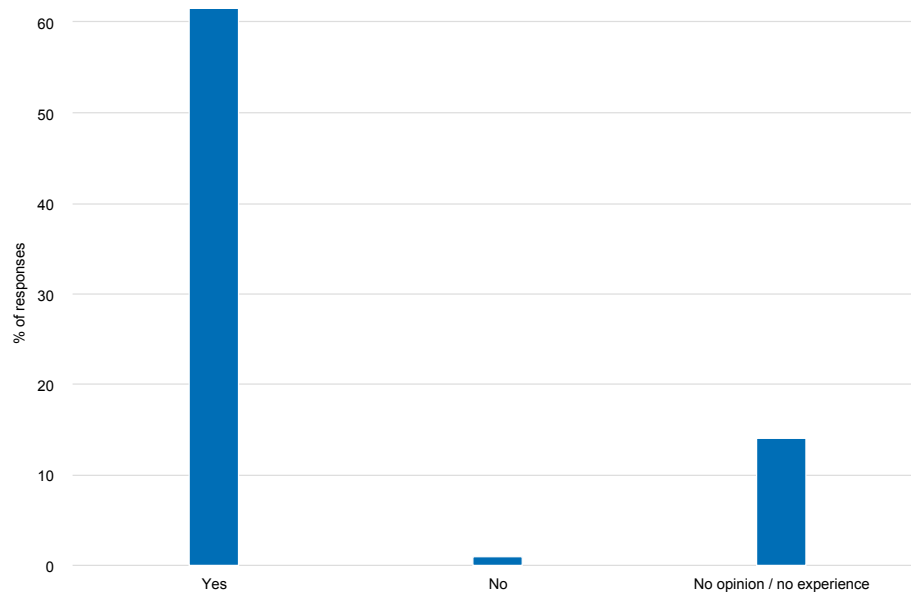
Comment to the chart: Options are sorted after frequency of responses. Multiple answers possible, the x axis represents the absolute number of responses.

13. Do you know where to find guidance on how to understand and deal with Exposure Scenarios?

	% of responses
☐ Yes	60
☐ No	40

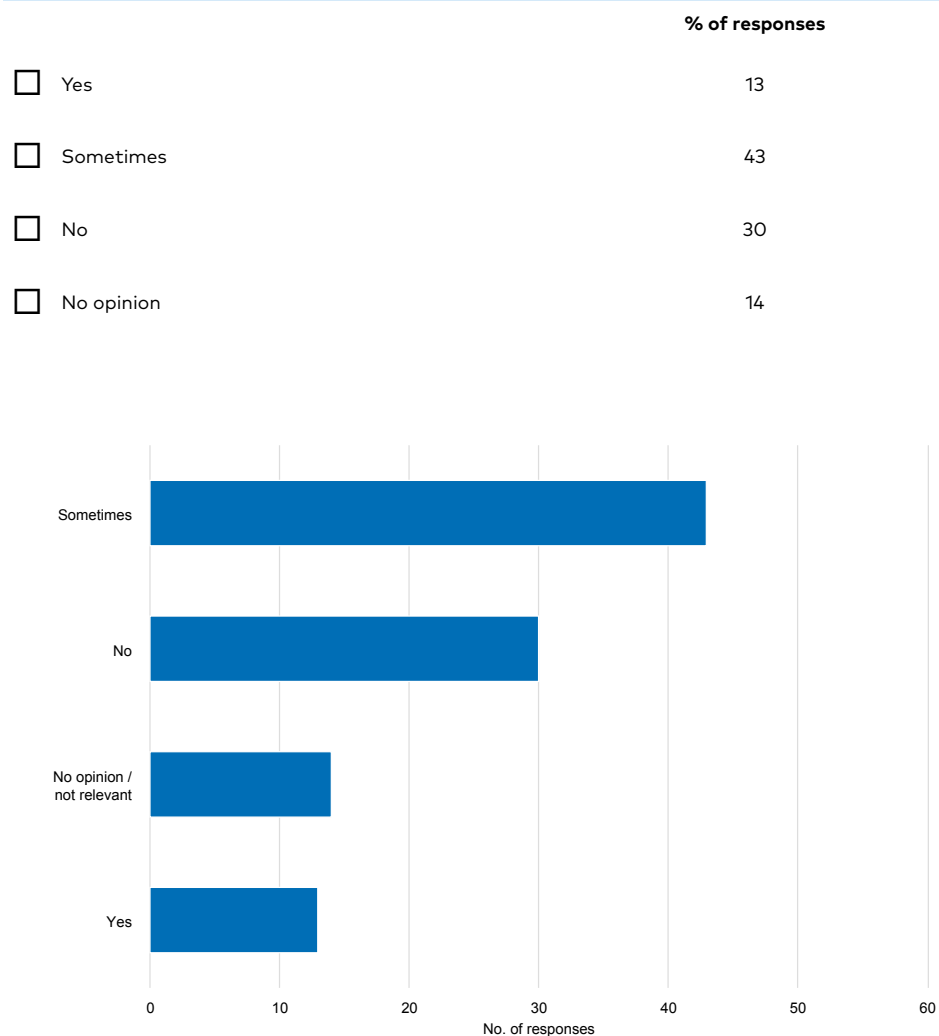
14. Do you think it could be useful if Exposure Scenarios looked more similar (more standardised format)?

	% of responses
☐ Yes	84
☐ No	1
☐ No opinion	14



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

15. Do you find it easy to communicate with your suppliers about Safety Data Sheets and/or Exposure Scenarios?

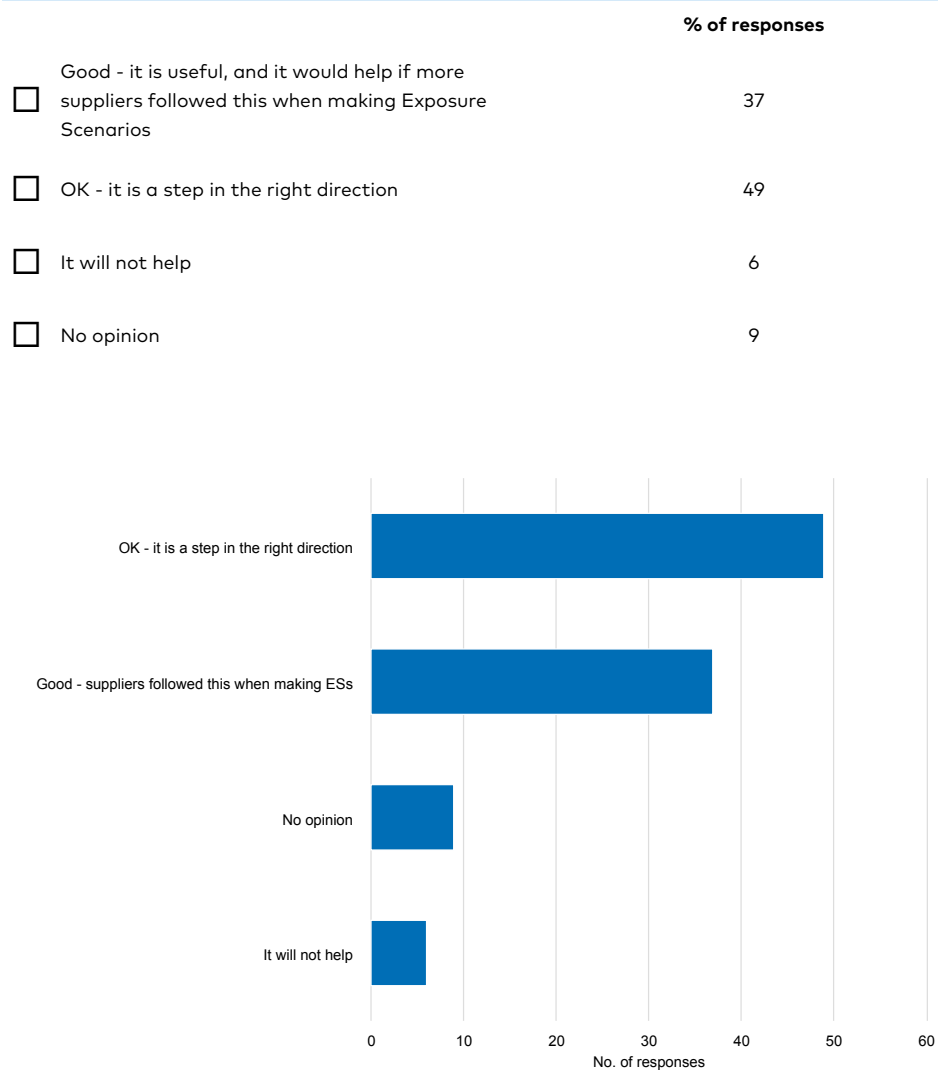


Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

Section 3: Questions to the suggested minimum contents of exposure scenarios

Please see the attachment – which can also be found here:
https://www.kiwa.com/4a6181/globalassets/norway/filer/attachment-to-es-survey_en.pdf

16. In the attachment, there is a suggestion for minimum contents of exposure scenarios, and two practical examples. What is your first impression?



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

17. If you have specific comments, please write them here:

A fixed solution should be found in case multiple substances belonging to a mixture need to have ES. It would be preferred to only have 1 understandable ES for all, but not easy to create (even with possible LCID-methodology)

Some ES have repeated almost identical texts for each PROC. Write them together in one text.

The list of abbreviations should not be longer than in the example. If longer, it belongs elsewhere in the SDS.

It should be as practical as possible, with little use of complicated words and codes

It is good to harmonize structure but still too large

This is the same output that you get from CHESAR currently, nothing new.

It should be more user-friendly otherwise people won't use them. In general ES information requirements should be generally entered in the main body of the SDS rather than having an additional Annex.

It should be user friendly, otherwise people won't use it. As much information as possible should be contained within the body of the SDS, rather than creating an additional annex

Important information is lacking. For example seveso category, this is important for a company affected by Stortulykkeforskriften (Regulation on the control of major-accident hazards).

Content of ES is regulated by REACH and authorities. Current ESs are quite similar to the suggestion and I haven't seen too much extra information on ESs. Sticking to a minimum content could limit the availability of information that is important to us.

The concept looks good, when you only have one use and a couple of procs. It gets very complicated and unwieldy for a substance that has many uses and could be mixed in many different ways at the professional use. This should be done by the formulators, but not by the manufacturers. It is not possible for manufacturers to know all possible permutations that formulators can have. From the scaling perspective, yes, it would be useful to have a guidance and point to it. Formulators would benefit of the guidance and manufacturers can also provide justification on why the substance is likely not to present any risk once it is diluted (in cases where exposures could be a concern) Some other general observations: Exposure scenarios may be clear for industrial hygienists who are experienced. They might be too complicated for the worker who is doing the work. This is why we have occupational health professionals in the field assessing the exposures specific to the conditions and then requiring the correct RMMs when needed. We have our own internal process for RMM determination and implementation based upon review of the SDS. People who are unfamiliar with exposure scenarios may not know where to find additional guidance as needed to understand and deal with Exposure Scenarios. Regarding the minimum contents of Exposure Scenarios and standardizing them to look more similar to each other, more standardization would be better, but the issue is what is the information to be provided. In order to cover all potential situations, the scenarios need to be as generic as possible. There is still a step at the site or for the formulator to adapt to the reality at their facility and then for the use of their product. If you start harmonizing at that level, then the SDS will become even longer.

For a normal end user and a company not producing chemicals, only using them for maintenance of equipment, engines etc, ES have «no point». It is just filling in the SDS. I think this applies to 70 % of the users, maybe more. It should absolutely be a requirement, but it should be in a separate annex.

In example 2 there is a lack of maximum use tonnage (kg/d) per site (Msafe). This is the relevant tonnage to be compared by company uses. It is furthermore not clear if SPERCs have been applied. The release factors are needed to compare with SPERCs under ERC5 for scaling options.

RMMs are already covered by general rules in section 8 in SDS.

Way too much information for us, we use only small amounts of each chemical...

It's still too complicated with codes and terms that need to be explained. Otherwise you need expert knowledge, or you need to know where you can find translations and explanations. Definitions and explanations of what this means is needed.

Is it possible to adjust the language more to the end users? It's still a little vague some places and technical other places.

Very complicated. It should be structured in categories so that you can easily find what you need without having to read the whole document.

ES are too complicated to understand by non-experts, HSE services in plants need help from experts to understand. ES must be short, readable and understandable by non-experts

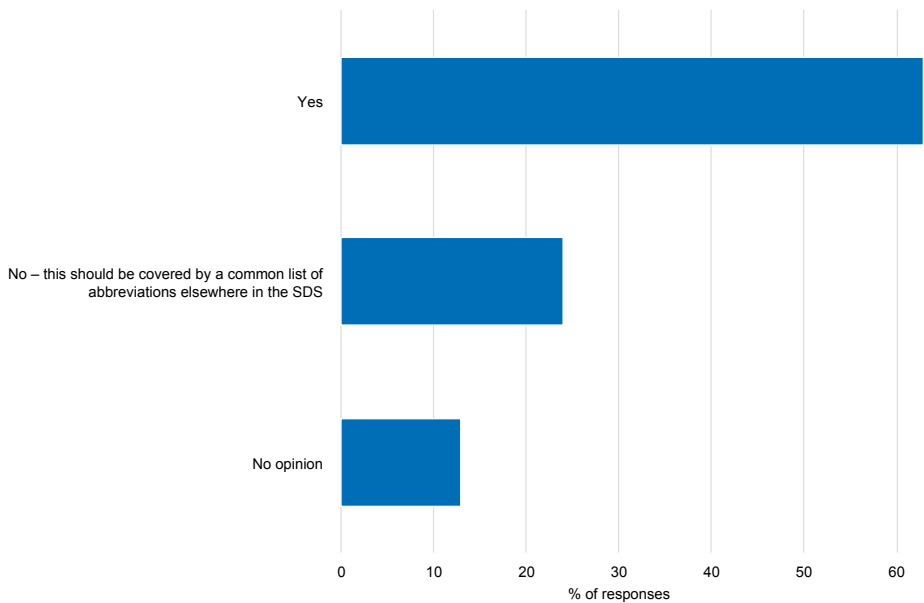
Better than the 197 pg exposure scenarios we have received!

RCRs should be indicated

Need to know more about exposure scenarios in order to understand all these questions.

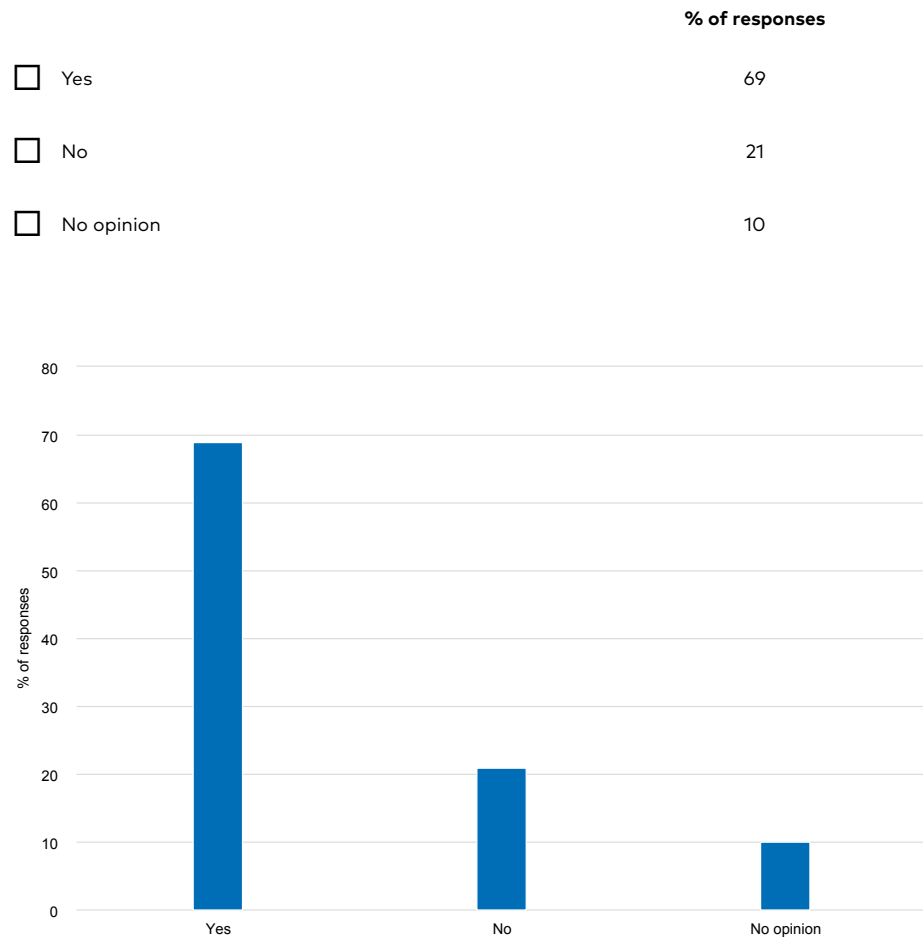
18. Do you think there should be a list of abbreviations at the start of an Exposure Scenario (PC, PROC, ERC etc.)?

	% of responses
☐ Yes	63
☐ No, this should be covered by a common list of abbreviations elsewhere in the SDS	24
☐ No opinion	13



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

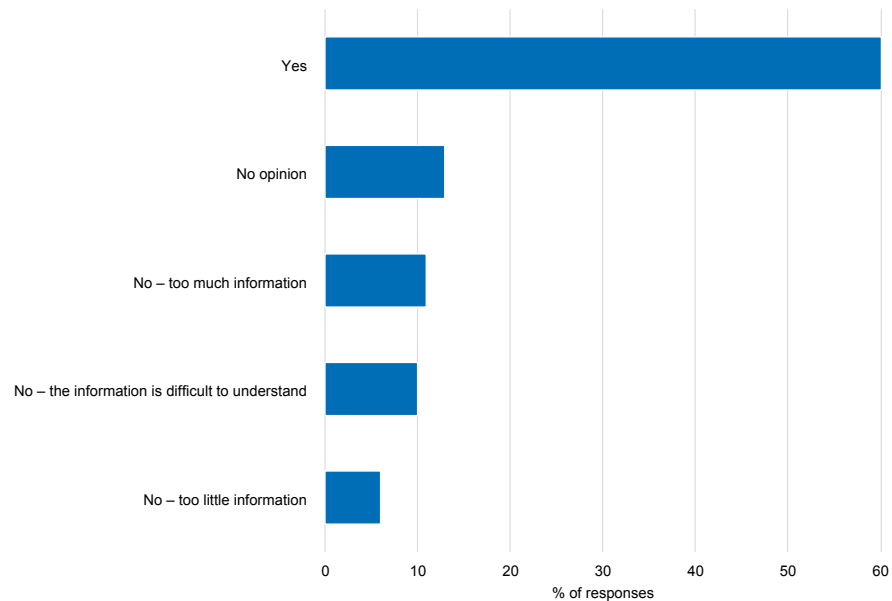
19. The title of one of the example scenarios is "Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); small scale application of adhesives, sealants or primers." Do you think such a title describes what the scenario covers in an understandable way?



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

20. Look at the suggested minimum contents of “1. Title Section”. Feel free to look at the examples as well. Does this give a clear picture of what the scenario covers?

	% of responses
☐ Yes	60
☐ No - too much information	11
☐ No - too little information	6
☐ No - the information is difficult to understand	10
☐ No opinion	13



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

21. If you have specific comments to "1. Title Section", please write them here:

We like the use of SU22, it is easy to understand. But it is actually not part of the ECHA guidance anymore. Now the designation is "Buildings" or "Machinery" etc."

The title is good and provides enough information for the exposure scenario presented. When looking at it as an individual scenario, makes sense and clearly describes the scenario. The issue is that by making it so specific, we might end up with an infinite number of permutations (smaller, as less procs will apply to each), that would make a manufacturer SDS too long. The issue is how many of these scenarios you have to have as a manufacturer of a base substance that has multiple applications? This would turn the SDS into thousands of pages and is likely not to cover all uses unless formulators communicated all of those to the manufacturers. If this is to be done at the formulator level and those who know the use of the substance, yes, this is the level of detail to be used. More guidance should be provided to formulators to scale and describe those ES in their SDS, but not at the manufacturer level. Better training and understanding how to do SDS and scaling (engage occ health professionals) would be key for this

I ES1 in the field "Use name" it says "small scale application". In "Contributing scenarios, Environment" it says "wide dispersive use". Are these examples of use not in line with "small scale"? Didn't understand the connection between those terms. How is "wide dispersive use" defined?

A list of definitions would be helpful, with an explanation of the terms used.

Descriptions have to be simple, so that someone without expertise can read and understand the document.

The minimum contents and the following example do not match with each other. Title section should give clear and fast guidance to find the relevant scenarios.

I have nothing to add.

The SU mentioned is not relevant because it will restrict the ES only for that specific SU.

Industrial Gas Business for example beside other smaller businesses are not properly covered (PROC, ERC, etc.).

I think it works for this example, but we have issues within our industrial gas business (finding relevant ERCs, PROCs etc.)

for the environment we suggest to use a SPERC, that is available via FEICA use map

There have to be more clear definitions of each process, use sector, and contributing scenarios.

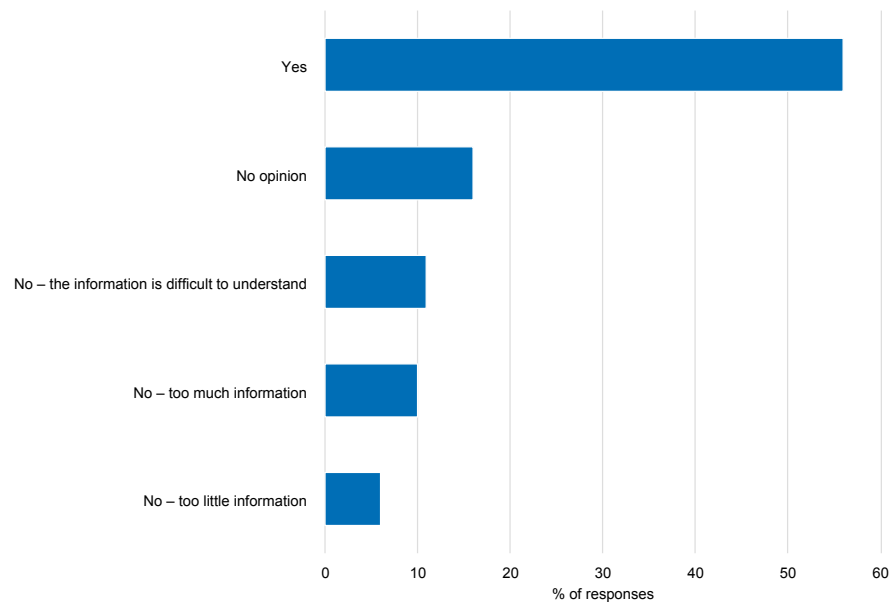
This can be difficult to understand for end users.

The title section should only contain a use title and the Life Cycle Stage. The use descriptors are useless (e.g. PC and SU are not part of the worker risk assessment, and should therefore not be included. and they don't mean anything to the user.) If the identified use is "use in coatings" LCS: Industrial. would that mean that I cannot use it as a coating if I don't find an applicable SU? If so, how is the SU part of the risk assessment? If an option is chosen "all SU" would that be better?

Wide dispersive indoor use resulting in "including into or onto a matrix" (??)

22. Look at the suggested minimum contents of "2. Conditions of use affecting exposure". Feel free to look at the examples as well. Does this give a clear picture of what is needed for safe use?

	% of responses
☐ Yes	56
☐ No - too much information	11
☐ No - too little information	6
☐ No - the information is difficult to understand	11
☐ No opinion	16



Comment to the chart: Options are sorted after frequency of responses. Single answer required, the x axis represents the percentage of responses.

23. If you have specific comments to "2. Conditions of use affecting exposure", please write them here:

Skriv konkret hva som er kravene man må overholde.

Rubrikerna för varje avdelning är svåra att förstå även om innehåller kan vara förståeligt.

"Covers use up to", "Covers concentrations up to", "Covers use at ambient temperatures" – what covers? Does it mean that the information only applies to these conditions? Duration of exposure of 365 days/year – you don't work 365 days a year, what if you work 67 days? Mange questions arise about what this really means.

MSafe is missing

Concentration and time are important aspects in a risk assessment. Evaluation of RMMs at site is the most important.

Some phrases mentioned are already in the SDS of the substance. (do not empty into drains... Dispose of in accordance with local legislation,...)some other phrases are not relevant (sewage plant connection ?)

Environmental exposure: whether the downstream user's use is covered. If it is only the goal to see if use is covered, then there should be clear criteria for that. What if the use is a bit outside the boundaries, is it then covered or not. Would it not be better to focus on parameters that can be influenced? worker: amount used is not part of a risk assessment tool, so not relevant at all. Neither is frequency. Measures to be taken is the most important one.. However, we already control exposure as required by the OSH legislation. the ES information could be conflicting with our own internal workplace risk assessment. As the OSH workplace risk assessment is specific for the workplace, that is considered the better option.

Isn't it already a repetition of section from the main body of the SDS e.g. PPE Section 8

The ES repeats a lot of what is in the SDS already. e.g. PPE requirements which would already be in section 8

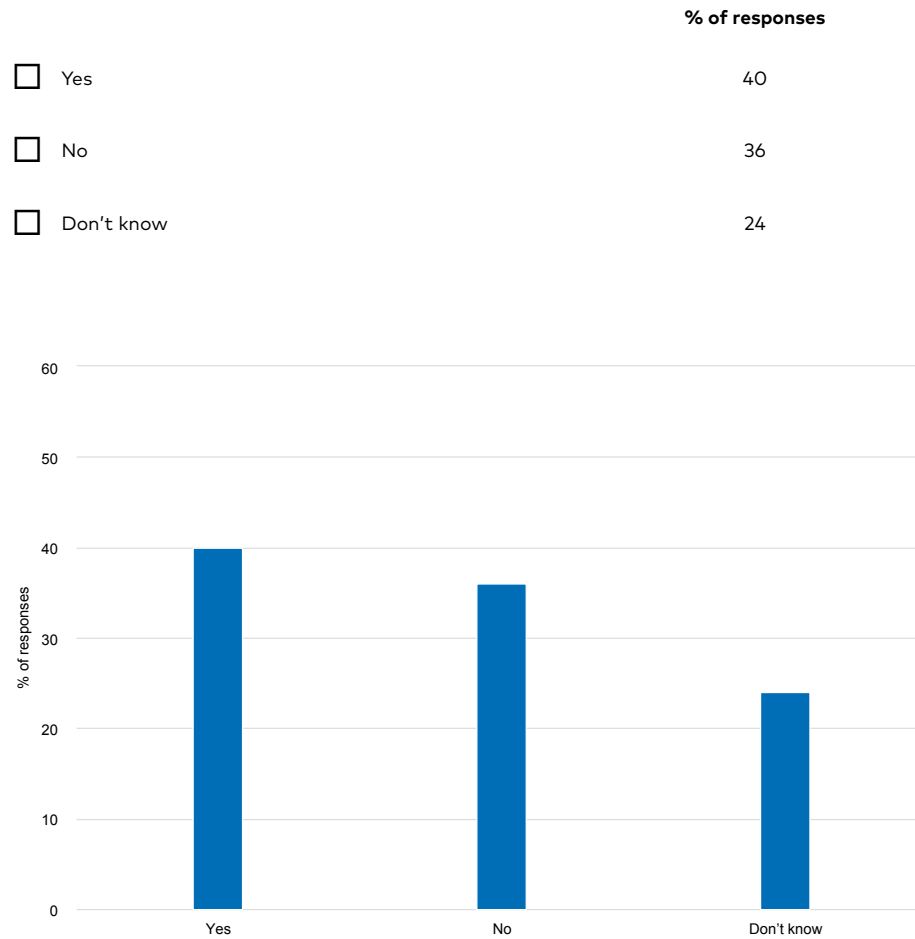
The information here is similar to what is already in the SDS. Providing harmonization in the organization of the SDS would help in better understanding of it so people are used to a single system. However, it is important to streamline information, adding more and more scenarios to the suppliers will only make it more difficult to go through the SDS and identify the right controls, when needed.

Significant repetition with the body of the SDS

I have nothing to add

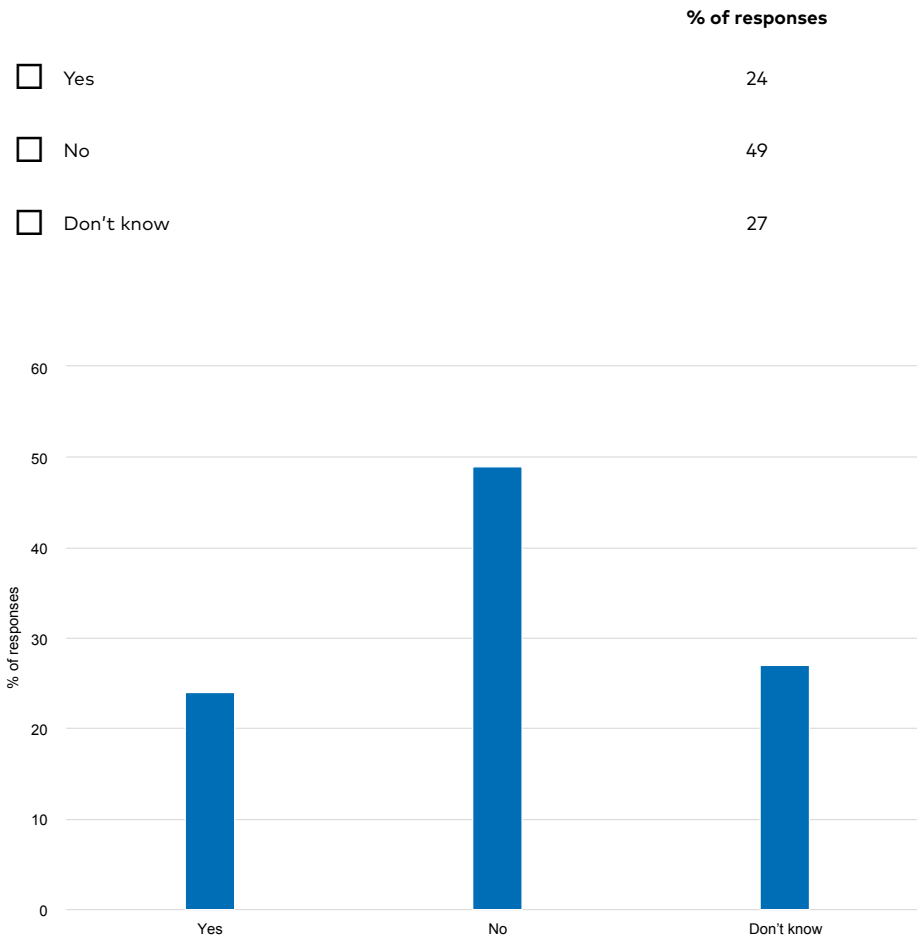
It is too complicated to understand, contains many repeated information. it must be concise and not a copy of CSR, common information between different ES suitable to add in the header.

24. From your own experience, have you ever needed to use exposure estimates from the underlying assessment (normally presented in Section 3, "Exposure Estimation")?



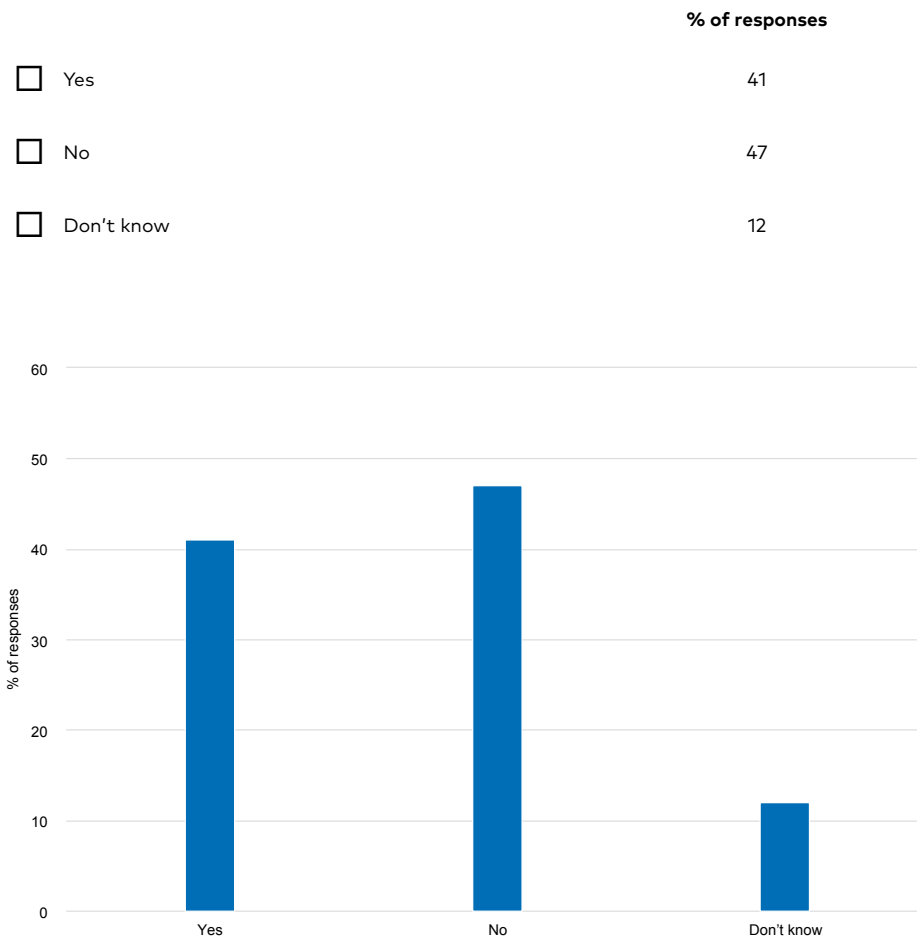
Comment to the chart: Single answer required, the y axis represents the percentage of responses.

25. Have you ever needed to do scaling to find out if your use is covered by the Exposure Scenario?



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

26. Did you find the scaling guidance you needed in the Exposure Scenario?



Comment to the chart: Single answer required, the y axis represents the percentage of responses.

27. If no, what was it you did not find?

The answer is both yes and no, this can vary

Specific scaling guidance. However, we found the ECHA guidance that explained the scaling.

We would have liked to know whether we could use linear scaling (simple calculation) or whether it was necessary to use ECETOC TRA

Data for scaling

There is not a clear reference which norm or tool to do the scaling

the calculus, the supplier was contacted to verify our operation modi and execute the calculation to check if the risk ranking was below 1.

Far too complicated for the common man. There must be a simpler way to describe and calculate.

28. Finally: If you have any other comments, feel free to write them here:

While we see in your examples that Exposure Scenarios are difficult to understand for substances, it is still unclear how to use those to create ES for mixtures...

The use is different. A toxicologist has other needs than a user of a chemical.

especially for scaling the release factors are relevant to know (some suppliers use ERC with non-default values)

It is very helpful to get the RCRs and the risk assessment models (e.g. ECETOC-TRA, ART, ...) used for demonstrating safe use.

On the topic of scaling, for our own internal processes, scaling of RMM's is done according to the conditions in which the substance is used/handled. Additional comments regarding the need to use exposure estimates from underlying assessments, normally presented in Section 3 on Exposure Estimation: As a manufacturer, we do not need to use these exposure estimates. As an industrial hygienist on site, we also would not use these exposure estimates as we follow site procedures. I think it might be useful if a formulator sees how low the RCR is and recognizes that by further diluting the substance there will be even less controls needed. Other final comments on this survey: Thank you for initiating this effort. Harmonization of SDS (and even requirements for RMMs) is very useful and might streamline the communication through the value chain. It is important to provide guidance and tools to those who are to generate the exposure estimations and determine the right RMMs to use. This should be done by people who are knowledgeable of the substances, the uses, and the operating conditions. This is why downstream users should be provided the tools and training to do this and understand how the generic exposure scenarios generated by the suppliers apply to them, so they can modify and generate the scenarios that are representative to their own clients.

We welcome a more standardised approach to eSDS's. Another comment is: some eSDS's have information on more than one substance. This is difficult to use as a downstream user.

I think that this is still a complicated way for the description how to use a product in a safe way for the "common" professional user

Harmonization of ES layout would be the most useful enhancement to enable an efficient processing of this big amount of info.

Thank you very much for your initiative.

scaling is too complicated and difficult to use by non-experts.

Use clear definitions. The information must be specific, so that it becomes very clear for those who need to read and use this information.

The ES attached to a SDS has no added value to an existing, well written SDS. All ES are much too complex, unclear and not understandable for any end user. Lots of information is repeated several times in several paragraphs of the same ES. We propose to include all relevant information in the SDS and make the requirement for ES obsolete. From our point of view, the ES is not an appropriate tool to improve the safety behaviour of the end user, or to protect the environment.

<https://www.arbeidshygiene.nl/-uploads/files/insite/opinierend---e.-tjoe-nij-d.-noij-en-p.-van-de-sandt.pdf>. This publication reports ES checks in practice (it is in Dutch, but google translate might be of help).

At least a more harmonized format would provide improvement, required data and information should be publicly available (dossier data), ES are too complex so too difficult, provided data like water flow data are rely use, does end users rely read ES....

We support having a harmonised format, as that would improve data collection and customer comprehensive. We often have to chase suppliers for the ES, they don't send them out with their SDS, or have them available on their websites. This means we in turn struggle to provide ES to our customers.

ES only exists in European countries. The rest of the world manage fine without them. I think the

information in normal SDS is enough.

It would be useful to be able to combine different contributing scenarios if the conditions and controls are the same for each. Assumed conditions and controls should be found in one place, not like in the examples that give some information on ES but ask you to refer to SDS for further specification.

ES need to be much easier to understand and use in practice. Also, the legislation needs to be clarified regarding who need to make ES, how they should look and which rules apply from a working environment perspective.

The term Exposure Scenario was completely new to me, I had to find out what it is before I could answer. Thank you for the survey and the information it has provided.

Need more understanding of exposure scenarios to be able to answer precisely.

Appendix IIa: Attachment to section 3 of the survey

Survey on exposure scenarios in safety data sheets

Contents

- Suggested minimum contents of an ES (Annex to SDS)
- Example 1: ES for the fictional substance "Diisocyanate X"
- Example 2: ES for the fictional substance "Triamine X"

In this attachment you will find a proposal for what an exposure scenario (ES) should contain as a *minimum*, and two examples of how this can look in practice. In section 3 of the survey, you will find some questions connected to this.

Both examples represent annexes to an SDS.

Example 1 contains two ESs, example 2 contains one ES.

NB! Format/layout is not an important part of this survey. We kindly ask you to focus on the contents, not the presentation.

GENERAL INFORMATION ABOUT THE SURVEY

The aim of this survey is to collect experiences and opinions from recipients (current or future) of safety data sheets with exposure scenarios (ES). Your responses will help us get a picture of whether ESs "work" or not for downstream users, and which information it is important that they contain. This is your chance to influence!

What will we do with your responses? We (Kiwa Kompetanse) will summarise the responses in a report. This report will be sent to the working group for chemicals, within the Nordic Council of Ministers, with representatives from the chemicals authorities in the Nordic countries. They have initiated this project. They want feedback from the companies, in order to have a good basis for their further work with ESs – for example on standardisation or minimum requirements for contents.

We would very much like to receive your response! Nothing is right or wrong here, we want honest feedback.

The survey is divided in 3 sections, and will take up to 20 minutes, depending on how detailed a response you want to give.

Section 1: General information about the company

Section 2: Experiences with safety data sheets and ESs

Section 3: Questions to the suggested minimum contents of ESs

The survey is anonymous. Responses are not linked to individuals or companies.

The deadline for responses is Wednesday 5 October.

Questions about the survey? Direct your questions to Solveig Aamodt at Kiwa Kompetanse: solveig.aamodt@kiwa.com

Thank you – your contribution is valuable!

Suggested minimum contents of an ES (Annex to SDS)

General info

Substance identification: Substance name, CAS no., other necessary identification

Short title: Should give a general understanding of what the ES covers

Table of contents: If several ESs are included in the same Annex

List of abbreviations: Brief explanation of the abbreviations used in the Annex

1. Title section (for each ES included in the Annex)

Use name: Short description of the scope of the use – from sector use maps where available.

Processes, tasks, activities covered: A description which is a little more specific.

Life cycle stage:	From REACH guidance R.12. Not necessary if already given in title.
Product categories (PC):	
Sector of use (SU):	From REACH guidance R.12. All contributing scenarios within the ES: PROCs (workers) and ERCs/SPERCs (environment)
Environmental release categories (ERC):	
Process categories (PROC):	

2. Conditions of use affecting exposure (for each contributing scenario)

2.1 Control of environmental exposure: Name of ERC

Product characteristics:	Only what is relevant in order to see whether the downstream user's use is covered. At least daily amount used or emission days per annum should be included.
Amount used:	
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment. Should contain relevant measures to control releases to air/water/soil, and waste treatment.

2.2 Control of worker exposure: Name of PROC

Product characteristics: At least the substance concentration covered by the ES. Characteristics listed in other parts of the SDS need not be repeated here.

Amount used:	Most importantly: how many hours per day of activity the ES covers.
Frequency and duration of exposure:	

Technical and organisational conditions and measures arising from the exposure assessment.

Conditions and measures related to personal protection, hygiene and health evaluation: Necessary personal protective equipment, for safe use.

Other conditions affecting workers exposure: For example indoor/outdoor use, temperature conditions.

3. Exposure estimation

Calculated exposure values: Not absolutely necessary in all ESs. Where included, it is often presented as a table with exposure values and risk characterisation ratios (RCRs) for each contributing scenario.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Information from the supplier on how you can do scaling, in other words how you can see if you still have safe use if you do not follow all conditions listed in section 2. Must include (or refer to where you can find) information on scaling method, scalable parameters and the boundaries of scaling.

Example 1: ES for the fictional substance "Diisocyanate X"

Substance name: Diisocyanate X

CAS number: 1234-56-7

Version number and date: 12.09.2022, v.1

Contents

- ES 1: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); small scale application of adhesives, sealants or primers
- ES 2: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); large scale application of 2- or multi-component reactive adhesives

List of abbreviations

PC	Product Category	Type of chemical product (mixture) a substance is used in
SU	Sector of Use	Sector / market area / industry segment
PROC	Process Category	Use description important for worker exposure assessment
ERC	Environmental Release Category	Use description important for environmental exposure assessment
SPERC	Specific ERC	Detailed description of environmental release, allowing refined assessments

ES 1: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); small scale application of adhesives, sealants or primers

1. Title Section

Use name	Professional small-scale application of adhesives, sealants or primers	
Description of process/activity covered	Small scale application of adhesives, sealants or primers indoors, with good general ventilation (typical application is 0.3–1 m ² /h)	
Sector of Use	SU22	Professional
Contributing scenarios, Environment	ERC8C FEICA SPERC 8c.3.v3	Wide dispersive indoor use resulting in including into or onto a matrix Widespread use of non-volatile substances in adhesives / sealants - indoor
Contributing scenarios, Worker	PROC10	Roller application or brushing

2. Conditions of use affecting exposure

2.1 Control of environmental exposure: Wide dispersive indoor use resulting in including into or onto a matrix (ERC8C, FEICA SPERC 8c.3.v3)

Amount used, frequency and duration of use	Continuous exposure: 365 days/year
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Technical and organisational conditions	Connection to municipal sewage treatment plant is assumed. Do not empty the product into drains / surface water / ground water. Dispose of in accordance with local legislation. For further specification, refer to section 13 of the SDS.
2.2 Control of worker exposure: Roller application or brushing (PROC10)	
Product (article) characteristics	Covers concentrations up to 1 %
Amount used, frequency and duration of use	Covers use up to 1 h/day
Technical and organisational conditions	Provide specific workforce training for the use of diisocyanates, in line with REACH Annex XVII, entry no. 74. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95 %. For further specification, refer to section 8 of the SDS.
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF 10). For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Indoor use Covers use at ambient temperatures

3. Exposure estimation and reference to source

Many ESs contain tables with exposure estimates from all the contributing scenarios, and a reference to the program/model used for the calculations. This is not a focus in these examples and therefore not included.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Example:

Environment	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Any discrepancies should be controlled using ECETOC TRA. Detaljer om skalering finnes i FEICA SPERC 8c.3.v3.
Workers	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/ Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Any discrepancies should be controlled using ECETOC TRA.

ES 2: Widespread Use by Professional Workers; Adhesives, Sealants (PC 1); large scale application of 2- or multi-component reactive adhesives

1. Title Section

Use name	Professional indoor handling and mixing of 2- or multi-component liquid adhesives	
Description of process/activity covered	Mixing and handling of 2- or multi-component reactive adhesive systems by professionals, indoors, run in a stepwise manner based on the open time of the adhesive. The mixing process is done with a handhold drilling machine in a bucket. This includes also pouring from one bucket into another. The duration is no longer than 4 hours.	
Sector of Use	SU22	Professional
Contributing scenarios, Environment	ERC8C FEICA SPERC 8c.3.v3	Wide dispersive indoor use resulting in including into or onto a matrix
Contributing scenarios, Worker	PROC5	Mixing or blending in batch processes

2. Conditions of use affecting exposure

2.1 Control of environmental exposure: Wide dispersive indoor use resulting in including into or onto a matrix (ERC8C)

Amount used, frequency and duration of use	Continuous exposure: 365 days/year
Technical and organisational conditions	Connection to municipal sewage treatment plant is assumed. Do not empty the product into drains / surface water / ground water. Dispose of in accordance with local legislation. For further specification, refer to section 13 of the SDS.

2.2 Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	Covers concentrations up to 1 %
Amount used, frequency and duration of use	Covers use up to 4 h/day
Technical and organisational conditions	Provide specific workforce training for the use of diisocyanates, in line with REACH Annex XVII, entry no. 74. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95 %. For further specification, refer to section 8 of the SDS.
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training; Wear protective clothes to protect from splashes, which are impervious in a manner equivalent to the gloves; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF 10). For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Indoor use Covers use at ambient temperatures

Sections 3 and 4

Please see Example 1, ES 1.

Example 2: ES for the fictional substance "Triamine X"

Substance name: Triamine X

CAS number: 2345-67-8

Version number and date: 12.09.2022, v.1

List of abbreviations

See example 1

ES: Use at industrial sites; Use as additive in foams and coatings

1. Title Section

Use name	Industrial use as additive in foams and coatings	
Description of process/ activity covered	<i>Example for PROC8B:</i> Changing of containers, drums or buckets for industrial application equipment	
Sectors of Use	SU8	Manufacture of bulk, large scale chemicals (including petroleum products)
Product Categories	PC9a PC32	Coatings and paints, thinners, pant removers Polymer preparations and compounds
Contributing Scenarios, Environment	ERC5	Use at industrial site leading to inclusion into/onto article
Contributing Scenarios, Worker	PROC2 PROC8b PROC12	Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions Transfer of substance or mixture (charging and discharging) at dedicated facilities Use of blowing agents in manufacture of foam

2. Conditions of use affecting exposure

2.1 Control of environmental exposure: Use at industrial site leading to including into/onto article (ERC5)

Amount used, frequency and duration of use	Continuous exposure: 365 days/year Covers annual amount per site ≤ 100 tonnes/year
Technical and organisational conditions (including STP)	Connection to municipal sewage treatment plant is assumed Assumed domestic sewage treatment plant flow ≥ 2000 m3/day Do not empty the product into drains / surface water / ground water Dispose of in accordance with local legislation

2.2 Control of worker exposure: Chemical production or refinery in closed process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics	Covers concentrations up to 100 %
Amount used, frequency and duration of use	Covers use up to 8 h/day
Technical and organisational conditions	Assumes that activities are undertaken with appropriate and well-maintained equipment by trained personal operating under supervision; Ensure regular inspection, cleaning and maintenance of equipment and machines; Clear spills immediately and dispose of waste safely; Ensure daily cleaning of the equipment. Provide a basic standard of general ventilation (not less than 1 to 3 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90 %. For further specification, refer to section 8 of the SDS.
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training; If skin contamination is expected to extend to other parts of the

	body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Indoor use Covers use at temperatures up to 40 °C

2.3 Control of worker exposure: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b):

Product (article) characteristics	Covers concentrations up to 100 %
Amount used, frequency and duration of use	Covers use up to 1 h/day
Technical and organisational conditions	Assumes that activities are undertaken with appropriate and well-maintained equipment by trained personal operating under supervision; Ensure regular inspection, cleaning and maintenance of equipment and machines; Clear spills immediately and dispose of waste safely; Ensure daily cleaning of the equipment. Provide a basic standard of general ventilation (not less than 1 to 3 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90 %. For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Containers or drums are connected or disconnected from the automatic application equipment at industrial sites. Workers' exposure may occur only during coupling and uncoupling. Indoor use Covers use at ambient temperatures

2.4 Control of worker exposure: Use of blowing agents in manufacture of foam (PROC12):

Product (article) characteristics	Covers concentrations up to 100 %
Amount used, frequency and duration of use	Covers use up to 8 h/day
Technical and organisational conditions	Assumes that activities are undertaken with appropriate and well-maintained equipment by trained personal operating under supervision; Ensure regular inspection, cleaning and maintenance of equipment and machines; Clear spills immediately and dispose of waste safely; Ensure daily cleaning of the equipment. Provide a basic standard of general ventilation (not less than 1 to 3 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90 %. For further specification, refer to section 8 of the SDS.
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure	Indoor use Covers use at ambient temperatures

Sections 3 and 4

Please see Example 1, ES 1.

Appendix IIb: Bilaga till del 3 av enkäten

Enkät om exponeringsscenarier i säkerhetsdatablad:

Innehåll

- Förslag om minimiinnehåll i exponeringsscenarier (som bilaga till SDS)
- Exempel 1: ES för det fiktiva ämnet "Diisocyanat X"
- Exempel 2: ES för det fiktiva ämnet "Triamin X"

I detta bilaga hittar ni ett förslag om vilken information ett exponeringsscenario (ES) åtminstone borde innehålla, och två praktiska exemplar. Enkätens del 3 har några frågor till detta.

Båda exemplerna representerar bilagar till ett SDS.

I exempel 1 finns två exponeringsscenarier, i exempel 2 finns ett exponeringsscenario.

Obs! Formatet till exponeringsscenarierna är inte viktig i denna enkäten. Vänligen fokusera på innehåll, inte på presentation/format.

INFORMATION OM ENKÄTEN

Målet med denna undersökningen är att samla erfarenheter och åsikter från er som är (eller kan bli) mottagare av säkerhetsdatablad med exponeringsscenarier. Era svar kommer att ge oss en bild av vad som fungerar och inte fungerar, och vad som är viktigt att exponeringsscenarier innehåller. Med andra ord har ni chansen att påverka nu!

Vad gör vi med svaren? Vi på Kiwa Kompetanse uppsummerar svaren i en rapport, som vi sänder vi till Nordisk arbetsgrupp för kemikalier (en grupp under Nordiska ministerrådet, med representanter från kemikaliemyndigheterna i de nordiska länderna). Det är de som har startat detta projekt. De vill ha input från er ute i verksamheterna, så att de får ett bra underlag att jobba vidare med exponeringsscenarier - bl.a. att överväga ett mer standardiserat eller gemensamt krav på innehåll.

Vi vill gärna höra vad ni tycker! Här finns det inga rätta eller fel svar, vi önskar en så ärlig bild som möjligt.

Undersökningen är uppdelad i 3 delar, och tar upp till 20 min. beroende på hur detaljerat ni själva väljer att svara.

- **Del 1:** allmänna frågor om er verksamhet
- **Del 2:** erfarenheter av säkerhetsdatablad och exponeringsscenarier
- **Del 3:** frågor kring förslaget om minimiinnehåll i ett exponeringsscenario (detta bilaga)

Undersökningen är anonym. Svaren kopplas inte till enskilda personer eller verksamheter.

Sista svarsdag är onsdag 5. oktober.

Frågor om undersökningen? Kontakta Solveig Aamodt:
solveig.aamodt@kiwa.com

Tusen tack - ditt bidrag är värdefullt!

Förslag om minimiinhåll i exponeringsscenarier (som bilaga till SDS)

Generell information

Identifikation av ämnet: Ämnesnamn, CAS-nr., andra identifikatorer

Kort-titel: Borde ge en överordnad bild på vad exponeringsscenariot omfattar

Innehållsförteckning: Om flera exponeringsscenarier finns i bilagan

Lista över förkortningar: Förkortningar använd i exponeringsscenariot

1. Titelvsnitt (behövs för alla inkluderade scenarier)

Användning: Kort beskrivning av användningsområdet/-sättet. Bruka sektorernas brukskarta* där detta finns.

Processer, aktiviteter som täcks: Lite mer specifik beskrivning.

Livscykelstadiet:	Från REACH-vägledning, kapitel R.12. Behövs inte om det redan finns i exponeringsscenariots titel.
Produktkategorier (PC):	

Användningssektorer (SU):	Från REACH-vägledning, kapitel R.12. Lista upp alla PROC-er för arbetare och ERC-er för miljö (alla bidragande scenarier).
Miljöavgivningskategorier (ERC):	
Processkategorier (PC):	

2. Användningsförhållanden som påverkar exponeringen (behövs för alla bidragande scenarier)

2.1 Bidragande scenario som styr miljöexponeringen: ERC-namn

Produkttegenskaper:	Endast det som är relevant för nedströmsanvändare. Åtminstone dagliga använda mängder eller antal dagar per år.
Använda mängder:	
Användningens frekvens:	
Varaktighet av användningen:	

Tekniska och organisationella förhållanden och åtgärder som behövs för att kontrollera utsläpp till luft/vatten/jord/avlopp.

2.2 Bidragande scenario som styr exponeringen av arbetstagare: PROC-namn

Produkttegenskaper:	Åtminstone antal timmar med användning per dag.
Använda mängder:	
Användningens frekvens:	
Varaktighet av användningen:	

Tekniska och organisationella förhållanden och åtgärder

Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa, som behövs för säker användning.

Andra driftsförhållanden som påverkar exponeringen av arbetstagare: T.ex. inom-/utomhusanvändning, temperatur.

3. Exponeringsberäkning och hänvisning till dess källa

Beräknade exponeringsnivåer: Inte alltid nödvändigt i alla exponeringsscenarier. Om det finns, är det gärna en tabell med exponeringsvärden och riskkaraktiseringskvoten för alla bidragande scenarier.

4. Vägledning för nedströmsanvändare

Vägledning från leverantör för att bedöma om nedströmsanvändaren arbetar inom de gränser som specificeras av exponeringsscenariot, även om det är en avvikelse mellan scenariot och användningen vid arbetsplatsen. Måste visa till (var ni hittar) skaleringsmetoder, vilka parametrar som kan skaleras, och gränser/regler för skaleringen.

*Sector use maps: <https://echa.europa.eu/en/csr-es-roadmap/use-maps/use-maps-library>

Exempel 1: ES för det fiktiva ämnet "Diisocyanat X"

Ämnesnamn: Diisocyanat X

CAS-nummer: 1234-56-7

Versionsnummer och datum: 12.09.2022, v.1

Innehåll

- ES 1: Vitt spridd yrkesmässig användning; Lim, tätningsmedel (PC 1); småskalig användning av lim eller tätningsmedel
- ES 2: Vitt spridd yrkesmässig bruk; Lim, tätningsmedel (PC 1); storskalig användning av 2- eller multikomponent reaktivt lim

Förkortningar		
PC	Produktkategori	Typ kemisk produkt (blandning) ämnet ingår i
SU	Användningssektorer	Sektor/bransch/industri
PROC	Processkategori	Användningsbeskrivning baserat på exponering av arbetstagare
ERC	Miljöavgivningskategori	Användningsbeskrivning baserat på exponering av miljö
SPERC	Specific miljöavgivningskategori	Detaljerat beskrivning av miljöutsläpp, för mer specifika varderingar

ES 1: Vitt spridd yrkesmässig användning; Lim, tätningsmedel (PC 1); småskalig användning av lim eller tätningsmedel

1. Titelavsnitt

Användning	Yrkesmässig småskalig användning av lim eller tätningsmedel	
Processer, aktiviteter som täcks	Inomhus användning, med god generell ventilering. Typisk applicering är 0.3–1 m ² /timme.	
Användningssektor	SU22	Yrkesmässig användning
Bidragande scenarier, miljö	ERC8C FEICA SPERC 8c.3.v3	Vitt spridd användning som leder till införlivande i/på vara Vitt spridd användning av icke-flyktiga ämnen i lim/ tätningsmedel - inomhus
Bidragande scenarier, arbetstagare	PROC10	Applicering med roller eller strykning

2. Användningsförhållanden som påverkar exponeringen

2.1 Bidragande scenario som styr miljöexponeringen: Vitt spridd användning som leder till införlivande i/på vara (ERC8C, FEICA SPERC 8c.3.v3)

Använda mängder, frekvens och varaktighet	Kontinuerlig exponering: 365 dagar/år
Tekniska och organisationella förhållanden och åtgärder	Säkerställ att avloppsvatten samlas upp fullständigt och att det behandlas i ett avloppsreningsverk. Undvik direkta utsläpp till det kommunala avloppsreningsverket. Avfall skall sluthanteras enligt miljölagstifningen. För mer information, se SDS avsnitt 13.

2.2 Bidragande scenario som styr exponeringen av arbetstagare: Applicering med roller eller strykning (PROC10)

Ämneskoncentration	Omfattar procenthalt av ämnet i produkten upp till 1 %
Använda mängder, frekvens och varaktighet	Omfattar daglig exponering i upp till 1 timme
Tekniska och organisationella förhållanden och åtgärder	Säkerställ specifik utbildning för anställda, enligt REACH vedlegg XVII (74). Säkerställ god allmän ventilation (3 till 5 luftbyten per timme). Använd lokal utsugsventilation med mycket hög effekt, t.ex. skåp eller sprejkabin med effektiv ventilation enligt EN 16985. Säkerställ effektivitet på åtminstone 95 %. För mer information, se SDS avsnitt 8.
Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa	Använd tillräckligt ögonskydd. Använd kemisk-resistent handskar (enligt EN374) i kombination med specifik utbildning för anställda; Andra kroppsdelar måste skyddas på likvärdigt sätt om det föreligger risk för kontaminering; För mer information, se SDS avsnitt 8. Använd andningsskydd med åtminstone skyddsfaktor 10 (APF 10). För mer information, se SDS avsnitt 8.
Andra driftsförhållanden som påverkar exponeringen av arbetstagare	Inomhus användning Omfattar användning vid rumtemperatur

3. Exponeringsberäkning och hänvisning till dess källa

Många exponeringsscenarier innehåller en tabell med beräknade exponeringsvärden från alla bidragande scenarier, och hänvisning till beräkningsmetod. Detta är inte fokus här och ingår därför inte.

4. Vägledning för nedströmsansvändare

Exempel:

Miljö	Exponeringsvärderingen är baserat på driftsförhållanden som inte nödvändigtvis finns på alla arbetsplatser. I så fall kan skalering behövs, för att identifiera tillräckliga lokationsspecifika riskhanteringsåtgärder. Eventuella avvikelser måste kontrolleras med ECETOC TRA. Detaljer kring skalering finns i FEICA SPERC 8c.3.v3.
Arbetstagare	Den förväntade exponeringen för arbetstagare överskrider inte DNEL-värdena, om åtgärderna inom riskhantering och driftsförhållanden från avsnitt 2 iakttas. I fall att ytterligare riskhanteringsåtgärder/driftsförhållanden övertas, borde användarna säkerställa, att riskerna begränsas till en minst likvärdig nivå. Eventuelle avvikelser måste kontrolleras med ECETOC TRA.

ES 2: Vitt spridd yrkesmässig användning; Lim, tätningsmedel (PC 1); storskalig användning av 2- eller multikomponent reaktivt lim

1. Titelvsnitt

Användning	Yrkesmässig inomhus hantering och blandning av 2- eller multikomponent flytande lim	
Processer, aktiviteter som täcks	Blandning och hantering av 2- eller multikomponent reaktivt lim, inomhus, steg för steg baserat på limmets öppettid. Blandningsprocessen utförs med en handhållen bormaskin i en hink. Detta inkluderar även att hålla produktet över i annan hink. Varaktighet: max 4 timmar.	
Användningssektor	SU22	Yrkesmässig
Bidragande scenarier, miljö	ERC8C FEICA SPERC 8c.3.v3	Vitt spridd användning som leder till införlivande i/på vara Vitt spridd användning av icke-flyktiga ämnen i lim/ tätningsmedel - inomhus
Bidragande scenarier, arbetstagare	PROC5	Blandning vid satsvisa processer

2. Användningsförhållanden som påverkar exponeringen

2.1 Bidragande scenario som styr miljöexponeringen: Vitt spridd användning som leder till införlivande i/på vara (ERC8C, FEICA SPERC 8c.3.v3)

Använda mängder, frekvens och varaktighet	Kontinuerlig exponering: 365 dagar/år
Tekniska och organisationella förhållanden och åtgärder	Säkerställ att avloppsvatten samlas upp fullständigt och att det behandlas i ett avloppsreningsverk. Undvik direkta utsläpp till det kommunala avloppsreningsverket. Avfall skall sluthanteras enligt miljölagstifningen För mer information, se SDS avsnitt 13.

2.2 Bidragande scenario som styr exponeringen av arbetstagare: Blandning vid satsvisa processer (PROC5)

Ämneskoncentration	Omfattar procenthalt av ämnet i produkten upp till 1 %
Använda mängder, frekvens och varaktighet	Omfattar daglig exponering i upp till 4 timmar
Tekniska och organisationella förhållanden och åtgärder	Säkerställ specifik utbildning för anställda, enligt REACH vedlegg XVII (74). Säkerställ god allmän ventilation (3 till 5 luftbyten per timme). Använd lokal utsugsventilation med mycket hög effekt, t.ex. skåp eller sprejkabin med effektiv ventilation enligt EN 16985. Säkerställ effektivitet på åtminstone 95 %. För mer information, se SDS avsnitt 8.
Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa	Använd tillräckligt ögonskydd. Använd kemisk-resistent handskar (enligt EN374) i kombination med specifik utbildning för anställda; Andra kroppsdelar måste skyddas på likvärdigt sätt om det föreligger risk för kontaminering; För mer information, se SDS avsnitt 8. Använd andningsskydd med åtminstone skyddsfaktor 10 (APF 10). För mer information, se SDS avsnitt 8.
Andra driftsförhållanden som påverkar exponeringen av arbetstagare	Inomhus användning Omfattar användning vid rumtemperatur

Avsnitt 3 och 4

Vänligen se exempel 1, ES 1.

Exempel 2: ES för det fiktiva ämnet "Triamin X"

Ämnesnamn: Triamin X

CAS-nummer: 2345-67-8

Versionsnummer och datum: 12.09.2022, v.1

Förkortningar

Se lista i exempel 1

ES: Industriell användning; Användning som tillsats i skum och ytbeläggningar

1. Titelavsnitt

Användning	Industriell användning som tilsetningsstoff i skum og belegg	
Processer, aktiviteter som täcks	Endast exempel för PROC8b: Överföring av blandning mellan olika behållare	
Användningssektor	SU8	Bulktilverkning, storskalig tillverkning av kemikalier (inklusive petroleumprodukter)
Bidragande scenarier, miljö	PC9a PC32	Ytbeläggningar och färger, förtunningsmedel, färgborttagningsmedel Polymerberedningar och -föreningar
Bidragande scenarier, arbetstagare	ERC5	Användning i industrianläggning som leder till införlivande i/på vara
	PROC2 PROC8b PROC12	Kemisk produktion eller raffinering i sluten kontinuerlig process med tillfällig kontrollerad exponering eller processer med motsvarande inneslutningsförhållanden Överföring av ämne eller blandning (fyllning och tömning) på platser som är särskilt avsedda för detta ändamål Användning av blåsmedel vid tillverkning av skum

2. Bruksvilkår av betydning för exponeringen

2.1 Bidragande scenario som styr miljöexponeringen: Användning i industrianläggning som leder till införlivande i/på vara (ERC5)

Använda mängder, frekvens och varaktighet	Kontinuerlig exponering: 365 dagar/år Täcker årlig använda mängder på ≤ 100 tonn
Tekniska och organisationella förhållanden och åtgärder	Anslutning till kommunalt reningsverk förutsätts (genomströmning ≥ 2000 m3/dag) Låt ej gå ut i grundvatten, vattendrag eller avloppsrör. Avfall skall slushanteras enligt miljölagstifningen För mer information, se SDS avsnitt 13.

2.2 Bidragande scenario som styr exponeringen av arbetstagare: Kemisk produktion eller raffinering i sluten kontinuerlig process med tillfällig kontrollerad exponering eller processer med motsvarande inneslutningsförhållanden (PROC2)

Ämneskoncentration	Omfattar procenthalt av ämnet i produkten upp till 100 %
Använda mängder, frekvens och varaktighet	Omfattar daglig exponering i upp till 8 timmar
Tekniska och organisationella förhållanden och åtgärder	Förutsätter att en bra grundläggande standard för arbetshygien införs. Förutsätter att aktiviteterna genomförs med tillräckligt och underhållen utrustning. Tillhandahåll tillräckligt personalutbildning; Säkerställ regelbunden inspektion och dagligen tvätt og underhåll av utrustning ock maskiner; Sanera föroreningar/spill omedelbart när de inträffar. Sörj för god allmän ventilation (1 till 3 luftbyten per timme). Installera utsugningsventilation på plats där emissioner förekommer. Säkerställ en effekt på åtminstone 90 %. För mer information, se SDS avsnitt 8.

Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa	Använd tillräckligt ögonskydd. Använd kemisk-resistent handskar (enligt EN374) i kombination med specifik utbildning för anställda för att undvika/minimera exponering; Andra kroppsdelar måste skyddas på likvärdigt sätt om det föreligger risk för hudkontaminering; Tvätta bort eventuell hudförorening omedelbart. För mer information, se SDS avsnitt 8.
Andra driftsförhållanden som påverkar exponeringen av arbetstagare	Inomhus användning Omfattar användning vid temperaturer upp till 40 °C

2.3 Bidragande scenario som styr exponeringen av arbetstagare: Överföring av ämne eller blandning (fyllning och tömning) på platser som är särskilt avsedda för detta ändamål (PROC8b):

Ämneskoncentration	Omfattar procenthalt av ämnet i produkten upp till 100 %
Använda mängder, frekvens och varaktighet	Omfattar daglig exponering i upp till 1 timme
Tekniska och organisationella förhållanden och åtgärder	Förutsätter att en bra grundläggande standard för arbetshygien införs. Förutsätter att aktiviteterna genomförs med tillräckligt och underhållen utrustning. Tillhandahåll tillräckligt personalutbildning; Säkerställ regelbunden inspektion och dagligen tvätt og underhåll av utrustning ock maskiner; Sanera föroreningar/spill omedelbart när de inträffar. Sörj för god allmän ventilation (1 till 3 luftbyten per timme). Installera utsugningsventilation på plats där emissioner förekommer. Säkerställ en effekt på åtminstone 90 %. För mer information, se SDS avsnitt 8.
Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa	Använd tillräckligt ögonskydd. Använd kemisk-resistent handskar (enligt EN374) i kombination med specifik utbildning för anställda för att undvika/minimera exponering; Andra kroppsdelar måste skyddas på likvärdigt sätt om det föreligger risk för hudkontaminering; Tvätta bort eventuell hudförorening omedelbart. För mer information, se SDS avsnitt 8.
Andra driftsförhållanden som påverkar exponeringen av arbetstagare	Beholdere er tilkoblet eller frakoblet det automatiske påføringsutstyret på anlegget. Eksponering av arbeidere kan skje kun under til- og frakobling. Inomhus användning Omfattar användning vid rumtemperatur

2.4 Bidragande scenario som styr exponeringen av arbetstagare: Användning av blåsmedel vid tillverkning av skum (PROC12):

Ämneskoncentration	Omfattar procenthalt av ämnet i produkten upp till 100 %
Använda mängder, frekvens och varaktighet	Omfattar daglig exponering i upp till 8 timmar
Tekniska och organisationella förhållanden och åtgärder	Förutsätter att en bra grundläggande standard för arbetshygien införs. Förutsätter att aktiviteterna genomförs med tillräckligt och underhållen utrustning. Tillhandahåll tillräckligt personalutbildning; Säkerställ regelbunden inspektion och dagligen tvätt og underhåll av utrustning ock maskiner; Sanera föroreningar/spill omedelbart när de inträffar. Sörj för god allmän ventilation (1 till 3 luftbyten per timme). Installera utsugningsventilation på plats där emissioner förekommer. Säkerställ en effekt på åtminstone 90 %. För mer information, se SDS avsnitt 8.
Förhållanden och åtgärder som hänför sig till personligt skydd, hygien och utvärdering av hälsa	Använd tillräckligt ögonskydd. Använd kemisk-resistent handskar (enligt EN374) i kombination med specifik utbildning för anställda för att undvika/minimera exponering; Andra kroppsdelar måste skyddas på likvärdigt sätt om det föreligger risk för hudkontaminering; Tvätta bort eventuell hudförorening omedelbart. För mer information, se SDS avsnitt 8.
Andra driftsförhållanden som påverkar exponeringen av arbetstagare	Inomhus användning Omfattar användning vid rumtemperatur

Avsnitt 3 och 4

Vänligen se exempel 1, ES 1.

Appendix IIc: Vedlegg til del 3 av spørreundersøkelsen

Spørreundersøkelse om eksponeringsscenarier i sikkerhetsdatablader:

Innhold

- Forslag til minimumsinhold i eksponeringsscenarier (vedlegg til SDS)
- Eksempel 1: ES for det fiktive stoffet "Diisocyanat X"
- Eksempel 2: ES for det fiktive stoffet "Triamin X"

I dette vedlegget finner du et forslag til hvilken informasjon et eksponeringsscenario (ES) minst bør inneholde, og to eksempler på hvordan dette kan se ut.

Spørreundersøkelsens del 3 har noen spørsmål knyttet til dette.

Begge eksemplene representerer vedlegg til et SDS.

I eksempel 1 er det to eksponeringsscenarier, i eksempel 2 er det ett eksponeringsscenarie.

Obs! Format/utseende på eksponeringsscenarier er ikke en viktig del av undersøkelsen. Vi ber dere derfor om å fokusere på innholdet først og fremst, ikke hvordan det er presentert og ser ut.

GENERELL INFO OM SPØRREUNDERSØKELSEN

Målet med denne undersøkelsen er å samle erfaringer og meninger fra dere som er (eller kan bli) mottakere av sikkerhetsdatablader med eksponeringsscenarier. Deres svar vil gi oss et bilde av hva som fungerer og ikke fungerer, og hva det er viktig at eksponeringsscenarier inneholder. Dere har sjansen til å påvirke nå!

Hva gjør vi med svarene? Vi i Kiwa Kompetanse gjennomgår alle svarene og oppsummerer dem i en rapport. Rapporten sender vi til Nordisk arbeidsgruppe for kjemikalier (en gruppe under Nordisk ministerråd, med representanter fra kjemikaliemyndighetene i de nordiske landene). Det er de som har satt i gang dette prosjektet. De ønsker innspill fra dere i virksomhetene, slik at de har et godt grunnlag for å jobbe videre med eksponeringsscenarier - bl.a. å vurdere mer standardisering eller felles krav til innhold.

Vi vil gjerne høre hva dere mener! Her er ingenting riktig eller galt, vi ønsker et så ærlig bilde som mulig.

Undersøkelsen er delt i 3, og vil ta ca. 20-30 min. avhengig av hvor detaljert dere selv ønsker å svare.

Del 1: helt generelle spørsmål om virksomheten

Del 2: erfaring med sikkerhetsdatablader og eksponeringsscenarier

Del 3: spørsmål til forslaget om minimumsinhold i eksponeringsscenarier

Undersøkelsen er anonym. Besvarelsene kobles ikke til enkeltpersoner eller virksomheter.

Frist for besvarelser er onsdag 5. oktober.

Spørsmål om undersøkelsen? Kontakt Solveig Aamodt i Kiwa Kompetanse: solveig.aamodt@kiwa.com

Tusen takk – ditt bidrag er verdifullt!

Innledning / generell info

Identifikasjon av stoffet: Stoffnavn, CAS-nr., evt. andre identifikatorer

Korttittel: Bør gi et overordnet bilde av hva eksponeringsscenariet dekker

Innholdsfortegnelse: Hvis flere eksponeringsscenarier er inkludert

Liste over forkortelser: Forkortelser brukt i eksponeringsscenariet/-scenariene forklares kort

1. Tittelseksjon (trengs for hvert scenario som er inkludert)

Bruk: Kort beskrivelse av bruksområdet/-måten. Kan tas fra sektorenes brukskart* der det finnes.

Prosesser, oppgaver, aktiviteter som dekkes: Litt mer spesifikk beskrivelse.

Livssyklus-stadie:	Fra REACH-veiledning R.12. Ikke nødvendig hvis det allerede er i eksponeringsscenariets tittel.
Produktkategori (PC):	
Kategori for bruksområde (SU):	Fra REACH-veiledning R.12. Bør liste opp alle PROC-er for arbeidere og ERC-er for miljø (dvs. alle medvirkende scenarier for arbeidstakere og miljø).
Miljøutslippskategori (ERC):	
Prosesskategori (PC):	

2. Bruksvilkår av betydning for eksponeringen (trengs for hvert medvirkende scenario)

2.1 Kontroll av miljøeksponering: ERC-navn

Produktkarakteristikker:	Det som er relevant for nedstrømsbrukerne. Som minimum bør daglige bruks-mengder eller antall utslippsdager per år inkluderes, slik at nedstrømsbrukeren kan se om deres bruk er dekket.
Bruksmengder:	
Bruksfrekvens:	
Varighet av eksponering:	

Tekniske og organisasjonsmessige vilkår og tiltak som ligger til grunn for vurderingen, og alle nødvendige tiltak for å kontrollere utslipp til luft/vann/jord/avløp (det som er relevant).

2.2 Kontroll av arbeidereksponeering: PROC-navn

Produktkarakteristikker: Som minimum stoffkonsentrasjon (kons. av stoffet i kjemikaliyet/stoffblandingen) dekket av eksponeringsscenariet. Produktkarakteristikker listet andre steder i SDS, trengs ikke her.

Bruksmengder:	Viktigst å få med antall brukstimer per dag dekket av scenariet.
Bruksfrekvens:	
Varighet av eksponering:	

Tekniske og organisasjonsmessige vilkår og tiltak som ligger til grunn for / identifisert i vurderingen.

Vilkår og tiltak knyttet til personlig vern og hygiene: Nødvendig personlig verneutstyr for trygg bruk.

Andre driftsforhold som påvirker arbeidereksponeering: F.eks. innendørs/utendørs bruk, arbeidstemperatur.

3. Eksponeringsberegning og henvisning til kilde

Beregnete eksponeringsverdier: Ikke absolutt nødvendig i alle eksponeringsscenarier. Der dette finnes, er det gjerne en tabell med eksponeringsverdier og risikokarakteriseringsratioer (RCR) beregnet for hvert medvirkende scenario for miljø og arbeidere.

4. Evalueringsveiledning for nedstrømsbruker

Veiledning fra leverandør til hvordan du sjekker om du er dekket av scenariet, også hvis det er avvik mellom scenariet og bruken ved din arbeidsplass. Skal oppgi / vise til hvor du finner info om skaleringsmetoder, parametre som kan skaleres, og grenser/regler for skaleringen.

*Sector use maps: <https://echa.europa.eu/en/csr-es-roadmap/use-maps/use-maps-library>

Eksempel 1: ES for det fiktive stoffet "Diisocyanat X"

Stoffnavn: Diisocyanat X

CAS-nummer: 1234-56-7

Versjonsnummer og dato: 12.09.2022, v.1

Innhold

- ES 1: Utstrakt profesjonell bruk; Lim, fugemasse (PC 1); småskala påføring av lim, fugemasse eller primere
- ES 2: Utstrakt profesjonell bruk; Lim, fugemasse (PC 1); storskala påføring av 2- eller multikomponent reaktivt lim

Forkortelser		
PC	Produktkategori	Type kjemisk produkt (stoffblanding) stoffet brukes i
SU	Bruksområde	Sektor/marked eller type industri
PROC	Prosesskategori	Bruksbeskrivelse basert på arbeideres eksponering
ERC	Miljøutslippskategori	Bruksbeskrivelse basert på miljøeksponering
SPERC	Spesifikk miljøutslippskategori	Detaljert beskrivelse av miljøutslipp, for mer spesifikke vurderinger

ES 1: Utstrakt profesjonell bruk; Lim, fugemasse (PC 1); småskala påføring av lim, fugemasse eller primere

1. Tittelseksjon

Bruk	Profesjonell småskala bruk av lim, fugemasse eller primere	
Prosesser, oppgaver, aktiviteter som dekkes	Innendørs bruk, med god generell ventilasjon. Typisk påføring er 0.3–1 m ² /time.	
Bruksområde	SU22	Profesjonell
Medvirkende scenarier, miljø	ERC8C FEICA SPERC 8c.3.v3	Innendørs bruk med omfattende og utbredt bruk som medfører innlemmelse i eller på en matriks Utstrakt bruk av ikke-flyktige stoffer i lim/fugemasse - innendørs
Medvirkende scenarier, arbeider	PROC10	Påføring med rull eller pensel

2. Bruksvilkår av betydning for eksponeringen

2.1 Kontroll av miljøeksponering: Innendørs bruk med omfattende og utbredt bruk som medfører innlemmelse i eller på en matriks (ERC8C, FEICA SPERC 8c.3.v3)

Bruksmengder, frekvens og varighet av eksponering	Kontinuerlig eksponering: 365 dager/år
Tekniske og organisasjonsmessige vilkår og tiltak	Tilkobling til kommunalt renseanlegg er antatt. Må ikke helles i avløp eller direkte i overflatevann/grunnvann. Avfallsbehandling: Avhendes i tråd med lokalt regelverk. For mer informasjon, se SDS avsnitt 13.

2.2 Kontroll av arbeidereksponeering: Påføring med rull eller pensel (PROC10)

Stoffkonsentrasjon	Dekker konsentrasjoner opp til 1 %
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Bruksmengder, bruksfrekvens, varighet av eksponering	Dekker bruk i inntil 1 time/dag
Tekniske og organisasjonsmessige vilkår og tiltak	Sørg for spesifikk opplæring av ansatte ved bruk av diisocyanater, i tråd med REACH vedlegg XVII, oppføring nr. 74. Sørg for en god standard av generell ventilasjon (ikke mindre enn 3 til 5 luftutskiftninger per time). Bruk omsluttende ventilasjon med veldig høy effektivitet (f.eks. avtrekksskap) eller spraykabiner med effektiv ventilasjon i.h.t. EN 16985. Sikre effektivitet på minst 95 %. For mer informasjon, se SDS avsnitt 8.
Vilkår og tiltak knyttet til personlig vern og hygiene	Bruk passende øyeskyttelse. Bruk kjemikalieresistente hansker (testet etter EN374) i kombinasjon med spesifikk opplæring av de ansatte; Hvis det forventes kontaminering av hud på andre steder av kroppen, må også disse kroppsdelene beskyttes med ugjennomtrengelig vernetøy tilsvarende som for hendene; For mer informasjon, se SDS avsnitt 8. Bruk en pustemaske som reduserer urenheter i luft med minst en faktor 10 (APF 10). For mer informasjon, se SDS avsnitt 8.
Andre driftsforhold som påvirker arbeidereksposering	Innendørs bruk Dekker bruk ved romtemperatur

3. Eksponeringsberegning og henvisning til kilde

Mange eksponeringsscenarier inneholder en tabell med beregnede eksponeringsverdier fra alle medvirkende scenarier, og henvisning til program/modell brukt til beregningene. Ikke fokus i disse eksemplene.

4. Evalueringsveiledning for nedstrømsbruker

Eksempel:

Miljø	Eksponeringsvurderingen er basert på antatte driftsvilkår som ikke nødvendigvis er aktuelle i alle virksomheter. I så fall kan skalering være nødvendig, for å identifisere passende lokasjonsspesifikke risikohåndteringstiltak. Eventuelle avvik kontrolleres med ECETOC TRA-verktøyet. Detaljer om skalering finnes i FEICA SPERC 8c.3.v3.
Arbeidere	Estimert eksponering for arbeidstakere forventes ikke å overstige grenseverdien (DNEL) så lenge alle nevnte risikohåndteringstiltak følges. Hvis andre risikohåndteringstiltak eller driftsvilkår enn de som er nevnt i eksponeringsscenariet er på plass, bør brukerne sørge for at risikoer håndteres på minst tilsvarende nivå. Eventuelle avvik kontrolleres med ECETOC TRA-verktøyet.

ES 2: Utstrakt profesjonell bruk; Lim, fugemasse (PC 1); storskala påføring av 2- eller multikomponent reaktivt lim

1. Tittelseksjon

Bruk	Profesjonell innendørs håndtering og blanding av 2- eller multikomponent flytende lim	
Prosesser, oppgaver, aktiviteter som dekkes	Blanding og håndtering av 2- eller multikomponent reaktivt lim ved profesjonelle, innendørs, utført på en trinnvis måte basert limets åpentid. Blandeprosessen gjøres med en håndholdt drill i en bøtte. Dette omfatter også helling fra en bøtte over i en annen. Varigheten er maksimum 4 timer.	
Bruksområde	SU22	Profesjonell
Medvirkende scenarier, miljø	ERC8C FEICA SPERC 8c.3.v3	Innendørs bruk med omfattende og utbredt bruk som medfører innlemmelse i eller på en matriks Utstrakt bruk av ikke-flyktige stoffer i lim/fugemasse - innendørs
Medvirkende scenarier, arbeider	PROC5	Blanding i batch-prosesser

2. Bruksvilkår av betydning for eksponeringen

2.1 Kontroll av miljøeksponering: Innendørs bruk med omfattende og utbredt bruk som medfører innlemmelse i eller på en matriks (ERC8C, FEICA SPERC 8c.3.v3)

Bruksmengder, frekvens og varighet av eksponering	Kontinuerlig eksponering: 365 dager/år
Tekniske og organisasjonsmessige vilkår og tiltak	Tilkobling til kommunalt renseanlegg er antatt. Må ikke helles i avløp eller direkte i overflatevann/grunnvann. Avfallsbehandling: Avhendes i tråd med lokalt regelverk. For mer informasjon, se SDS avsnitt 13.

2.2 Kontroll av arbeidereksponeering: Blanding i batch-prosesser (PROC5)

Stoffkonsentrasjon	Dekker konsentrasjoner opp til 1 %
Bruksmengder, bruksfrekvens, varighet av eksponering	Dekker bruk i inntil 4 timer/dag
Tekniske og organisasjonsmessige vilkår og tiltak	Sørg for spesifikk opplæring av ansatte ved bruk av diisocyanater, i tråd med REACH vedlegg XVII, oppføring nr. 74. Sørg for en god standard av generell ventilasjon (ikke mindre enn 3 til 5 luftutskiftninger per time). Bruk avtrekk med meget høy effektivitet (f.eks. avtrekksskap) eller spraykabiner med effektiv ventilasjon i.h.t. EN 16985. Sikre effektivitet på minst 95 %. For mer informasjon, se SDS avsnitt 8.
Vilkår og tiltak knyttet til personlig vern og hygiene	Bruk passende øyebeskyttelse. Bruk kjemikalieresistente hansker (testet etter EN374) i kombinasjon med spesifikk opplæring av de ansatte; Hvis det forventes kontaminering av hud på andre steder av kroppen, må også disse kroppsdelene beskyttes med ugjennomtrengelig vernetøy tilsvarende som for hendene; For mer informasjon, se SDS avsnitt 8. Bruk en pustemaske som reduserer urenheter i luft med minst en faktor 10 (APF 10). For mer informasjon, se SDS avsnitt 8.
Andre driftsforhold som påvirker arbeidereksponeering	Innendørs bruk Dekker bruk ved romtemperatur

3 og 4

Vennligst se eksempel 1, ES 1.

Eksempel 2: ES for det fiktive stoffet "Triamin X"

Stoffnavn: Triamin X

CAS-nummer: 2345-67-8

Versjonsnummer og dato: 12.09.2022, v.1

Forkortelser

Tilsvarende liste som i eksempel 1

ES: Industriell bruk; Bruk som tilsetningsstoff i skum og belegg

1. Tittelseksjon

Bruk	Industriell bruk som tilsetningsstoff i skum og belegg	
Prosesser, oppgaver, aktiviteter som dekkes	Eksempel satt inn kun for PROC8b: Overføring av produkt mellom beholdere	
Bruksområde	SU8	Produksjon av bulk storskala kjemikalier (inkludert oljeprodukter)
Produktkategorier	PC9a PC32	Belegg og maling, tynnere, malingsfjernere Polymerpreparater og -forbindelser
Tilknyttede scenarier, miljø	ERC5	Industriell bruk med inkludering i eller på en matrise
Tilknyttede scenarier, arbeider	PROC2 PROC8b PROC12	Bruk i lukket, kontinuerlig prosess med sporadisk kontrollert eksponering Overføring av kjemikaliet (lasting og lossing) ved spesialiserte anlegg Bruk av blåsemidler i fremstilling av skum

2. Bruksvilkår av betydning for eksponeringen

2.1 Kontroll av miljøeksponering: Industriell bruk med inkludering i eller på en matrise (ERC5)

Bruksmengder, frekvens og varighet av eksponering	Kontinuerlig eksponering: 365 dager/år Dekker årlig bruksmengde per anlegg på ≤ 100 tonn
Tekniske og organisasjonsmessige vilkår og tiltak	Tilkobling til kommunalt renseanlegg er antatt. Antatt gjennomstrømning i kommunalt renseanlegg er ≥ 2000 m ³ /dag Må ikke helles i avløp eller direkte i overflatevann/grunnvann. Avfallsbehandling: Avhendes i tråd med lokalt regelverk. For mer informasjon, se SDS avsnitt 6 og 13.

2.2 Kontroll av arbeidereksponeering: Bruk i lukket, kontinuerlig prosess med sporadisk kontrollert eksponering (PROC2)

Stoffkonsentrasjon	Dekker stoffkonsentrasjoner opp til 100 %
Bruksmengder, bruksfrekvens, varighet av eksponering	Dekker bruk i inntil 8 timer/dag
Tekniske og organisasjonsmessige vilkår og tiltak	Antatt at aktivitetene gjennomføres med passende og vedlikeholdt utstyr og utføres av ansatte med opplæring og under overvåkning; Sørg for jevnlig ettersyn, vask og vedlikehold av utstyr og maskiner; Fjern søl umiddelbart og håndter avfall forsvarlig; Sørg for daglig renhold av utstyr. Sørg for grunnleggende generell ventilasjon (ikke mindre enn 1 til 3 luftutskiftninger per time). Bruk spesifikt utformet og vedlikeholdt lokalt ventilasjonsavtrekk, med effektivitet på minst 90 %. For mer informasjon, se SDS avsnitt 8.
Vilkår og tiltak knyttet til personlig vern og hygiene	Bruk passende øyeskyttelse. Bruk kjemikalieresistente hansker (testet etter EN374) i kombinasjon med spesifikk opplæring av de ansatte; Hvis det forventes kontaminering av hud på andre steder av

	kroppen, må også disse kroppsdelene beskyttes med ugjennomtrengelig vernetøy tilsvarende som for hendene; For mer informasjon, se SDS avsnitt 8.
Andre driftsforhold som påvirker arbeidereksposering	Innendørs bruk Dekker bruk ved temperaturer opp til 40 °C

2.3 Kontroll av arbeidereksposering: Overføring av kjemikaliene (lasting og lossing) ved spesialiserte anlegg (PROC8b):

Stoffkonsentrasjon	Dekker stoffkonsentrasjoner opp til 100 %
Bruksmengder, bruksfrekvens, varighet av eksponering	Dekker bruk i inntil 1 time/dag
Tekniske og organisasjonsmessige vilkår og tiltak	Antatt at aktivitetene gjennomføres med passende og vedlikeholdt utstyr og utføres av ansatte med opplæring og under overvåkning; Sørg for jevnlig ettersyn, vask og vedlikehold av utstyr og maskiner; Fjern søl umiddelbart og håndter avfall forsvarlig; Sørg for daglig renhold av utstyr. Sørg for grunnleggende generell ventilasjon (ikke mindre enn 1 til 3 luftutskiftninger per time). Bruk spesifikt utformet og vedlikeholdt lokalt ventilasjonsavtrekk, med effektivitet på minst 90 %. For mer informasjon, se SDS avsnitt 8.
Vilkår og tiltak knyttet til personlig vern og hygiene	Bruk passende øyebeskyttelse. Bruk kjemikalieresistente hansker (testet etter EN374) i kombinasjon med spesifikk opplæring av de ansatte; Hvis det forventes kontaminering av hud på andre steder av kroppen, må også disse kroppsdelene beskyttes med ugjennomtrengelig vernetøy tilsvarende som for hendene; For mer informasjon, se SDS avsnitt 8.
Andre driftsforhold som påvirker arbeidereksposering	Beholdere er tilkoblet eller frakoblet det automatiske påføringsutstyret på anlegget. Eksponering av arbeidere kan skje kun under til- og frakobling. Innendørs bruk Dekker bruk ved romtemperatur

2.4 Kontroll av arbeidereksposering: Bruk av blåsemidler i fremstilling av skum (PROC12):

Stoffkonsentrasjon	Dekker konsentrasjoner opp til 100 %
Bruksmengder, bruksfrekvens, varighet av eksponering	Dekker bruk opp til 8 timer/dag
Tekniske og organisasjonsmessige vilkår og tiltak	Antatt at aktivitetene gjennomføres med passende og vedlikeholdt utstyr og utføres av ansatte med opplæring og under overvåkning; Sørg for jevnlig ettersyn, vask og vedlikehold av utstyr og maskiner; Fjern søl umiddelbart og håndter avfall forsvarlig; Sørg for daglig renhold av utstyr. Sørg for grunnleggende generell ventilasjon (ikke mindre enn 1 til 3 luftutskiftninger per time). Bruk spesifikt utformet og vedlikeholdt lokalt ventilasjonsavtrekk, med effektivitet på minst 90 %. For mer informasjon, se SDS avsnitt 8.
Vilkår og tiltak knyttet til personlig vern og hygiene	Bruk passende øyebeskyttelse. Bruk kjemikalieresistente hansker (testet etter EN374) i kombinasjon med spesifikk opplæring av de ansatte; Hvis det forventes kontaminering av hud på andre steder av kroppen, må også disse kroppsdelene beskyttes med ugjennomtrengelig vernetøy tilsvarende som for hendene; For mer informasjon, se SDS avsnitt 8.
Andre driftsforhold som påvirker arbeidereksposering	Innendørs bruk Dekker bruk ved romtemperatur

3 og 4

Vennligst se eksempel 1, ES 1.

Appendix IId: Vedlæg til del 3 af spørreundersøgelsen

Spørreundersøgelse om eksponeringsscenarier i sikkerhedsdatablader:

Innhold

- Forslag til minimumsindhold i eksponeringsscenarier (vedlegg til SDS)
- Eksempel 1: ES for det fiktive stof "Diisocyanat X"
- Eksempel 2: ES for det fiktive stof "Triamin X"

I dette vedlæg finder du et forslag til, hvilke oplysninger et eksponeringsscenario (ES) som minimum bør indeholde, og to praktiske eksempler. I spørreundersøgelsens del 3 finder du nogle relaterede spørgsmål.

Begge eksempler repræsenterer vedlæg til et SDS.

Eksempel 1 indeholder to eksponeringsscenarier, eksempel 2 indeholder ett eksponeringsscenarie.

Obs! Format/udseende på eksponeringsscenarier er ikke fokus for undersøgelsen. Vi beder dig derfor primært fokusere på indholdet, ikke hvordan det præsenteres og ser ud.

GENERELT OM UNDERSØGELSEN

Formålet med undersøgelsen er at indsamle viden fra virksomheder der er (eller kan blive) modtagere af sikkerhedsdatablade med eksponeringsscenarier. Vi vil vide hvad der fungerer, hvad der ikke fungerer, og hvad det er vigtigt for jer, at eksponeringsscenarier indeholder. Du har chancen for at påvirke nu!

Hvad gør vi så med svarene? Vi i Kiwa Kompetanse gennemgår alle svar, og sammenfatter alt i en rapport. Rapporten sender vi til arbejdsgruppen for kemikalier, miljø og sundhed under Nordisk ministerråd, hvor der er repræsentanter fra kemikaliemyndighederne i de nordiske land. De vil gerne have input fra virksomhederne, så de får et godt grundlag for at arbejde videre med eksponeringsscenarier – blandt andet at vurdere mere standardisering eller fælles krav til indhold.

Vi vil gerne høre hvad I mener! Her findes ingen rigtige eller forkerte svar – ærlige svar er mest nyttige!

Undersøgelsen er delt i 3, og tager op til 20 minutter.

Undersøgelsen er anonym. Besvarelserne knyttes ikke til enkeltpersoner eller virksomheder.

Svarfristen er onsdag den 5. oktober.

Spørgsmål til undersøgelsen? Kontakt Solveig Aamodt i Kiwa Kompetanse: solveig.aamodt@kiwa.com

Mange tak – dit bidrag er værdifuldt!

Forslag til minimumsindhold i eksponeringsscenarier (vedlegg til SDS)

Generell information

Identifikation av stoffet: Stofnavn, CAS-nr., evt. andre identifikatorer

Kort titel: Skal give et samlet billede af, hvad eksponeringsscenariet dækker over

Indholdsfortegnelse: Om flere eksponeringsscenarier er inkluderet

Liste over forkortelser: Forkortelser, der bruges i eksponeringscenariet/-scenariene, forklares kort

1. Titelpunkt (for hvert scenario, der er inkluderet)

Anvendelse: Kort beskrivelse av anvendelsen. Brug gerne sektorenes brugskort*, der de findes.

Omhandlede processer, opgaver, aktiviteter: Lidt mere specifik beskrivelse av hvad, der er omfattet.

Livscyklusstadiet:	Fra REACH-vejledning R.12. Ikke nødvendigt, om det allerede er i eksponeringsscenariets titel.
Produktkategori (PC):	
Anvendelsessektor (SU):	Fra REACH-vejledning R.12. Skal liste op PROC-er for arbejdere og ERC-

Miljøudledningskategori (ERC):	er for miljø (alle bidragende scenarier for arbejdstagere og miljø).
Proceskategori (PC):	

2. Anvendelsesforhold med indflydelse på eksponeringen (for hvert bidragende scenario)

2.1 Kontroll af miljøeksponering: ERC-navn

Produktets egenskaber:	Kun det, der er vigtigt for downstream-brugerne. Som minimum bør daglige anvendelsesmængder eller antall udledningsdage per år inkluderes, så downstream-brugeren kan se, om deres anvendelse er dækket.
Mængde anvendt:	
Hyppighed:	
Tidsforbrug per eksponering:	

Tekniske og organisatoriske kontrolforanstaltninger, der ligger til grund for vurderingen, for at kontrollere udledning til luft/vand/jord/afløb (det, der er relevant).

2.2 Kontroll af arbejdstagereksposering: PROC-navn

Produktets egenskaber: Som minimum stofkoncentration (kons. av stoffet i kemikaliet/produktet) dækket af eksponeringsscenariet.
 Produkttegenskaber, der forekommer andre steder i SDS, er ikke nødvendige her.

Mængde anvendt:	Som minimum antal timer per dag.
Hyppighed:	
Tidsforbrug per eksponering:	

Tekniske og organisatoriske kontrolforanstaltninger, der er grundlag for eller er identificeret i, vurderingen.

Kontrolforanstaltninger tilknyttet personlig vern og hygiejne: Nødvendige personlige værnemidler.

Andre driftsforhold der har indflydelse på eksponering: F.eks. indendørs/udendørs anvendelse, temperatur.

3. Eksponeringsberegning og henvisning til kilde

Beregnete eksponeringsværdier: Ikke absolut nødvendigt i alle eksponeringsscenarier. Der det findes, er det gerne en tabel med eksponeringsværdier og risikokarakteriseringsratioer (RCR) beregnet for hvert bidragende scenario for miljø og arbejdstagere.

4. Vejledning for downstreambrugere

Vejledning for downstreambrugere til vurdering af, om deres anvendelse ligger inden for eksponeringsscenariets grænser, også om der ikke er overensstemmelse mellem scenariet og anvendelsen ved din arbejdsplads. Det skal informeres om skaleringsmetodik eller hvor den kan findes, hvilke parametre der kan skaleres, og grænser/regler for skaleringen.

*Sector use maps: <https://echa.europa.eu/en/csr-es-roadmap/use-maps/use-maps-library>

Eksempel 1: ES for det fiktive stof "Diisocyanat X"

Stofnavn: Diisocyanat X

CAS-nummer: 1234-56-7

Versionsnummer og dato: 12.09.2022, v.1

Innhold

- ES 1: Vidt udbredt erhvervsmæssig anvendelse; Klæbestoffer, tætningsmidler (PC 1); småskala påføring af klæbestoffer, tætningsmidler eller primere
- ES 2: Vidt udbredt erhvervsmæssig anvendelse; Klæbestoffer, tætningsmidler (PC 1); storskala påføring af 2- eller multikomponent reaktive klæbemidler

Forkortelser		
PC	Produktkategori	Type kemisk produkt (stofblanding) stoffet anvendes i
SU	Anvendelsessektor	Sektor/market
PROC	Prosesskategori	Beskrivelse af anvendelse, baseret på arbejdstagernes eksponering
ERC	Miljøudledningskategori	Beskrivelse af anvendelse, baseret på miljøeksponering
SPERC	Specifik miljøudledningskategori	Detaljeret beskrivelse af miljøudledning, for mere specifikke vurderinger

ES 1: Vidt udbredt erhvervsmæssig anvendelse; Klæbestoffer, tætningsmidler (PC 1); småskala påføring af klæbestoffer, tætningsmidler eller primere

1. Titelpunkt

Anvendelse	Erhvervsmæssig småskala anvendelse af klæbestoffer, tætningsmidler eller primere	
Omhandlede processer, opgaver, aktiviteter	Indendørs anvendelse, med god generel ventilation. Typisk applicering er 0.3–1 m ² /time.	
Anvendelsessektor	SU22	Erhvervsmæssig
Bidragende scenarier, miljø	ERC8C FEICA SPERC 8c.3.v3	Vidt udbredt anvendelse, der fører til inkludering i/på artikel (indendørs) Vidt udbredt anvendelse af ikke-flyktige stoffer i lim/fugemasse – indendørs
Bidragende scenarier, arbejdstagere	PROC10	Påføring med rulle eller pensel

2. Anvendelsesforhold med indflydelse på eksponeringen

2.1 Kontrol af miljøeksponering: Vidt udbredt anvendelse, der fører til inkludering i/på artikel (indendørs) (ERC8C, FEICA SPERC 8c.3.v3)

Mængde anvendt, hyppighed og tidsforbrug per eksponering	Kontinuerlig eksponering: 365 dage/år
Tekniske og organisatoriske kontrolforanstaltninger	Tilslutning til kommunalt spildevandsrensningsanlæg er formodet. Undgå at lede ud i afløb eller til vandmiljøer. Affaldsbehandling skal overholde gældende lokale og / eller nationale lovgivning. For

	mere information, se SDS afsnit 13.
2.2 Kontrol af arbejdstagereksposering: Påføring med rulle eller pensel (PROC10)	
Stofkoncentration	Dækker stofprocent i produktet op til 1 %
Mængde anvendt, hyppighed, tidsforbrug per eksponering	Dækker anvendelse i op til 1 time/dag
Tekniske og organisatoriske kontrolforanstaltninger	Sørg for særlig aktivitetstræning af personel, i overensstemmelse med REACH vedlegg XVII, nr. 74. Sørg for øget, generel mekanisk ventilation (ikke mindre enn 3 til 5 luftudskiftninger per time). Sørg for udsugningsanlæg til steder, hvor der sker emissioner. Effektivitet af foranstaltningen: 95 %. For mere information, se SDS afsnit 8.
Kontrolforanstaltninger tilknyttet personlig vern og hygiejne	Brug egnet øjenbeskyttelse. Brug kemikaliebestandige handsker (testet til EN374) i kombination med særlig aktivitetstræning; Hvis der forventes forurening af hud på andre dele af kroppen, skal disse kropsdele også beskyttes med tilsvarende uigennemtrængeligt beskyttelsestøj; For mere information, se SDS afsnit 8. Anvend egnet åndedrætsværn med som minimum en beskyttelsesfaktor 10 (APF 10). For mere information, se SDS afsnit 8.
Andre driftsforhold der har indflydelse på eksponering	Indendørs anvendelse Dækker anvendelser ved stuetemperatur

3. Eksponeringsberegning og henvisning til kilde

Mange eksponeringsscenarier indeholder en tabel med beregnede eksponeringsværdier fra alle bidragende scenarier, og henvisning til program/model anvendt for beregningerne. Ikke fokus i disse eksempler.

4. Vejledning for downstreambrugere

Eksempel:

Miljø	Eksponeringsvurderingen er baseret på formodede driftsbetingelser, der måske ikke gælder for alle steder, hvorfor omregning måske er nødvendig for at definere korrekte områdespecifikke risikohåndteringsforanstaltninger (RMM). Eventuelle afvigelser kontrolleres med ECETOC TRA-verktøjet. Detaljer om skalering findes i FEICA SPERC 8c.3.v3.
Arbejds-tagere	Estimeret eksponering for arbejdstagere forventes ikke å overstige grenseverdien (DNEL) så lenge alle nevnte risikohåndteringsiltak følges. Hvis der er fastlagt andre RMM / driftsforanstaltninger, skal brugere sørge for, at risici håndteres på minimum lignende niveau. Eventuelle avvik kontrolleres med ECETOC TRA-verktøyet.

ES 2: Vidt udbredt erhvervmæssig anvendelse; Klæbestoffer, tætningsmidler (PC 1); storskala påføring af 2- eller multikomponent reaktive klæbemidler

1. Titelpunkt

Anvendelse	Erhvervmæssig indendørs håndtering og blanding af 2- eller multikomponent flydende klæbemiddel	
Omhandlede processer, opgaver, aktiviteter	Blanding og håndtering af 2- eller multikomponent reaktivt klæbemiddel ved professionelle brugere, indendørs, udført på en trinvis måde baseret på klæbemiddelets åbentid. Blandeprocessen gøres med en håndholdt boremaskine i en spand. Dækker også tømning fra en spand over i en annen. Tidsforbrug er maksimalt 4 timer.	
Anvendelsessektor	SU22	Erhvervmæssig

Bidragende scenarier, miljø	ERC8C FEICA SPERC 8c.3.v3	Vidt udbredt anvendelse, der fører til inkludering i/på artikel (indendørs) Vidt udbredt anvendelse af ikke-flyktige stoffer i lim/fugemasse – indendørs
Bidragende scenarier, arbejdstagere	PROC5	Blanding eller iblanding i batchprocesser

2. Anvendelsesforhold med indflydelse på eksponeringen

2.1 Kontrol af miljøeksponering: Vidt udbredt anvendelse, der fører til inkludering i/på artikel (indendørs) (ERC8C, FEICA SPERC 8c.3.v3)

Mængde anvendt, hyppighed og tidsforbrug per eksponering	Kontinuerlig eksponering: 365 dage/år
Tekniske og organisatoriske kontrolforanstaltninger	Tilslutning til kommunalt spildevandsrensningsanlæg er formodet. Undgå at lede ud i afløb eller til vandmiljøer. Affaldsbehandling skal overholde gældende lokale og / eller nationale lovgivning. For mere information, se SDS afsnit 13.

2.2 Kontrol af arbejdstagerekspoonering: Blanding eller iblanding i batchprocesser (PROC5)

Stofkoncentration	Dækker stofprocent i produktet op til 1 %
Mængde anvendt, hyppighed, tidsforbrug per eksponering	Dækker anvendelse i op til 4 timer/dag
Tekniske og organisatoriske kontrolforanstaltninger	Sørg for særlig aktivitetstræning af personel, i overensstemmelse med REACH vedlegg XVII, nr. 74. Sørg for øget, generel mekanisk ventilation (ikke mindre enn 3 til 5 luftudskiftninger per time). Sørg for udsugningsanlæg til steder, hvor der sker emissioner. Effektivitet af foranstaltningen: 95 %. For mere information, se SDS afsnit 8.
Kontrolforanstaltninger tilknyttet personlig vern og hygiejne	Brug egnet øjenbeskyttelse. Brug kemikaliebestandige handsker (testet til EN374) i kombination med særlig aktivitetstræning; Hvis der forventes forurening af hud på andre dele af kroppen, skal disse kropsdele også beskyttes med tilsvarende uigennemtrængeligt beskyttelsestøj; For mere information, se SDS afsnit 8. Anvend egnet åndedrætsværn med som minimum en beskyttelsesfaktor 10 (APF 10). For mere information, se SDS afsnit 8.
Andre driftsforhold der har indflydelse på eksponering	Indendørs anvendelser Dækker anvendelser ved stuetemperatur

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Se venligst eksempel 1, ES 1.

Eksempel 2: ES for det fiktive stof "Triamin X"

Stofnavn: Triamin X

CAS-nummer: 2345-67-8

Versionsnummer og dato: 12.09.2022, v.1

Forkortelser

Liste som i eksempel 1

ES: Industriel anvendelse; Anvendelse som tilsætningsstof i skum og belægninger

1. Tittelseksjon

Anvendelse	Industriel anvendelse som tilsætningsstof i skum og belægninger	
Omhandlede processer, opgaver, aktiviteter	Eksempel taget med kun for PROC8b: Overførsel af produkt mellem beholdere	
Anvendelsessektor	SU8	Fremstilling af kemikalier i bulk (herunder olieprodukter)
Bidragende scenarier, miljø	PC9a PC32	Belægninger og maling, fortyndere, farvefjernere Polymere kemiske produkter og blandinger
Bidragende scenarier, arbejdstagere	ERC5	Anvendelse på industrianlæg, der medfører inkludering i/på artikel
	PROC2 PROC8b PROC12	Kemisk produktion eller raffinering i lukket, kontinuerlig proces med kontrolleret lejlighedsvis eksponering eller processer med lignende indeslutningsbetingelser Overførsel af stof eller blanding (påfyldning og udtømning) på dedikerede anlæg Anvendelse af blæsemidler ved fremstilling af skum

2. Anvendelsesforhold med indflydelse på eksponeringen

2.1 Kontrol af miljøeksponering: Anvendelse på industrianlæg, der medfører inkludering i/på artikel (ERC5)

Mængde anvendt, hyppighed og tidsforbrug per eksponering	Kontinuerlig eksponering: 365 dage/år Dækker årlig mængde per anlæg på ≤ 100 tons
Tekniske og organisatoriske kontrolforanstaltninger	Tilslutning til kommunalt spildevandsrensningsanlæg er formodet. Formodet gennemstrømning i kommunalt spildevandsrensningsanlæg er ≥ 2000 m ³ /dag. Undgå at lede ud i afløb eller til vandmiljøer. Affaldsbehandling skal overholde gældende lokale og / eller nationale lovgivning. For mere information, se SDS afsnit 6 og 13.

2.2 Kontroll af arbejdstagereksponeering: Kemisk produktion eller raffinering i lukket, kontinuerlig proces med kontrolleret lejlighedsvis eksponering eller processer med lignende indeslutningsbetingelser (PROC2)

Stofkoncentration	Dækker stofprocent i produktet op til 100 %
Mængde anvendt, hyppighed, tidsforbrug per eksponering	Dækker anvendelse i op til 8 timer/dag
Tekniske og organisatoriske kontrolforanstaltninger	Formodet at aktiviteterne gennemføres med velegnet og vedligeholdt udstyr, af medarbejdere aktivitetstræning, der er under overvågning; Sørg for regelmæssig inspektion, vask og vedligehold af udstyr og maskiner; Fjern spild med det samme og håndter affald ansvarligt; Sørg for daglig rengøring af udstyr. Sørg for grundlæggende generel ventilation (1 til 3 luftudskiftninger per time). Sørg for udsugningsanlæg til steder, hvor der sker emissioner. Effektivitet af foranstaltningen: 90 %. For mere information, se SDS afsnit 8.
Kontrolforanstaltninger tilknyttet personlig vern og hygiejne	Brug egnet øjenbeskyttelse. Brug kemikaliebestandige handsker (testet til EN374) i kombination med særlig aktivitetstræning; Hvis der forventes forurening af hud på andre dele af kroppen, skal

	disse kropsdele også beskyttes med tilsvarende uigennemtrængeligt beskyttelsestøj; For mere information, se SDS afsnit 8. Anvend egnet åndedrætsværn med som minimum en beskyttelsesfaktor 10 (APF 10). For mere information, se SDS afsnit 8.
Andre driftsforhold der har indflydelse på eksponering	Indendørs anvendelse Dækker anvendelse ved temperaturer op til 40 °C

2.3 Kontrol af arbejdstagereksposering: Overførsel af stof eller blanding (påfyldning og udtømning) på dedikerede anlæg (PROC8b):

Stofkoncentration	Dækker stofprocent i produktet op til 100 %
Mængde anvendt, hyppighed, tidsforbrug per eksponering	Dækker anvendelse i op til 1 time/dag
Tekniske og organisatoriske kontrolforanstaltninger	Formodet at aktiviteterne gennemføres med velegnet og vedligeholdet udstyr, af medarbejdere aktivitetstræning, der er under overvågning; Sørg for regelmæssig inspektion, vask og vedligehold af udstyr og maskiner; Fjern spild med det samme og håndter affald ansvarligt; Sørg for daglig rengøring af udstyr. Sørg for grundlæggende generel ventilation (1 til 3 luftudskiftninger per time). Sørg for udsugningsanlæg til steder, hvor der sker emissioner. Effektivitet af foranstaltningen: 90 %. For mere information, se SDS afsnit 8.
Kontrolforanstaltninger tilknyttet personlig vern og hygiejne	Brug egnet øjenbeskyttelse. Brug kemikaliebestandige handsker (testet til EN374) i kombination med særlig aktivitetstræning; Hvis der forventes forurening af hud på andre dele af kroppen, skal disse kropsdele også beskyttes med tilsvarende uigennemtrængeligt beskyttelsestøj; For mere information, se SDS afsnit 8. Anvend egnet åndedrætsværn med som minimum en beskyttelsesfaktor 10 (APF 10). For mere information, se SDS afsnit 8.
Andre driftsforhold der har indflydelse på eksponering	Beholdere til- og frakobles det automatiske påføringsudstyr på anlægget. Eksponering af arbejdere kan kun ske under til- og frakobling. Indendørs anvendelse Dækker anvendelse ved stuetemperatur

2.4 Kontrol af arbejdstagereksposering: Anvendelse af blæsemidler ved fremstilling af skum (PROC12):

Stofkoncentration	Dækker stofprocent i produktet op til 100 %
Mængde anvendt, hyppighed, tidsforbrug per eksponering	Dækker anvendelse i op til 8 timer/dag
Tekniske og organisatoriske kontrolforanstaltninger	Formodet at aktiviteterne gennemføres med velegnet og vedligeholdet udstyr, af medarbejdere aktivitetstræning, der er under overvågning; Sørg for regelmæssig inspektion, vask og vedligehold af udstyr og maskiner; Fjern spild med det samme og håndter affald ansvarligt; Sørg for daglig rengøring af udstyr. Sørg for grundlæggende generel ventilation (1 til 3 luftudskiftninger per time). Sørg for udsugningsanlæg til steder, hvor der sker emissioner. Effektivitet af foranstaltningen: 90 %. For mere information, se SDS afsnit 8.
Kontrolforanstaltninger tilknyttet personlig vern og hygiejne	Brug egnet øjenbeskyttelse. Brug kemikaliebestandige handsker (testet til EN374) i kombination med særlig aktivitetstræning; Hvis der forventes forurening af hud på andre dele af kroppen, skal disse kropsdele også beskyttes med tilsvarende uigennemtrængeligt beskyttelsestøj; For mere information, se SDS afsnit 8. Anvend egnet åndedrætsværn med som minimum en beskyttelsesfaktor 10 (APF 10). For mere information, se SDS afsnit 8.
Andre driftsforhold der har indflydelse på eksponering	Indendørs anvendelse Dækker anvendelse ved stuetemperatur

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Se venligst eksempel 1, ES 1.

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