

Survey on exposure scenarios in safety data sheets:

Attachment to section 3 of the survey

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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 about 15-30 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):** }
- **Environmental release categories (ERC):** } From REACH guidance R.12. All contributing scenarios within the ES: PROCs (workers) and ERCs/SPERCs (environment)
- **Process categories (PROC):** }

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

2.1 Control of environmental exposure: *Name of ERC*

- **Product characteristics:** }
- **Amount used:** } 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.
- **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:** }
- **Frequency and duration of exposure:** } Most importantly: how many hours per day of activity the ES covers.
- **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 **Side x**

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

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
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. Eksponeringsberegning og henvisning til kilde

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 Widespread use of non-volatile substances in adhesives / sealants - indoor
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 m ³ /day Do not empty the product into drains / surface water / ground water Dispose of in accordance with local legislation For further specification, refer to sections 6 and 13 of the SDS

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.