Safety Data Sheet
according to Regulation (EC) No 1907/2006 (REACH)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Substances

Substance name
CAS No
Index No
EC No
REACH No
The substance does not require registration according to Regulation (EC) No 1907/2006 [REACH].
Authorisation No

Mixtures

Trade name / designation ***MethaSol***

Other means of identification

Hazard components for labelling

Kommentiert [A2]:
This section of the safety data sheet shall prescribe how the substance or mixture shall be identified and how the identified relevant uses, the name of the supplier of the substance or mixture and the contact detail information of the supplier of the substance or mixture, including an emergency contact, shall be provided in the safety data sheet.

Kommentiert [A3]: The product identifier shall be provided in accordance with Article 18(2) of Regulation (EC) No 1272/2008 in the case of a substance and in accordance with Article 18(3)(a) of Regulation (EC) No 1272/2008 in the case of a mixture, and as provided on the label in the official language(s) of the Member State(s) where the substance or mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.

Kommentiert [A4]: For substances subject to registration, the product identifier shall be consistent with that provided in the registration and the registration number assigned under Article 20(3) of this Regulation shall also be indicated. Additional identifiers may be provided even if they have not been used in the registration.

Kommentiert [A5]: optional

Kommentiert [A6]:
Other names or synonyms by which the substance or mixture is labelled or commonly known may be provided. Where a mixture has a unique formula identifier (UFI) in accordance with section 5 of Part A of Annex VIII to Regulation (EC) No 1272/2008 and that UFI is indicated in the safety data sheet, then the UFI shall be provided in this subsection.

Kommentiert [A7]:
For mixtures only, see CLP, Art. 18b
The product identifier for a mixture shall consist of both of the following:
(a) the trade name or the designation of the mixture;
(b) the identity of all substances in the mixture that contribute to the classification of the mixture as regards acute toxicity, skin corrosion or serious eye damage, germ cell mutagenicity, carcinogenicity, reproductive toxicity, respiratory or skin sensitisation, specific target organ toxicity (STOT) or aspiration hazard.
Where, in the case referred to in (b), that requirement leads to the provision of multiple chemical names, a maximum of four chemical names shall suffice, unless more than four names are needed to reflect the nature and the severity of the hazards.
The chemical names selected shall identify the substances primarily responsible for the major health hazards which have given rise to the classification and the choice of the corresponding hazard statements.

The part of the product identifier “hazard components” according to CLP, Art. 18b would better belong to Sub-SECTION 2.2 for mixtures. BUT:
ECHA SDS Guidance is stated in a footnote (No. 54) as additional explanation to the header "product identifier":
"Note that the product identifier, although a label element, is not given in subsection 2.2 as it is not specified as one of the elements which should appear here. It is to be given in section 1.1."
For further information on the compilation of the SDS, please consult the Guidance on the compilation of safety data sheets (http://echa.europa.eu/guidancedocuments ... e-on-reach).

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses

In compliance with the conditions described in the annex to this safety data sheet.
Summarized overview of registered and identified uses and their respective exposure scenarios: pls. see annex to this SDS.
See section 16 for a comprehensive list of uses, for which an exposure scenario is provided as an annex.

Uses advised against

Do not use for injecting or spraying.
Reasons

1.3 Details of the supplier of the safety data sheet

Supplier

Name
Address
Information contact
E-Mail (competent person)

Importer / Only Representative

Name
Address
Information contact
E-Mail (competent person)

1.4 EMERGENCY TELEPHONE NUMBER

Foot note (general hint):
Layout examples are given in the sections 2, 3, 8, 11 and 12. Of course other illustration alternatives and alternative structures may be used in practice too.

Kommentiert [A8]: At least a brief description of the identified uses (for example, floor cleaning, or industrial use in polymer production, or professional use in cleaning agents) relevant for the recipient(s) of the substance or mixture shall be indicated. The uses which the supplier advises against and the reasons why shall, where applicable, be stated. This need not be an exhaustive list.
Where a chemical safety report is required, the information in this subsection of the safety data sheet shall be consistent with the identified uses in the chemical safety report and the exposure scenarios from the chemical safety report set out in the annex to the safety data sheet.

ECHA FAQ:
For registered substances for which a Chemical Safety Report (CSR) is required, the information appearing in section 1.2 of the SDS needs to be in line with the identified uses in the CSR (under REACH, the definition of use goes beyond the chemical function) and the Exposure Scenario (ES) annexed to the SDS. Intuitive ES titles can be reported in section 1.2. When the use descriptor system is used in the ES, it is advised that, in section 1.2, the uses of the substance are described in a generic wording while remaining consistent with that of the use descriptor system. Reporting the use descriptor codes in section 1.2 is not recommended as it may lead to lengthy lists. The Process and Product Categories in the use descriptor system can be used as an indication.
For registered substances for which a CSR is not required (between 1-10 tonnes/year), substances not yet registered or not subject to registration (e.g. below 1 tonne/year or listed in Annex IV or V) and mixtures, the intended uses known to the supplier need to be indicated, with a brief description of what the substance or mixture is intended to do, such as "flame retardant in textile fibres", "antioxidant in paints, cosmetics, detergents", etc.

Kommentiert [A9]: Standard phrase for extended SDS.

Kommentiert [A10]: Example

Kommentiert [A11]:
Reason why uses advised against.
REACH, Article 37.3 requirement, not yet explicitely content in REACH, annex I.
Example: Indoor use on large surface area will potentially exceed Consumer DNEL (assessed by ECETOC TRA).

Kommentiert [A12]: The supplier of the safety data sheet, whether it is the manufacturer, importer, only representative, downstream user or distributor, shall be identified. The full address and telephone number of the supplier shall be given as well as an email address for a competent person responsible for the safety data sheet.
In addition, if the supplier is not located in the Member State where the substance or mixture is placed on the market and he has nominated a responsible person for that Member State, a full address and telephone number for that responsible person shall be given. Where an only representative has been appointed, details of the non-Union manufacturer or formulator may also be provided. For registrants, the information on the supplier of the safety data sheet and, if provided, on the supplier of the substance or mixture, shall be consistent with the information on the identity of the manufacturer, importer or only representative provided in the registration.

Kommentiert [A13]: manufacturer/importer/only representative/downstream user/distributor:

Kommentiert [A14]:
In case of non-EU Supplier

Kommentiert [A15]: References to emergency information services shall be provided. If an official advisory body exists in the Member State where the substance or mixture is placed on the market (this may be the body responsible for receiving information relating to health referred to in Article 45 of Regulation (EC) No 1272/2008), its telephone number shall be given and can suffice. If availability of such services is limited for any reasons, such as hours of operation, or if there are limits on specific types of information provided, this shall be clearly stated.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]	SCL, M-factor, ATE	Classification procedure
Flam. Liq. 2, H225		*On basis of test data*
Repr. 1A, H360D	*C ≥ 3 %: Repr. 1A, H360D*	*Legal classification*
Acute Tox. 3, H301	*ATE (oral): 250 mg/kg*	*Practical experience / human evidence*
Acute Tox. 3, H311	*ATE (dermal): 300 mg/kg*	*Practical experience / human evidence*
Acute Tox. 3, H331	*ATE (inhalation, vapour): 2,5 mg/l/4h*	*Practical experience / human evidence*
STOT RE 1, H372	*C ≥ 1 %: STOT RE 1, H372*	*On basis of test data*
	0,1 ≤ C < 1 %: STOT RE 2, H373	
Aquatic Acute 1, H400	*M (acute) = 100*	*On basis of test data*
Aquatic Chronic 1, H410	*M (chronic) = 10*	*On basis of test data*

Additional information
For full text of Hazard- and EU Hazard-statements: see SECTION 16.
With regard to the calculation of ATEmix the mixture does not contain relevant components with unknown acute toxicity.
The mixture does not contain components with unknown hazards to the aquatic environment.

Kommentiert [A16]:
This section of the safety data sheet shall describe the hazards of the substance or mixture and the appropriate warning information associated with those hazards.

Kommentiert [A17]: The classification of the substance or the mixture which results from the application of the classification criteria in Regulation (EC) No 1272/2008 shall be given. Where the supplier has notified information regarding the substance to the classification and labelling inventory in accordance with Article 40 of Regulation (EC) No 1272/2008, or has provided that information as part of a registration pursuant to this Regulation, the classification given in the safety data sheet shall be the same as the classification provided in that notification or registration. If the mixture does not meet the criteria for classification in accordance with Regulation (EC) No 1272/2008, this shall be clearly stated. Information on the substances in the mixture is provided under subsection 3.2. If the classification, including the hazard statements, is not written out in full, reference shall be made to section 16 where the full text of each classification, including each hazard statement, shall be given. The most important adverse physical, human health and environmental effects shall be listed in accordance with sections 9 to 12 of the safety data sheet, in such a way as to allow non-experts to identify the hazards of the substance or mixture.

Note: according to REACH, Annex II, the specification of the SCL and / or the M-factors for substances at this point is not necessary, as only required in SECTION 3.1. However, the indication of this data coupled with the classification appears to be more sensible than being listed individually.

Kommentiert [A18]: Proposed standard phrases (see siehe https://phrases.esdscom.eu/) are for example:
Calculation method.
Bridging principle "Dilution".
Bridging principle "Batching".
Bridging principle "Concentration of highly hazardous mixtures".
Bridging principle "Interpolation within one toxicity category".
Bridging principle "Substantially similar mixtures".
Bridging principle "Aerosols".

For mixtures it may be possible to use also the „calculation method" as classification procedure.
According to REACH, Annex II this should be stated in SECTION 16 latest: in the case of mixtures, an indication of which of the methods of evaluating information referred to in Article 9 of Regulation (EC) No 1272/2008 was used for the purpose of classification.

Kommentiert [A19]: Senseful sentence to avoid inquiries of recipients and authorities with regard to the amount of unknown acute toxicity.

Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard pictograms

Signal word
Danger

Hazard statements

H225	*Highly flammable liquid and vapour.*
H301+H311+H331	*Toxic if swallowed, in contact with skin or if inhaled.*
H372	*Causes damage to organs through prolonged or repeated exposure (oral, kidneys).*
H360D	*May damage the unborn child.*
H410	*Very toxic to aquatic life with long lasting effects.*

Precautionary statements

P210	*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
P260	*Do not breathe mist/vapours/spray.*
P273	*Avoid release to the environment.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P308+P311	*IF exposed or concerned: Call a doctor.*
P301+P330+P331	*IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.*
P303+P361+P353	*IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

Supplemental Hazard information

Special rules for supplemental label elements for certain mixtures

Additional labelling

2.3 Other hazards

Adverse physicochemical effects:
Adverse human health effects and symptoms:
Adverse environmental effects:
Other adverse hazards:

Kommentiert [A20]: Based on the classification, at least the following elements appearing on the label in accordance with Regulation (EC) No 1272/2008 shall be provided: hazard pictogram(s), signal word(s), hazard statement(s) and precautionary statement(s). A graphical reproduction of the full hazard pictogram in black and white or a graphical reproduction of the symbol only may be substituted for the colour pictogram provided in Regulation (EC) No 1272/2008. The applicable label elements in accordance with Article 25(1) to (6) and Article 32(6) of Regulation (EC) No 1272/2008 shall be provided.

Note: just specifying the coding of the pictograms alone is not sufficient.

Kommentiert [A21]: if applicable. For example EUH071

Kommentiert [A22]: To be added if applicable for mixtures only. For example EUH202

Kommentiert [A23]: e.g. REACH, Annex XVII and Detergents regulation etc.

Kommentiert [A24]: Information shall be provided on whether the substance meets the criteria for persistent, bioaccumulative and toxic or very persistent and very bioaccumulative in accordance with Annex XIII, whether the substance was included in the list established in accordance with Article 59(1) for having endocrine disrupting properties, and whether the substance is a substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100(3) or Commission Regulation (EU) 2018/605(4). For a mixture, information shall be provided for each such substance that is present in the mixture at a concentration equal to or greater than 0,1 % by weight.

Information shall be provided on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture, such as formation of air contaminants during hardening or processing, dustiness, explosive properties which do not fulfil the classification criteria of part 2 Section 2.1 of Annex I to Regulation (EC) No 1272/2008, dust explosion hazards, cross-sensitisation, suffocation, freezing, high potency for odour or taste, or environmental effects like hazards to soil-dwelling organisms, or photochemical ozone creation potential. The statement "May form explosible dust-air mixture if dispersed" is appropriate in the case of a dust explosion hazard.

Example phrases:
"May form explosible dust-air mixture if dispersed"
"Substance is an endocrine disruptor"
"Substance meets the criteria for PBT or vPvB according to Regulation (EC) No 1207/2006, Annex XIII"
"Substance is phototoxic"

SECTION 3. Composition/information on ingredients

3.1 Substances

Substance name
Index No
EC No
REACH No
CAS No
SCL
ATE (oral)
ATE (dermal)
ATE (inhalation, vapour)
ATE (inhalation, dust/mist)
ATE (inhalation, gas)
M-Factor
Molecular weight
Molecular formula
Purity
Synonymes
Stabilisers
Hazard impurities

Information for nanoforms

Particle size distribution	**Type of particle**	**D10**	**Method**
	primary particle	*10 – 20 nm*	*OECD 125: Atomic Force Microscopy (AFM), d0,hgt*
	aggregate	*30 – 40 nm*	*ISO 22412*
	agglomerate	*50 – 80 nm*	*ASTM E 2859*
Morphological characteristics			
Shape category	*tubes, elongated*		
Aspect ratio	*3:1*		
Other morphological characteristics			
Assembly structure			**Method**
Type	*hollow*		*Scanning Electron Microscopy (SEM)*
Crystallinity			
Crystall system	**Type**		**Method**
hexagonal	Crystalline structure fraction	*80 %*	*Wide Angle X-ray Scattering (WAXS)*
hexagonal	Amorphous structure fraction	*20 %*	*Wide Angle X-ray Scattering (WAXS)*
Specific surface area			
Volume-specific surface area	**Skeletal density**		**Method**
60 m²/cm³	*30 g/cm³*		*ISO 9277*
Mass-specific surface area	**Skeletal density**		**Method**
25 m²/g	*30 g/cm³*		*ISO 12154*
Surface functionalisation / treatment			
Process	*Immersion process; non-covalent bonding.*		
Treating agent	**Substance name**	**CAS No.**	**EC No.**
	zinc oxide	*1314-13-2*	*215-222-5*

3.2 Mixtures
not applicable

Kommentiert [A25]: This section of the safety data sheet shall describe the chemical identity of the ingredient(s) of the substance or mixture, including impurities and stabilising additives as set out below. Appropriate and available safety information on surface chemistry shall be indicated.

Kommentiert [A26]: The chemical identity of the main constituent of the substance shall be provided by providing at least the product identifier or one of the other means of identification given in subsection 1.1.
The chemical identity of any impurity, stabilising additive, or individual constituent other than the main constituent, which is itself classified and which contributes to the classification of the substance shall be provided as follows:
(a) the product identifier in accordance with Article 18(2) of CLP
(b) if the product identifier is not available, one of the other names (usual name, trade name, abbreviation) or identification numbers.
The specific concentration limit, the M-factor and the acute toxicity estimate for substances included in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or determined in accordance with Annex I to that Regulation shall be indicated, if available.

Kommentiert [A27]: Where an alternative chemical name is being used according to the provisions of Article 24 of CLP for a substance in a mixture it is recommended that this be indicated (with an appropriate identifier such as a notification number) in this subsection (or in Sections 15 or 16) in order to avoid enquiries on its use from recipients or from enforcement authorities. For substances indicated in this subsection by means of an alternative chemical name, the registration number, EC number and other precise chemical identifiers are not necessary.

Kommentiert [A28]: optional

Kommentiert [A29]: If the substance is registered and it covers a nanoform, the particle characteristics that specify the nanoform, as described in Annex VI, shall be indicated. If the substance is not registered, but the SDS covers nanoforms, the particle characteristics of which have impact on the safety of the substance, those characteristics shall be indicated.
SDB Guidance, Version 4.0: The additional information for nanoforms could follow the model shown in Table 1.

Kommentiert [A30]: REACH, Annex VI (extract):
2.4. Characterisation of nanoforms of a substance: For each of the characterisation parameters, the information provided may be applicable to either an individual nanoform or a set of similar nanoforms provided that the boundaries of the set are clearly specified.
The information in points 2.4.2 – 2.4.5 shall be clearly assigned to the different nanoforms or sets of similar nanoforms identified in point 2.4.1
2.4.2. Number based particle size distribution with indication of the number fraction of constituent particles in the size range within 1 nm – 100 nm
2.4.3. Description of surface functionalisation or treatment and identification of each agent including IUPAC name and CAS or EC number
2.4.4. Shape, aspect ratio and other morphological characterisation: crystallinity, information on assembly structure including e.g. shell like structures or hollow structures, if appropriate
2.4.5. Surface area (specific surface area by volume, specific surface area by mass or both)

Kommentiert [A31]: REACH, Annex VI: 2.4.2. Number based particle size distribution with indication of the number fraction of constituent particles in the size range within 1 nm – 100 nm

Kommentiert [A32]: Type: D10, D50, D90

Kommentiert [A33]: Different methods depending on the nanoform

Kommentiert [A34]: REACH Annex VI: 2.4.4. Shape, aspect ratio and other morphological characterisation: crystallinity, information on assembly structure including e.g. shell like structures or hollow structures, if appropriate

Kommentiert [A35]: REACH Annex VI: 2.4.5. Surface area (specific surface area by volume, specific surface area by mass or both)

ALTERNATIVE for mixtures

3.1 Substances
not applicable

3.2 Mixtures

Description of the mixture: *Aqueous solution of ABC.*

Hazardous ingredients ***EXAMPLE***

Substance name	CAS No.	INDEX No.	EC No.	REACH No.	Concen-tration	Classification according Regulation (EC) No. 1272 [CLP]	SCL, M-factor, ATE
ABC	*123-45-6*		*123-456-7*	*01-XXXXXX-XXXX-YY-ZZZ1*	*50 %*	*Flam. Liq. 2, H225* *Repr. 1A, H360D* *Acute Tox. 3, H301* *Acute Tox. 3, H311* *Acute Tox. 3, H331* *STOT RE 1, H372* *Aquatic Acute 1, H400* *Aquatic Chronic 1, H410*	*C ≥ 3 %: Repr. 1A, H360D* *ATE (oral): 250 mg/kg* *ATE (dermal): 300 mg/kg* *ATE (inhalation, vapour): 2,5 mg/l/4h* *C ≥ 1 %: STOT RE 1, H372* *0,1 ≤ C < 1 %: STOT RE 2, H373* *M (acute) = 100* *M (chronic) = 10*

ABC

Particle size distribution	Type of particle	D10	Method
	primary particle	*10 – 20 nm*	*OECD 125: Atomic Force Microscopy (AFM), d0,hgt*
	aggregate	*30 – 40 nm*	*ISO 22412*
	agglomerate	*50 – 80 nm*	*ASTM E 2859*

Morphological characteristics			
Shape category	*Elongated: tubes*		
Aspect ratio	*3:1*		
Other morphological characteristics			
Assembly structure			**Method**
Type	*hollow*		*Scanning Electron Microscopy (SEM)*
Crystallinity			
Crystall system	**Type**		**Method**
hexagonal	Crystalline structure fraction	*80 %*	*Wide Angle X-ray Scattering (WAXS)*
hexagonal	Amorphous structure fraction	*20 %*	*Wide Angle X-ray Scattering (WAXS)*
Specific surface area			
Volume-specific surface area	**Skeletal density**		**Method**
60 m²/cm³	*30 g/cm³*		*ISO 9277*
Mass-specific surface area	**Skeletal density**		**Method**
25 m²/g	*30 g/cm³*		*ISO 12154*
Surface functionalisation / treatment			
Process	*Immersion process; non-covalent bonding.*		
Treating agent	**Substance name**	**CAS No.**	**EC No.**
	zinc oxide	*1314-13-2*	*215-222-5*

Additional information:
For full text of Hazard- and EU Hazard-statements: see SECTION 16.
The treating agent is registered according Regulation (EC) No. 1907/2006 [REACH].

Kommentiert [A37]: The product identifier, the concentration or concentration ranges and the classifications shall be provided for at least all substances referred to in points 3.2.1 or 3.2.2. Suppliers of mixtures may choose to list in addition all substances in the mixture, including substances not meeting the criteria for classification. This information shall enable the recipient to identify readily the hazards of the substances in the mixture. The hazards of the mixture itself shall be given in section 2. The concentrations of the substances in a mixture shall be described as either of the following: (a) exact percentages in descending order by mass or volume, if technically possible; (b) ranges of percentages in descending order by mass or volume, if technically possible. When using a range of percentages, if the effects of the mixture as a whole are not available, the health and environmental hazards shall describe the effects of the highest concentration of each ingredient. If the effects of the mixture as a whole are available, the classification determined from this information shall be included under section 2. Where the use of an alternative chemical name is permitted in accordance with Article 24 of Regulation (EC) No 1272/2008, that name can be used.

Kommentiert [A38]:
This example is different to SECTION 2!

Kommentiert [A39]: CLP, article 24:
The manufacturer, importer or downstream user of a substance in a mixture may submit a request to the Agency to use an alternative chemical name which refers to that substance in a mixture either by means of a name that identifies the most important functional chemical groups or by means of an alternative designation, where the substance meets the criteria set out in Part 1 of Annex I and where he can demonstrate that disclosure on the label or in the safety data sheet of the chemical identity of that substance puts the confidential nature of his business, in particular his intellectual property rights, at risk.
Where the use of an alternative chemical name has been allowed, but the classification of the substance in a mixture for which the alternative name is used no longer meets the criteria set out in section 1.4.1 of Annex I, the supplier of that substance in a mixture shall use the product identifier for the substance in accordance with Article 18 on the label and in the safety data sheet, and not the alternative chemical name.

Kommentiert [A40]: REACH, Annex VI: 2.4.2. Number based particle size distribution with indication of the number fraction of constituent particles in the size range within 1 nm – 100 nm

Kommentiert [A41]: Type: D10, D50, D90

Kommentiert [A42]: Different methods depending on the nanoform

Kommentiert [A43]: REACH Annex VI: 2.4.4. Shape, aspect ratio and other morphological characterisation: crystallinity, information on assembly structure including e.g. shell like structures or hollow structures, if appropriate

Kommentiert [A44]: REACH Annex VI: 2.4.5. Surface area (specific surface area by volume, specific surface area by mass or both)

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Following inhalation

Following skin contact

Following eye contact

Following ingestion

Self-protection of the first aider

4.2 Most important symptoms and effects, both acute and delayed

Symptoms

Effects

4.3 Indication of any immediate medical attention and special treatment needed

Notes for the doctor

Special treatment

Kommentiert [A46]:
This section of the safety data sheet shall describe the initial care in such a way that an untrained responder can understand and provide it without the use of sophisticated equipment and without the availability of a wide selection of medications. If medical attention is required, the instructions shall state this, including its urgency.

Kommentiert [A47]:
First aid instructions shall be provided by relevant routes of exposure. Subdivisions shall be used to indicate the procedure for each route, such as inhalation, skin, eye and ingestion.
4.1.2. Advice shall be provided as to whether:
(a) immediate medical attention is required and if delayed effects can be expected after exposure;
(b) movement of the exposed individual from the area to fresh air is recommended;
(c) removal and handling of clothing and shoes from the individual is recommended; and
(d) personal protective equipment for first aid responders is recommended.

Kommentiert [A48]:
Specify first whether immediate medical attention is required.

Kommentiert [A49]: SDS Guidance text

Kommentiert [A50]: SDS Guidance text

Kommentiert [A51]: SDS Guidance text

Kommentiert [A52]: SDS Guidance text

Kommentiert [A53]:
Briefly summarised information shall be provided on the most important symptoms and effects, both acute and delayed, from exposure.

Kommentiert [A54]:
Where appropriate, information shall be provided on clinical testing and medical monitoring for delayed effects, specific details on antidotes (where they are known) and contraindications.

For some substances or mixtures, it may be important to emphasise that special means to provide specific and immediate treatment shall be available at the workplace.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

5.3 Advice for fire-fighters

Additional information

Kommentiert [A55]: This section of the safety data sheet shall describe the requirements for fighting a fire caused by the substance or mixture, or arising in its vicinity.

Kommentiert [A56]: Information shall be provided on the appropriate extinguishing media.

Kommentiert [A57]: Indications shall be given whether any extinguishing media are inappropriate for a particular situation involving the substance or mixture (e.g. avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture).

Kommentiert [A58]: Information shall be provided on hazards that may arise from the substance or mixture, like hazardous combustion products that form when the substance or mixture burns, such as “may produce toxic fumes of carbon monoxide if burning” or “produces oxides of sulphur and nitrogen on combustion”.

Kommentiert [A59]:
Advice shall be provided on any protective actions to be taken during fire-fighting, such as “keep containers cool with water spray”, and on special protective equipment for fire-fighters, such as boots, overalls, gloves, eye and face protection and breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Personal precautions
Protective equipment
Emergency procedures

For emergency responders
Personal protective equipment

6.2 Environmental precautions

6.3 Methods and material for containment and cleaning up

For containment

For cleaning up

Other information

6.4 Reference to other sections

Additional information

Kommentiert [A60]: This section of the safety data sheet shall recommend the appropriate response to spills, leaks, or releases, to prevent or minimise the adverse effects on persons, property and the environment. It shall distinguish between responses to large and small spills, in cases where the spill volume has a significant impact on the hazard. If the procedures for containment and recovery indicate that different practices are required, these shall be indicated in the safety data sheet.

Kommentiert [A61]: Advice shall be provided related to accidental spills and release of the substance or mixture such as:
(a) the wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing;
(b) removal of ignition sources, provision of sufficient ventilation, control of dust; and
(c) emergency procedures such as the need to evacuate the danger area or to consult an expert.

Kommentiert [A62]: Advice shall be provided related to suitable fabric for personal protective clothing (such as "appropriate: Butylene"; "not appropriate: PVC").

Kommentiert [A63]: Advice shall be provided on any environmental precautions to be taken related to accidental spills and release of the substance or mixture, such as keeping away from drains, surface and ground water.

Kommentiert [A64]:
Appropriate advice shall be provided on how to contain a spill. Appropriate containment techniques may include any of the following:
(a) bunding, covering of drains;
(b) capping procedures.

Kommentiert [A65]:
Appropriate advice shall be provided on how to clean up a spill. Appropriate clean up procedures may include any of the following:
(a) neutralisation techniques;
(b) decontamination techniques;
(c) adsorbent materials;
(d) cleaning techniques;
(e) vacuuming techniques;
(f) equipment required for containment/clean up (include the use of non-sparking tools and equipment where applicable).

Kommentiert [A66]:
Any other information shall be provided relating to spills and releases, including advice on inappropriate containment or clean up techniques, such as by indications like "never use.. ".

Kommentiert [A67]:
If appropriate Sections 8 and 13 shall be referred to.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Advice on safe handling

Fire preventions

Aerosol and dust generation preventions

Environmental precautions

Advice on general occupational hygiene

Kommentiert [A68]: This section of the safety data sheet shall provide advice on safe handling practices. It shall emphasise precautions that are appropriate to the identified uses referred to under subsection 1.2 and to the unique properties of the substance or mixture. Information in this section of the safety data sheet shall relate to the protection of human health, safety and the environment. It shall assist the employer in devising suitable working procedures and organisational measures according to Article 5 of Directive 98/24/EC and Article 5 of Directive 2004/37/EC. Where a chemical safety report is required, the information in this section of the safety data sheet shall be consistent with the information given for the identified uses in the chemical safety report and the exposure scenarios showing control of risk from the chemical safety report set out in the annex to the safety data sheet. In addition to information given in this section, relevant information may also be found in section 8.

Kommentiert [A69]: Recommendations shall be specified to:
(a) allow safe handling of the substance or mixture, such as containment and measures to prevent fire as well as aerosol and dust generation;
(b) prevent handling of incompatible substances or mixtures;
(c) draw attention to operations and conditions which create new risks by altering the properties of the substance or mixture, and to appropriate countermeasures; and
(d) reduce the release of the substance or mixture to the environment, such as avoiding spills or keeping away from drains.

Kommentiert [A70]: Advice on general occupational hygiene shall be provided, such as:
(a) not to eat, drink and smoke in work areas;
(b) to wash hands after use; and
(c) to remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Packaging materials

Requirements for storage rooms and vessels

Hints on storage assembly

Storage class

Materials to avoid

Further information on storage conditions

7.3 Specific end uses

Recommendations

Industrial sector specific solutions

Kommentiert [A71]: The advice provided shall be consistent with the physical and chemical properties described in Section 9 of the SDS. If relevant, advice shall be provided on specific storage requirements including:
(a) How to manage risks with: explosive atmospheres; corrosive conditions; flammability hazards; incompatible substances/mixtures; evaporative conditions; potential ignition sources (including electrical equipment).
(b) How to control the effects of: weather conditions; ambient pressure; temperature; sunlight; humidity; vibration.
(c) How to maintain the integrity of the substance / mixture by the use of: stabilisers; anti-oxidants.
(d) Other advice: e.g. ventilation requirements; specific designs for storage rooms or vessels (incl. retention walls and ventilation);
(iii) quantity limits under storage conditions (if relevant); and
(iv) packaging compatibilities.

Kommentiert [A72]: For substances and mixtures designed for specific end use(s), recommendations shall relate to the identified use (s) referred to in subsection 1.2 and be detailed and operational. If an exposure scenario is attached, reference to it may be made or the information as required in subsections 7.1 and 7.2 shall be provided. If an actor in the supply chain has carried out a chemical safety assessment for the mixture, it is sufficient that the safety data sheet and the exposure scenarios are consistent with the chemical safety report for the mixture, rather than with the chemical safety reports for each substance in the mixture. If industry or sector specific guidance is available, detailed reference to it (including source and issuing date) may be made.

Kommentiert [A73]:
If industry- or sector-specific guidance is available, detailed reference to it (including source and issuing date) may be made.

SECTION 8: Exposure controls/personal protection

Preventive industrial medical examinations are to be carried out.

8.1 Control parameters

Occupational exposure limits

Limit value type (country of origin)	Substance name	CAS-No.	EC-No.	Occupational exposure limit value		Monitoring and observation processes	Peak limitation	Source
				Long term	Short term			
AGW (DE)								*TRGS 900*
OEL (EU)								

Biological limit values

Limit value type (country of origin)	Substance name	CAS-No.	EC-No.	Limit Value	Parameter	Test material	Source
BGW (DE)	*2-Propanol*	*67-63-0*		*50 mg/l*	*Acetone*	*Urine*	*TRGS 903*
				50 mg/l		*Whole Blood*	

Exposure limits at intended use

Kommentiert [A74]: This section of SDS shall describe the applicable occupational exposure limits and necessary risk management measures.
Where a CSR is required, the information in this section of the SDS shall be consistent with the information given for the identified uses in the CSR and the ES showing control of risk from the CSR set out in the annex to the SDS.

Kommentiert [A75]: Give a hint whether a preventive industrial medical examination is required, e.g. „Preventive industrial medical examinations according are to be carried out". Or similar.

Kommentiert [A76]: Where available, the following national limit values, including the legal basis of each of them, which are currently applicable in the Member State in which the SDS is being provided shall be listed for the substance or for each of the substances in the mixture. When listing occupational exposure limit values, the chemical identity as specified in Section 3 shall be used.

Kommentiert [A78]: Not mandatory: if chosen, overflow factor, Instantaneous value, category must be given here under.
See for more info: TRGS 900.
Otherwise: Overflow factor x AGW = Short-term value

Kommentiert [A77]: Information on currently recommended monitoring procedures shall be provided at least for the most relevant substances.

Kommentiert [A79]: The national occupational exposure limit values that correspond to Community occupational exposure limit values acc. 98/24/EC, including any notations as referred to in Article 2(1) of 95/320/EC

Kommentiert [A80]: The national occupational exposure limit values that correspond to Community limit values acc. 2004/37/EC, including any notations as referred to in Article 2(1) of 95/320/EC

Kommentiert [A81]: metabolite

Kommentiert [A82]: Whole Blood (B), Erythrocytes (E), Plasma/Serum (P/S), Urine (U)

Kommentiert [A83]: The national biological limit values that correspond to Union biological limit values in accordance with Directive 98/24/EC, including any notations as referred to in Article 2(3) of Decision 2014/113/EU;

DNEL/PNEC-values

Substance name

Kommentiert [A84]: In case of mixtures multiple entries maybe possible.

DNEL Worker

DNEL type	value	remark
Acute – dermal, local effects		
Long-term – dermal, local effects		
Long-term – dermal, systemic effects		
Acute – inhalation, local effects		
Acute – inhalation, systemic effects		
Long-term – inhalation, local effects		
Long-term – inhalation, systemic effects		

Kommentiert [A85]: If it is not possible to identify a DNEL (DMEL), then this shall be clearly stated and fully justified (REACH, Annex I, 1.4.2).

DNEL Consumer

DNEL type	value	remark
Long-term – oral, systemic effects		
Acute – dermal, local effects		
Long-term – dermal, local effects		
Long-term – dermal, systemic effects		
Acute – inhalation, local effects		
Acute – inhalation, systemic effects		
Long-term – inhalation, local effects		
Long-term – inhalation, systemic effects		

Kommentiert [A86]: If applicable

PNEC

PNEC type	value	remark
PNEC aquatic, freshwater		
PNEC aquatic, marine water		
PNEC aquatic, intermittent release		
PNEC sediment, freshwater		
PNEC sediment, marine water		
PNEC soil		
PNEC sewage treatment plant		
PNEC air		
PNEC secondary poisoning		

Kommentiert [A87]: In the Guidance on information requirements and chemical safety assessment Part B: Hazard Assessment it's named PNEC water. PNEC aquatic is in compliance with terminus technicus use in CLP for the hazard class "Aquatic Toxicity".

Kommentiert [A88]: If it is not possible to derive the PNEC, then this shall be clearly stated and fully justified (REACH, Annex I, 3.3.2)

Kommentiert [A89]: No standardized procedure exists.

Kommentiert [A90]: no-effect concentration in food

Risk management measures according to used control banding approach

Kommentiert [A91]: OPTIONAL:
Where a control banding approach is used to decide on risk management measures in relation to specific uses, sufficient detail shall be given to enable effective management of the risk. The context and limitations of the specific control banding recommendation shall be made clear.

Used model *EMKG*

Activity	Hazard group	Quantity range/ Amount during the activity	Release group	Action level	Protection guide
Filling	*A*	*middle amount*	*middle*	*blue*	*2XX*

Kommentiert [A92]: Dustiness or volatility (solid or liquid)

8.2 Exposure controls

Appropriate engineering controls

Personal protective equipment

Eye / Face protection

Suitable eye protection

Other eye protection measures

Skin protection

Hand protection

By short-term hand contact
- Suitable gloves type
- Suitable material
- Breakthrough time
- Thickness of the glove material
- Wear duration with occasional contact (splashes)

By long-term hand contact
- Suitable gloves type
- Suitable material
- Breakthrough time
- Thickness of the glove material
- Wear duration with permanent contact

Unsuitable material
Additional hand protection measures

Body protection

Other skin protection measures

Respiratory protection

Thermal hazards

Kommentiert [A93]: The information required in this subsection shall be provided, unless an exposure scenario containing that information is attached to the safety data sheet. Where the supplier has waived a test under Section 3 of Annex XI, he shall indicate the specific conditions of use relied on to justify the waiving. Where a substance has been registered as an isolated intermediate (on-site or transported), the supplier shall indicate that this safety data sheet is consistent with the specific conditions relied on to justify the registration in accordance with Article 17 or 18.

Kommentiert [A94]: The information required in this subsection shall be provided, unless an exposure scenario containing that information is attached to the safety data sheet. Where the supplier has waived a test under Section 3 of Annex XI, he shall indicate the specific conditions of use relied on to justify the waiving. Where a substance has been registered as an isolated intermediate (on-site or transported), the supplier shall indicate that this safety data sheet is consistent with the specific conditions relied on to justify the registration in accordance with Article 17 or 18.

Kommentiert [A95]: The information on use of personal protective equipment shall be consistent with good occupational hygiene practices and in conjunction with other control measures, including engineering controls, ventilation and isolation. Where appropriate, section 5 shall be referred to for specific fire/chemical personal protective equipment advice. Taking into account Regulation (EU) 2016/425 and referring to the appropriate CEN standards, detailed specifications shall be given on which equipment will provide adequate and suitable protection.

Kommentiert [A96]: The type of eye/face protection equipment required shall be specified based on the hazard of the substance or mixture and potential for contact, such as safety glasses, safety goggles, face-shield.

Kommentiert [A97]: The type of gloves to be worn when handling the substance/ mixture shall be clearly specified based on the hazard of the substance/ mixture and potential for contact and with regard to the amount and duration of dermal exposure, including:
- the type of material and its thickness,
- the typical or minimum breakthrough times of the glove material.
If necessary any additional hand protection measures shall be indicated.

Kommentiert [A98]: If it is necessary to protect a part of the body other than the hands, the type and quality of protection equipment required shall be specified, such as gauntlets, boots, bodysuit based on the hazards associated with the substance or mixture and the potential for contact.

Kommentiert [A99]: If necessary, any additional skin protection measures and specific hygiene measures shall be indicated.

Kommentiert [A100]: For gases, vapours, mist or dust, the type of protective equipment to be used shall be specified based on the hazard and potential for exposure, including air-purifying respirators, specifying the proper purifying element (cartridge or canister), the adequate particulate filters and the adequate masks, or self contained breathing apparatus.

Kommentiert [A101]: When specifying protective equipment to be worn for materials that represent a thermal hazard, special consideration shall be given to the construction of the personal protective equipment.

8.2.3 Environmental exposure controls

Kommentiert [A102]: The information required by the employer to fulfil his commitments under Union environmental protection legislation shall be specified. Where a chemical safety report is required, a summary of the risk management measures that adequately control exposure of the environment to the substance shall be given for the ES set out in the annex to the SDS.

Consumer exposure control

Kommentiert [A103]: OPTIONAL for ext. SDS:
REMARK - ECHA Guidance Part G, 238 ff.:
Annex II does not specifically mention RMMs and OCs related to consumers, but section 8 of annex II stipulates that the RMM across all the identified uses shall be summarized in section 8 of the SDS. Potential exposure of consumers during the life of the substance resulting from identified downstream uses are to be covered in the CSA for a substance.
It is therefore recommended to add a section 8.2.3 in the extended safety data sheet to include measures related to consumer uses of the substance (as such or in mixtures) and to the service life of the substance in articles.
This information is addressed to the downstream users under REACH
i) placing mixtures for use in the general public on the market and
ii) processing substances or mixtures into articles. It may also facilitate the communication related to substances of very high concern, for which risk management advice beyond downstream uses can be required under article 7 and article 33 of REACH.

Measures related to consumer uses of the substance (as such or in mixtures)

Measures related to the service life of the substance in articles

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state **Colour** **Odour** **Odour threshold**

	Value	Concentration	Method	Temperature	Pressure	Remark
Melting point/freezing point						
Boiling point or initial boiling point and boiling range						
Flammability						
Lower and upper explosion limit						
Flashpoint						
Auto-ignition temperature						
Decomposition temperature						
pH						
Kinematic viscosity						
Solubility						
Partition coefficient n-octanol/water (log value)						
Vapour pressure						
Density and/or relative density						
Relative vapour density						
Particle characteristics						

Kommentiert [A104]: This section of the safety data sheet shall describe the empirical data relating to the substance or mixture, if relevant. Article 8(2) of Regulation (EC) No 1272/2008 shall apply. To enable proper control measures to be taken, all relevant information on the substance or mixture shall be provided. The information in this section shall be consistent with the information provided in the registration or in the chemical safety report, where required, and with the classification of the substance or mixture. In the case of a mixture, where information does not apply to the mixture as a whole, the entries shall clearly indicate to which substance in the mixture the data apply.
Reported properties shall be clearly identified and reported in the appropriate measurement units. The method of determination shall be provided, including measurement and reference conditions, if relevant for the interpretation of the numerical value. Unless specified otherwise, standard conditions of temperature and pressure are 20 °C and 101,3 kPa, respectively. The properties listed in subsections 9.1 and 9.2 may be presented in a form of a list. Within the subsections, the order of listing the properties may be different if deemed appropriate.

Kommentiert [A105]: Difference between „delivery state“ and „standard conditions“ necessary

Kommentiert [A106]: The pH of the substance or mixture as supplied, or where the product is a solid, the pH of an aqueous liquid or solution at a given concentration, shall be indicated. The concentration of the test substance or mixture in water shall be indicated.

9.2 Other information:

9.2.1 Information with regard to physical hazard classes

Explosives

Justification for data waiving

The substance contains chemical groups associated with explosive properties which include oxygen and the calculated oxygen balance is < - 200.

Screening procedures

Type	Value	Method	Remark
Exothermic decomposition energy			
Decomposition temperature			
Oxygen balance	*-67,52*	*UN Manual of Tests and Criteria, Appendix 6*	*calculated* *Molecular formula: C14H6N6O12* *Molecular weight: 450.23 g/mol*

Safety characteristics

Type	Method	Result	Remark
Sensitivity to shock	*UN test series 1* *UN test series 2*	*positive, explosion*	
Effect of heating under confinement			
Effect of ignition under confinement			
Sensitivity to impact	*UN Test 3 (a) (ii): BAM Fallhammer*	*result is considered "-"*	*Not too dangerous in form tested.* *Limiting impact energy: 5 J*
Sensitivity to friction	*UN Test 3 (b) (i): BAM friction apparatus*	*result is considered "-"*	*Not too dangerous in form tested* *Limiting load:* *> 240 N*
Thermal stability	*UN Test 3 (c): Thermal stability test at 75°C*	*result is considered "-"*	*Thermally stable*
Package	*UN Test 6 (a): Single package test*	*Detonation, crater*	*Detonation, crater with detonator*

Assessment / Classification

Risk of explosion if heated under confinement.

Kommentiert [A110]: In addition to the properties mentioned in subsection 9.1, other physical and chemical parameters shall be indicated, such as the properties listed in subsections 9.2.1 and 9.2.2, if their indication is relevant for the safe use of the substance or mixture.

Subsection 9.2.1:
This subsection lists properties, safety characteristics and test results, which may be useful to include in the safety data sheet when a substance or mixture is classified in the respective physical hazard class. Data deemed relevant with regard to a specific physical hazard but not resulting in classification (e.g. negative test results close to the criterion), may also be appropriate to indicate. The name of the hazard class to which the data relate may be indicated together with the data.

Kommentiert [A111]: Example Explosives according to Guidance on the Application of the CLP Criteria (Version 5.0), Chapter 2.1.7.1. for Hexanitrostilbene.

Kommentiert [A112]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Kommentiert [A113]: For example:
Molecular formula
Molecular weight

Kommentiert [A114]: Only if hazard class applies, please give details on test data.

Flammable gases

Justification for data waiving
The study does not need to be conducted because the substance is pyrophoric.

Kommentiert [A115]: Option: A short standard phrase should be chosen from eSDSphrac if hazard class is not applicable.

Safety characteristics

Kommentiert [A116]: Only if hazard class applies, please give details on test data.

Type	Value	Temperature	Pressure	Method	Remark
Lower explosion limit					
Upper explosion limit					
Maximum content of flammable gas or vapour (Tci value)					
Fundamental burning velocity					

Assessment / Classification

Flammable aerosols

Justification for data waiving
Testing can be waived because aerosol contains <= 1% flammable components and has a chemical heat of combustion < 20 kJ/g.

Kommentiert [A117]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Type	Value	Result	Method	Remark
Content of flammable components				
Chemical heat of combustion				
Ignition distance				*Testing is not required for foam aerosols.*
Time equivalent				
Deflagration density				
Maximum flame height				*Testing is not required for spray aerosols.*
Flame duration				

Kommentiert [A118]: X % by mass of the contents are flammable.

Kommentiert [A119]: For example
ΔHc(i) = Specific heat of combustion (kJ/g):

Assessment / Classification

Oxidising gases
The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties

Justification for data waiving

Kommentiert [A120]:
Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Type	Value	Method	Remark
Oxidising Power			
Calculated oxidation potential of the mixture (OP)			
X_i molar fraction of the oxidising component			
Coefficient of oxygen equivalency			

Assessment / Classification

Gases under pressure

Justification for data waiving

Testing can be waived because substance is a liquid.

Kommentiert [A121]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Kommentiert [A122]: or a solid

Safety characteristics

Type	Value	Result	Remark
Molecular weight			
Vapour pressure (at 50 °C)			
Vapour pressure (at 20 °C)			
Critical temperature			
Critical pressure			
Critical density			
Boiling point (at 101,3 kPa)			

Kommentiert [A123]: For example:
Compressed gas (Comp. Gas) or
Liquefied gas (Liq. Gas) or
Refrigerated liquefied gas (Ref. Liq. Gas)
Dissolved gas (Diss. Gas)

Assessment / Classification

Flammable liquids

Justification for data waiving

The study does not need to be conducted because the estimated flash-point is above 200° C.

Kommentiert [A124]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Type	Value	Method	Remark
Flash point			
Sustaining combustion			

Assessment / Classification

Flammable solids

Justification for data waiving

The study does not need to be conducted for pyrophoric substances.

Kommentiert [A125]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Kommentiert [A126]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Remark
Burning rate			
Burning rate with wetted zone			
Moisture content			

Assessment / Classification

Self-reactive substances and mixtures

Kommentiert [A127]: Example "self-reactives" according to Guidance on the Application of the CLP Criteria (Version 5.0), Chapter 2.8.7.1.

Justification for data waiving

The classification procedures for self-reactive substances and mixtures need not be applied because for the single organic substance or the homogeneous mixture of organic substances, the SADT is greater than 75°C for a 50 kg package or the exothermic decomposition energy is less than 300J/g.

Screening procedures

Kommentiert [A128]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Remark
Exothermic decomposition energy	*1452 J/g*	*DSC/DTA*	*DSC-measurement in a closed glass crucible Heating rate: 5 K/min*
Decomposition temperature	*132 °C*	*DSC/DTA*	*Tonset*
Thermal sensitivity		*Regulation (EC) No. 440/2008, Annex, A.14*	
Sensitiveness to impact			
Sensitiveness to friction			

Kommentiert [A129]: generally determined by test 3 (c) (section 13.6 of the UN Manual) (indicate at least + or -)

Kommentiert [A130]: generally determined by test 3 (a) (section 13.4 of the UN Manual) (indicate preferably the limiting impact energy)

Kommentiert [A131]: generally determined by test 3 (b) (section 13.5 of the UN Manual) (indicate preferably the limiting load)

Safety characteristics

Kommentiert [A132]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Result	Remark
Self-accelerating decomposition temperature (SADT)	*45 °C*	*UN Test H.4: Heat accumulation storage test*		*Sample mass: 232.5 g Temperature control required.*
Decomposition temperature	*60 °C*			
Propagation of detonation		*UN Test A.1: BAM 50/60 steel tube test*	*No*	*Fragmented length: 12 cm*
Propagation of deflagration		*UN Test C.1: Time/pressure test*	*Yes, slowly*	*Time for a pressure rise from 690 to 2070 kPa: 498, 966, 3395 ms*
		UN Test C.2: Deflagration test	*Yes, slowly*	*Deflagration rate: 0.90, 0.87 mm/s*
Effect of heating under confinement		*UN Test E.1: Koenen test*	*Low*	*Limiting diameter: < 1.0 mm Fragmentation type: "A"*
		UN Test E.2: Dutch pressure vessel test	*Low*	*Limiting diameter: < 1.0 mm with 10 g), 1.0 mm (50 g)*
Explosive power		*Testing not required.*		*The effect of heating under defined confinement is "Low".*
Package				

Kommentiert [A133]: type, size, net mass of substance or mixture based on which the division was assigned or based on which the substance or mixture was exempted

Assessment / Classification

Pyrophoric liquids

Justification for data waiving

N.2, N.3: The classification procedure for pyrophoric solids and liquids need not be applied because experience, in production or handling, shows that the substance do not ignite spontaneously on coming into contact with air at normal temperatures (i.e. the substance is known to be stable at room temperature for prolonged periods of time (days)).

Kommentiert [A134]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Type	Value	Result	Method	Remark
Ignition time on contact with air		*No ignition within 5 minutes.*	*Regulation (EC) No. 440/2008, Annex, A.13*	
Effect on filter paper				

Kommentiert [A135]: Only if hazard class applies, please give details on test data.

Assessment / Classification

Pyrophoric solids

Justification for data waiving

N.2, N.3: The classification procedure for pyrophoric solids and liquids need not be applied because experience, in production or handling, shows that the substance do not ignite spontaneously on coming into contact with air at normal temperatures (i.e. the substance is known to be stable at room temperature for prolonged periods of time (days)).

Kommentiert [A136]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristic

Type	Result / Evaluation	Method	Remark
Ignition time on contact with air (s)			

Kommentiert [A137]: Only if hazard class applies, please give details on test data.

Assessment / Classification

Self-heating substances and mixtures

Justification for data waiving

The study does not need to be conducted because the substance ignites spontaneously in contact with air.

Kommentiert [A138]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Type	Value	Result	Method	Remark
Induction time				
Max. temperature rised				

Kommentiert [A139]: Only if hazard class applies, please give details on test data.

Kommentiert [A140]: e.g. positive or negative

Assessment / Classification

Substances or mixtures which, in contact with water emit flammable gases

Justification for data waiving

The study does not need to be conducted because the chemical structure of the substance or mixture does not contain metals or metalloids.

Kommentiert [A141]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Kommentiert [A142]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Remark
Preliminary test			***Reacts vigorously with water and spontaneous ignition of the evolved gas occurs.***
Maximum rate of evolution of flammable gas	***10 L/kg*h***	***UN Test N.5***	
Chemical identity of the evolved gas			

Kommentiert [A143]: Test method for substances which in contact with water emit flammable gases

Assessment / Classification

Oxidising liquids

Justification for data waiving

The study does not need to be conducted because the substance is incapable of reacting exothermically with combustible materials.

Kommentiert [A144]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Kommentiert [A145]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Remark
Preliminary test			
Mean pressure rise time of test mixture			
Mean pressure rise time of reference mixture			
Test with an inert substance			

Assessment / Classification

Oxidising solids

Justification for data waiving

The study does need not be conducted for organic compounds not containing oxygen, fluorine or chlorine.

Kommentiert [A146]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Kommentiert [A147]: Only if hazard class applies, please give details on test data.

Type	Value	Method	Remark
Preliminary test			
Mean burning time of test mixture			
Mean burning time of reference mixture			

Assessment / Classification

Organic peroxides

Kommentiert [A148]: Example "Organic Peroxide" according to Guidance on the Application of the CLP Criteria (Version 5.0), Chapter 2.15.7.1.

Justification for data waiving

Kommentiert [A149]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Classification procedure not required, because the substance or the mixture is by definition not an organic peroxide.

Safety characteristics

Kommentiert [A150]: Only if hazard class applies, please give details on test data.

Type	Method	Result	Remark
Available oxygen content		*7,40 %*	*Calculated according to the formula provided in Regulation (EC) No. 1272/2008 [CLP] Annex I, Section 2.15.2.1.*
Percentage of hydrogen peroxide		*0 %*	
Self-accelerating decomposition temperature (SADT)	*UN Test H.4: Heat accumulation storage test*	*35 °C*	*Sample mass: 0.380 kg Temperature control required.*
Decomposition temperature	*60 °C*		
Propagation of detonation	*UN Test A.1: BAM 50/60 steel tube test*	*No*	*Fragmented length: 18 cm*
Propagation of deflagration	*UN Test C.1: Time/pressure test*	*Yes, slowly*	*Time for a pressure rise from 690 to 2070 kPa): 4000 ms*
	UN Test C.2: Deflagration test	*Yes, slowly*	*Deflagration rate: 0,74 mm/s*
Effect of heating under confinement	*UN Test E.1: Koenen test*	*Violent*	*Limiting diameter: 2.0 mm Fragmentation type: 'F'*
	UN Test E.2: Dutch pressure vessel test	*Medium*	*Limiting diameter: 6.0 mm*
Explosive power	*Testing not required.*		*The effect of heating under defined confinement is "violent".*
Package	*UN Test G.1: Thermal explosion test in package*	*No*	

Assessment / Classification

Metal corrosion

Justification for data waiving

Kommentiert [A151]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Safety characteristics

Kommentiert [A152]: Only if hazard class applies, please give details on test data.

Type	Value	Temperature	Test duration	Method	Remark
Corrosion rate (mm steel/year)					
Corrosion rate (mm aluminium/year)					
Intrusion depth					

Assessment / Classification

Desensitized Explosives

Justification for data waiving
Desensitizing agent used: ABC (CAS#)

Kommentiert [A153]: Option: A short standard phrase should be chosen from EuPhraC if hazard class is not applicable.

Screening procedures

Type	Value	Method	Remark
Exothermic decomposition energy	*< 800 J/g*	*OECD 113*	

Safety characteristics

Kommentiert [A154]: Only if hazard class applies, please give details on test data.

Type	Result	Method	Remark
Corrected burning rate (Ac)	*positive, ability to deflagrate rapidly*	*UN Test 2 (b): Koenen test*	

Assessment / Classification

9.2.2 Other safety characteristics

Kommentiert [A155]: Properties, safety characteristics and test results listed below may be useful to indicate as regards a substance or a mixture: (a) mechanical sensitivity; (b) self-accelerating polymerisation temperature; (c) formation of explosible dust/air mixtures; (d) acid/alkaline reserve; (e) evaporation rate; (f) miscibility; (g) conductivity; (h) corrosiveness; (i) gas group; (j) redox potential; (k) radical formation potential; (l) photocatalytic properties. Other physical and chemical parameters shall be indicated if their indication is relevant for the safe use of the substance or mixture.

01.09.02.02.01. Mechanical sensitivity
\+ 01.09.02.02.02. Self-accelerating polymerization temperature (SAPT)
\+ 01.09.02.02.03. Formation of explosible dust/air mixtures
\+ 01.09.02.02.04. Acid/alkaline reserve
\+ 01.09.02.02.05. Evaporation rate
01.09.02.02.06. Miscibility
\+ 01.09.02.02.07. Conductivity
01.09.02.02.08. Corrosiveness
\+ 01.09.02.02.09. Properties of explosive atmospheres (gases/vapours)
\+ 01.09.02.02.10. Redox potential
01.09.02.02.11. Radical formation potential
01.09.02.02.12. Photocatalytic properties
\+ 01.09.02.02.13. Hydrolysis rate
\+ 01.09.02.02.14. Dissociation constant in water (pKa)
\+ 01.09.02.02.15. Solvent content
\+ 01.09.02.02.16. Water content
\+ 01.09.02.02.17. Solid content
\+ 01.09.02.02.18. Propellant content
\+ 01.09.02.02.19. Acid number
\+ 01.09.02.02.20. Refraction index
\+ 01.09.02.02.21. Gel permeation chromatography (GPC)
\+ 01.09.02.02.22. Surface tension
\+ 01.09.02.02.23. Stability in organic solvents and identity of relevant degradation products
\+ 01.09.02.02.24. Solvent separation test
\+ 01.09.02.02.25. Dispersion stability

SECTION 10: Stability and reactivity

10.1 Reactivity

10.2 Chemical stability

10.3 Possibility of hazardous reactions

10.4 Conditions to avoid:

10.5 Incompatible materials:

10.6 Hazardous decomposition products:

Kommentiert [A156]:
This section of the SDS shall describe the stability of the substance/mix.and the possibility of hazardous reactions occurring under certain conditions of use and also if rel-eased into the environment, incl., where appropriate, a reference to the test me-thods used. If it is stated that a particular property does not apply or if info on a particular property is not available, the reasons shall be given.

Kommentiert [A157]: The reactivity hazards of the substance/mix. shall be described. Specific test data shall be provided for the substance/mixture as a whole, where available. However, the info may also be based on general data for the class or family of substance/mix. if such data adequately represent the anticipated hazard of the substance/mix. If data for mix. are not available, data on substances in the mix. shall be provided. In determining incompatibility, the substances, containers and contaminants that the substance/mix. might be expo-sed to during transportation, storage and use shall be considered.

Kommentiert [A158]:
It shall be indicated if the substance /mix. is stable or unstable under normal ambient and anticipated storage and handling conditions of temp. and pressure. Any stabilisers which are, or may need to be, used to maintain the chemical stability of the substance/mix. shall be described. The safety significance of any change in the phys. appearance of the substance/r mixture shall be indicated.

Kommentiert [A159]:
If relevant, it shall be stated if the substance or mixture will react or polymerise, releasing excess pressure or heat, or creating other hazardous conditions. The conditions shall be described.

Kommentiert [A160]:
Cond. such as temp., pressure, light, shock, static discharge, vibrations or other physical stresses that might result in a hazardous situation shall be listed and if appr. a brief descr. of measures to be taken to manage risks associated with such hazards shall be given.

Kommentiert [A161]:
Families of substances/mix. or specific substances, e.g. water, air, acids, bases, oxidising agents, with which the substance/ mixture could react to produce a hazardous situ- shall be listed and if appr. a brief descr. of measures to be taken to manage risks associated with such hazards shall be given.

Kommentiert [A162]:
Known and reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating shall be listed. Hazardous combustion products shall be included in Section 5 of SDS.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

Ithalic *marked sentences are used as content examples*
In case that test data regarding one endpoint/differentiation exist for the mixture itself, the classification is carried out according to the substance criteria (excluding CMR!).
If no test data exist, the criteria for mixture classification has to be used (calculation method); in this case the toxicological data of the ingredients are shown.

The entry ***Substance*** illustrating the single ingredients/substances of mixtures (use only if appropriate, e.g. for multi component mixtures).
If the mixture calculation method must be used.

Kommentiert [A163]: This section of the safety data sheet is meant for use primarily by medical professionals, occupational health and safety professionals and toxicologists. A concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects shall be provided, including where appropriate information on toxicokinetics, metabolism and distribution. The information in this section shall be consistent with the information provided in the registration and/or in the chemical safety report where required, and with the classification of the substance or mixture.

Kommentiert [A164]: The relevant hazard classes, for which information shall be provided, are: (a) acute toxicity; (b) skin corrosion/irritation; (c) serious eye damage/irritation; (d) respiratory or skin sensitisation; (e) germ cell mutagenicity; (f) carcinogenicity; (g) reproductive toxicity; (h) STOT-single exposure; (i) STOT-repeated exposure; (j) aspiration hazard. These hazards shall always be listed on the safety data sheet. For substances subject to registration, brief summaries of the information derived from the application of Annexes VII to XI shall be given, including, where appropriate, a reference to the test methods used. For substances subject to registration, the information shall also include the result of the comparison of the available data with the criteria given in Regulation (EC) No 1272/2008 for CMR, categories 1A and 1B, following point 1.3.1 of Annex I to this Regulation.

Substance

Acute toxicity

Practical experience / human evidence

Animal data

	Effect dose / - concentration	Value	Species	Method	Symptoms / delayed effects	Remark
Substance 1						
Acute oral toxicity	*LD50*	*XX mg/kg bw*	*Rat*	*OECD 401*		
Acute dermal toxicity	*ATE:*	*XX mg/kg bw*				
Acute inhalative toxicity (gas)						
Acute inhalative toxicity (vapour)	*LC50*	*> XX mg/l/4h*	*Rat*	*Regulation (EC) No. 440/2008, Annex, B.2*		
Acute inhalative toxicity (dust/mist)						

Other information

Assessment / Classification

Skin corrosion/irritation

Practical experience / human evidence

Acid-/Alkali reserve (buffer capacity for mixtures with extreme pH values)

Acidic reserve [g NaOH/100 g product]:

Alkaline reserve [g H2SO4/100 g product]:

Animal data

	Species	Method	Exposure time	Result /Evaluation	Remark
Substance 1	*Rabbit*	*OECD 404*		*Erythema Scores: 2.3*	*irritant*

In-vitro skin test *not corrosive (OECD 439)*

Other information

Assessment / Classification *Causes skin irritation.*

Kommentiert [A165]:
LD50 or
cATpE/ATE_{mix}

Kommentiert [A166]:
if any/relevant

Kommentiert [A167]:
Information shall be provided on likely routes of exposure and the effects of the substance or mixture via each possible route of exposure, that is, through ingestion (swallowing), inhalation or skin/eye exposure. If health effects are not known, this shall be stated.

Kommentiert [A168]:
LD50 oder
ATpE/ for mixtures: ATE_{mix}

Kommentiert [A169]:
LC50 or
cATpE/ATE_{mix}

Kommentiert [A170]:
e.g. exposure time for inhalative toxicity:4 h

Kommentiert [A171]:
If appropriate, give mean scores for erythema /oedema.

Kommentiert [A172]:
(Q)SAR and/or e.g. in vitro test results

Kommentiert [A173]:
Inclusive special effect, e. g. defatting properties (R66/EUH66), indication of ** subcategory 1A, 1B, 1C, if possible.

Eye damage/irritation

Practical experience / human evidence

Animal data

	Species	Method	Result / Evaluation	Remark
Substance 1	*Albino rabbit*	*OECD 405*	*Corneal opacity* *Scores: 0,7* *Iritis* *Scores: 0,7* *Conjunctival Redness* *Scores: 1,9* *Conjunctival oedema (chemosis)* *Scores: 1,5*	

Kommentiert [A174]:
If appropriate, give mean scores.

In vitro eye test *not corrosive (OECD 438).*

Other information *reversible.*

Kommentiert [A175]:
(Q)SAR and/or e.g. in vitro test results

Assessment / Classification *Based on available data, the classification criteria are not met.*

Sensitisation to the respiratory tract/skin

Sensitisation to the respiratory tract

Practical experience / human evidence

Other information

Kommentiert [A176]:
e.g. (Q)SAR)
Test results from animal test studies may give valuable indications but by now there are no validated animal test models established.

Assessment / Classification *Not classifiable due to data lacking.*

Skin sensitisation

Practical experience / human evidence

Animal data

	Effect dose/ -concentration	Value	Species	Method	Result / Evaluation	Remark
Substance 1			*Guinea pig*	*OECD 406*	*not sensitising*	

Other information

Assessment / Classification *Based on available data, the classification criteria are not met.*

CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)

Germ cell mutagenicity

In vitro mutagenicity/genotoxicity

	Cell type/ Organism	Genetic Endpoint	Method	Result / Evaluation	Remark
Substance 1	*Salmonella typhimurium*	*pointmutations*	*OECD 471*	*positive*	

Kommentiert [A177]: e.g. cell lines like mouse lymphoma cells; bacteria

Kommentiert [A179]: e.g. gene mutation, structural or numeric chromosome aberration, DNA-damage

Kommentiert [A178]: e.g. bone marrow or liver cells; chinese hamster, mouse or rat

In vivo mutagenicity/genotoxicity

	Effect dose/ -concentration	Value	Cell type/ Organism	Genetic Endpopint	Method	Result/ Evaluation
Substance 1	*NOAEL*	*500 mg/kg bw*	*Bone marrow / mouse*	*Structural or numeric chromosome aberration.*	*OECD 475*	*positive*

Kommentiert [A180]: e.g. interaction with genetic material of germ cells or (Q)SAR

Other information

Assessment / Classification

Carcinogenicity

Kommentiert [A181]: The term "Carcinogenicity" is not the correct scientificial term. Correct term "Cancerogenicity".

Practical experience / human evidence

Animal data

	Effect dose/ -concen-tration	Value	Exposure route	Exposure time	Exposure duration	Species	Method	Result / Evaluation
Substance 1								

Kommentiert [A182]: e.g. 1 or 2 a (years)

In contrary: Exposure frequency e.g. 5 x per week

Other information

Kommentiert [A183]: QSAR or non-standard methods

Assessment / Classification

Reproductive toxicity

Kommentiert [A184]:
DSD and REACH, Annex II: Toxicity for reproduction

Practical experience / human evidence

Animal data

Adverse effects on sexual function and fertility

	Effect dose/ -concen-tration	Value	Exposure route	Exposure duration	Species	Method	Result / Evaluation
Substance 1	*NOAEL*	*1000 mg/kg/d*	*oral*	*28 d*	*Rat*	*OECD 421*	*negative*

Kommentiert [A185]:
-effects / Observations
-Impairment of fertility/sexual function
-Developmental toxicity
Effects on or via lactation(DSD: R 64)

Adverse effects on developmental toxicity

	Effect dose/ -concen-tration	Value	Exposure route	Exposure duration	Species	Method	Result / Evaluation
Substance 1							

Kommentiert [A186]:
-effects / Observations
-Impairment of fertility/sexual function
-Developmental toxicity
Effects on or via lactation(DSD: R 64)

Effects on or via lactation

	Effect dose/ -concen-tration	Value	Exposure route	Exposure duration	Species	Method	Result Evaluation
Substance 1							

Kommentiert [A187]:
-effects / Observations
-Impairment of fertility/sexual function
-Developmental toxicity
Effects on or via lactation (DSD: R 64)

Other information

Assessment / Classification

Overall assessment on CMR properties

Kommentiert [A188]: For substances subject to registration, the information shall also include the result of the comparison of the available data with the criteria given in Regulation (EC) No 1272/2008 for CMR, categories 1A and 1B, following point 1.3.1 of Annex I to this Regulation.

Specific target organ toxicity (single exposure)

STOT SE 1 and 2

Kommentiert [A189]:
Serious Non lethal effects

Practical experience / human evidence

Animal data

Kommentiert [A190]:
Delayed and immediate effects as well as chronic effects from short and long-term exposure. Information shall be provided on whether delayed or immediate effects can be expected after short or long- term exposure. Information on acute and chronic health effects relating to human exposure to the substance or mixture shall also be provided. Where human data are not available, animal data shall be summarised and the species clearly identified. It shall be indicated whether toxicological data is based on human or animal data.

	Effect dose/ -concen-tration	Value	Exposure duration	Species	Method	Specific effects	Organs affected	Remark
Substance 1								
Oral specific target organ toxicity (single exposure)								
Dermal specific target organ toxicity (single exposure)								
Inhalative specific target organ toxicity (single exposure)								*vapour*

Other information

Assessment / Classification

STOT SE 3

Kommentiert [A191]:
Transient effects (Cat 3):
-Respiratory tract irritation
-Narcotic effects

Irritation to respiratory tract

Practical experience / human evidence ***No data available.***

Kommentiert [A192]:
Hazard class „Irritation to respiratory tract" in generally on basis of Practical experience / human evidence.
STOT-SE Category 3

Kommentiert [A193]:
e.g. in vitro test results

Other information
Assessment / Classification

Narcotic effects

Practical experience / human evidence

Other information

Assessment / Classification

Specific target organ toxicity (repeated exposure)

STOT RE 1 and 2

Kommentiert [A194]:
Corresponds to „Repeated dose toxicity“
Main header in accordance with Annex II and IUCLID, but uknown by CLP and UN-GHS

Practical experience / human evidence

Animal data

	Effect dose/ -concen-tration	Value	Exposure duration	Species	Method	Specific effects	Organs affected	Remark
Substance 1								
Oral specific target organ toxicity (repeated exposure)	*NOAEL*	*1000 mg/kg/d*	*oral*	*90 d*	*rat*	*OECD 408*	*none*	
Dermal specific target organ toxicity (repeated exposure)								
Inhalative specific target organ toxicity (repeated exposure)								

Kommentiert [A195]:
2 years

Other information

Assessment / Classification *Based on available data, the classification criteria are not met.*

Aspiration hazard

Practical experience / human evidence *No data available.*

Experimental data *viscosity data: see SECTION 9.*

Kommentiert [A196]:
Cinematic viscosity: ...mm2/sec (cStokes) at 40 °C. Give hint to chapter 9 if appropriate

Assessment / Classification *Based on available data, the classification criteria are not met.*

Symptoms related to the physical, chemical and toxicological characteristics:
In case of ingestion
In case of skin contact:
In case of inhalation:
In case of eye contact:

Kommentiert [A197]: Potential adverse health effects and symptoms associated with exposure to the substance or mixture and its ingredients or known by-products shall be described. Available information shall be provided on the symptoms related to the physical, chemical, and toxicological characteristics of the substance or mixture following exposure. The first symptoms at low exposures through to the consequences of severe exposure shall be described, such as "headaches and dizziness may occur, proceeding to fainting or unconsciousness; large doses may result in coma and death".

Mixtures

Kommentiert [A198]: The substances in a mixture may interact with each other in the body, resulting in different rates of absorption, metabolism and excretion. As a result, the toxic actions may be altered and the overall toxicity of the mixture may be different from that of the substances in it. This shall be taken into account when providing toxicological information in this subsection of the safety data sheet.

Substance 1

Substance 2

Substance 3

etc.

11.2 Information on other hazards

Kommentiert [A199]: Endocrine disrupting properties Information on adverse health effects caused by endocrine disrupting properties shall be provided, where available, for the substances identified as having endocrine disrupting properties in Subsection This information shall consist of brief summaries of the information derived from application of the assessment criteria laid down in the corresponding Regulations ((EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605), that is relevant to assess endocrine disrupting properties for human health. Other relevant information on adverse health effects shall be included even when not required by the classification criteria.

11.2.1 Endocrine disrupting properties

11.2.2 Other information

Phototoxicity

SECTION 12: Ecological information

In case that test data regarding one endpoint/differentiation exist for the mixture itself, the classification is carried out according to the substance criteria (excluding biodegradation and bioaccumulation). If no test data exist, the criteria for mixture classification has to be used (calculation method); in this case the toxicological data of the ingredients are shown.

12.1 Toxicity:

Aquatic toxicity

Acute (short-term) fish toxicity

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*LC50*	*XX mg/l*	*96 h*	*Zebra fish*		*OECD 203*	*semistatic*

Chronic (long-term) fish toxicity

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*NOEC*	*XX mg/l*	*28 d*	*Rainbow trout*		*OECD 201*	*Inhibition of growth rate*

Acute (short-term) toxicity to crustacea

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*EC50*	*XX mg/l*	*48 h*	*Daphnia magna*		*OECD 202*	*Immobilisation*

Chronic (long-term) toxicity to crustacea

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*NOEC*	*XX mg/l*	*28 d*	*Daphnia magna*		*OECD 211*	*Reproduction test*

Acute (short-term) toxicity to algae and cyanobacteria

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*EC50*	*XX mg/l*	*72 h*	*Scenedesmus subspicatus*		*OECD 201*	*Inhibition of growth rate*

Chronic (long-term) toxicity to algae and cyanobacteria

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*EC10 or NOEC*	*XX mg/l*	*72 h*	*Scenedesmus subspicatus*		*OECD 201*	*Inhibition of growth rate*

Toxicity to other aquatic plants / organisms

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*EC50*	*XX mg/l*	*7 d*	*Lemna minor*		*OECD 221*	*Inhibition of growth rate*

Toxicity to microorganisms

	Effect dose/ -concentration	Value	Test duration	Species	Result/ Evaluation	Method	Remark
Substance 1	*EC20*	*XX mg/l*	*30 min*	*Activated sludge (ind.)*		*OECD 209*	

Kommentiert [A200]: This section of the SDS shall describe the info provided to evaluate the environmental impact of the substance or mixture where it is released to the environment. Under Subsections 12.1 to 12.6 of the SDS a short summary of the data shall be provided including, where available, relevant test data and clearly indicating species, media, units, test duration and test conditions. This info may assist in handling spills, and evaluating waste treatment practices, control of release, accidental release measures and transport. If it is stated that a particular property does not apply or if info on a particular property is not available, the reasons shall be indicated. Info on bioaccumulation, persistence and degradability shall be given, where available and appropriate, for each relevant substance in the mixture. Info shall also be provided for hazardous transformation products arising from the degradation of substances and mix.The info in this section shall be consistent with the info provided in the registration and/or in the CSR where required, and with the classification of the substance or mixture.

Kommentiert [A201]: Information on toxicity using data from tests performed on aquatic and/or terrestrial organisms shall be provided when available. This shall include relevant available data on aquatic toxicity, both acute and chronic for fish, crustaceans, algae and other aquatic plants. In addition, toxicity data on soil micro- and macroorganisms and other environmentally relevant organisms, such as birds, bees and plants, shall be included when available. Where the substance or mixture has inhibitory effects on the activity of microorganisms, the possible impact on sewage treatment plants shall be mentioned. Where experimental data are not available, the supplier shall consider whether reliable and relevant information obtained from models can be provided. For substances subject to registration, summaries of the information derived from the application of Annexes VII to XI of this Regulation shall be included.

Kommentiert [A202]: REACH-IT (IUCLID): Short-term toxicity to fish

Kommentiert [A203]: REACH-IT (IUCLID): Short-term toxicity to invertebrates

Kommentiert [A204]: REACH-IT (IUCLID): Long-term toxicity to aquatic invertebrates

Kommentiert [A205]: LOEC alternative

Kommentiert [A206]: REACH-IT (IUCLID): Toxicity to aquatic algae and cyanobacteria

Sediment toxicity

Terrestrial toxicity

Toxicity to soil macroorganisms except arthropods
Toxicity to terrestrial arthropods
Toxicity to terrestrial plants
Toxicity to birds

Kommentiert [A207]:
Only a header list here.
If required sub-structure has to be added.

Assessment / Classification

Kommentiert [A208]:
This assessment may reflect the CLP/GHS classification.

Substance 1:
Harmful to aquatic organisms.

12.2 Persistence and degradability

Kommentiert [A209]: Degradability is the potential for the substance or the appropriate substances in a mixture to degrade in the environment, either through biodegradation or other processes, such as oxidation or hydrolysis. Persistence is the lack of demonstration of degradation in the situations defined in Sections 1.1.1 and 1.2.1 of Annex XIII. Test results relevant to assess persistence and degradability shall be given where available. If degradation half- lives are quoted it must be indicated whether these half-lives refer to mineralisation or to primary degradation. The potential of the substance or certain substances in a mixture to degrade in sewage treatment plants shall also be mentioned. Where experimental data are not available, the supplier shall consider whether reliable and relevant information obtained from models can be provided. This information shall be given where available and appropriate, for each individual substance in the mixture, which is required to be listed in section 3 of the safety data sheet.

REACH-IT (IUCLID):
"Environmental fate and pathways"

Biodegradation

	Inoculum	Parameter	Degradation rate	Method	Remark
Substance 1	*Activated sludge (ind.)*	*BSB des ThSB (28d)*	*80-90%*	*OECD 301 F*	
Substance 2	...				

Abiotic Degradation

	Test type	$t_{1/2}$	Temperature	pH-value	Method	Remark
Substance 1	*Hydrolysis*	*0,59 h*	*20°C*	*4*	*OECD 111*	
Substance 2	...					

Kommentiert [A210]: Biodegradability is a substance-specific property and cannot be determined on the mixture

Assessment / Classification

Kommentiert [A211]: This assessment can – but does not have to – reflect the GHS classification classes.

Substance 1:
Readily biodegradable (according to OECD criteria).

Kommentiert [A212]: For mixtures for example:
The single components are readily biodegradable.

12.3 Bioaccumulative potential

Bioconcentration factor (BCF)

	Species	Result	Method	Remark
Substance 1	*Pimephales promelas*	*123*	*OECD 305*	*by analogy*

Assessment / Classification

Substance 1:
Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

Kommentiert [A213]: Bioaccumulative potential is the potential of the substance or certain substances in a mixture to accumulate in biota and, eventually, to pass through the food chain. Test results relevant to assess the bioaccumulative potential shall be given. This shall include reference to the octanol-water partition coefficient (Kow) and bioconcentration factor (BCF), or other relevant parameters related to bioaccumulation, if available. Where experimental data are not available, it shall be considered whether model predictions can be provided. This information shall be given where available and appropriate, for each individual substance in the mixture which is required to be listed in section 3 of the safety data sheet.

REACH-IT (IUCLID): "Bioaccumulation"

Kommentiert [A214]: This assessment can – but does not have to – reflect the GHS classification classes.

12.4 Mobility in soil

	Distribution	Transport type	Parameter	Result	Method	Remark
Substance 1	*Water – Air*	*Volatility*	*Henrys Law Constant*	*680 Pa m³ / mol*	*estimated*	
Substance 2	*Sediment - Water*	*Adsorption*	*Log KOC*	*0,1*	*estimated*	

Assessment / Classification

Kommentiert [A215]: Mobility in soil is the potential of the substance or the components of a mixture, if released to the environment, to move under natural forces to the groundwater or to a distance from the site of release. The potential for mobility in soil shall be given where available. Information on mobility in soil can be determined from relevant mobility data such as adsorption studies or leaching studies, known or predicted distribution to environmental compartments, or surface tension. For example, soil adsorption coefficient (Koc) values can be predicted from Kow. Leaching and mobility can be predicted from models. This information shall be given where available and appropriate, for each individual substance in the mixture which is required to be listed in section 3 of the safety data sheet.

REACH-IT (IUCLID): "Transport and distribution"

12.5 Results of PBT and vPvB assessment

Substance 1:
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

Kommentiert [A216]: Where a Chemical Safety Report is required, the results of the PBT assessment as set in the Chemical Safety Report shall be given.

12.6 Endocrine disrupting properties

Kommentiert [A217]: Information on adverse effects on the environment caused by endocrine disrupting properties shall be provided where available, for the substances identified as having endocrine disrupting properties in subsection 2.3. This information shall consist of brief summaries of the information derived from application of the assessment criteria laid down in the corresponding Regulations ((EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605), that is relevant to assess endocrine disrupting properties for the environment.

12.7 Other adverse effects:

Substance 1:
The substance has a very low global warming potential.
The substance has no ozone depleting potential.

Kommentiert [A218]: Information on any other adverse effects on the environment shall be included where available, such as environmental fate (exposure), photochemical ozone creation potential, ozone depletion potential, endocrine disrupting potential and/or global warming potential.

Additional ecotoxicological information

Substance 1:
The statement is derived from products of similar structure or composition.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Directive 2008/98/EC (Waste Framework Directive)
Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Before intended use
- Properties of waste which render it hazardous
- Disposal operations
- Recovery operations
- Waste codes / waste designations according to EWC / AVV

After intended use
- Properties of waste which render it hazardous
- Disposal operations
- Recovery operations
- Waste codes / waste designations according to EWC / AVV

Remark

Other disposal recommendation

Additional information

Kommentiert [A219]: This section of the safety data sheet shall provide information for proper waste management of the substance or mixture and/or its container to assist in the determination of safe and environmentally preferred waste management options, consistent with the requirements of Directive 2008/98/EC of the European Parliament and of the Council(8) by the Member State in which the safety data sheet is being supplied. Information relevant for the safety of persons conducting waste management activities shall complement the information given in section 8. Where a chemical safety report is required and where a waste stage analysis has been performed, the information on the waste management measures shall be consistent with the identified uses in the chemical safety report and the exposure scenarios from the chemical safety report set out in the annex to the safety data sheet.

Kommentiert [A220]: This subsection of the safety data sheet shall: (a) specify waste treatment containers and methods including the appropriate methods of waste treatment of both the substance or mixture and any contaminated packaging (for example, incineration, recycling, landfilling); (b) specify the physical/chemical properties that may affect waste treatment options; (c) discourage sewage disposal; (d) identify, where appropriate, any special precautions for any recommended waste treatment option. Any relevant Union provisions relating to waste or, in their absence, any relevant national or regional provisions in force shall be referred to.

SECTION 14: Transport information

	Land transport (ADR/RID)	Inland waterway transport (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN number or ID number				
14.2 UN Proper shipping name				
14.3 Transport hazard class(es)				
Hazard label(s)				
14.4 Packing group				
14.5 Enviromental hazards				

14.6 Special precautions for user

14.7 Maritime transport in bulk according to IMO instruments

Additional information

All transport carriers

Land transport (ADR/RID)
- Limited quantity
- Special provisions
- Tunnel restriction code
- Classification code
- Transport category
- Hazard identification number (Kemler No.)
- Remark

Inland waterway transport (ADN)
- Limited quantity
- Special provisions
- Category
- Remark

Sea transport (IMDG)
- Limited quantity
- Special provisions
- Marine pollutant
- Segregation group
- Remark

Air transport (ICAO-TI / IATA-DGR)
- Limited quantity
- Special provisions
- Remark

Kommentiert [A221]: This section of the safety data sheet shall provide basic classification information for the transport/shipment of substances or mixtures mentioned in section 1 by road, rail, sea, inland waterways or air. Where such information is not available or relevant this shall be stated. Where relevant, this section shall provide information on the transport classification for each of the following international agreements which are transposing the UN Model Regulations for specific transport modes: the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) and the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), all three of which have been implemented by Directive 2008/68/EC of the European Parliament and of the Council, as well as the International Maritime Dangerous Goods (IMDG) Code for the transport of packaged goods and the relevant IMO codes for the transport of bulk cargo by sea and the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI).

Environmental hazards
It shall be indicated whether the substance or mixture is environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in ADR, RID and ADN), and whether it is a marine pollutant according to the IMDG Code and the Emergency Response Procedures for Ships Carrying Dangerous Goods. If the substance or mixture is authorised or intended for carriage by inland waterways in tank-vessels, it shall be indicated whether the substance or mixture is environmentally hazardous in tank-vessels only according to ADN.

Kommentiert [A222]: The UN number or the ID number (i.e. the four-figure identification number of the substance, mixture or article preceded by the letters "UN" or "ID") from the UN Model Regulations, IMDG, ADR, RID, ADN or ICAO TI shall be provided.

Kommentiert [A223]: .The proper shipping name as provided in column 2, "Name and description", of Table A of Chapter 3.2 Dangerous Goods List of the UN Model Regulations, in ADR, in RID and in Tables A and C of Chapter 3.2 of ADN, supplemented, when applicable, with the technical name in brackets as required, shall be provided, unless it was used as the product identifier in subsection 1.1. If the UN number and the proper shipping name remain unchanged in different transport modes, it is not necessary to repeat this information. As regards maritime transport, in addition to the UN proper shipping name, the technical name for goods to be transported covered by the IMDG Code shall be indicated, where appropriate.

Kommentiert [A224]: The transport hazard class (and subsidiary risks) assigned to the substances or mixtures on the basis of the predominant hazard that they present according to the UN Model Regulations shall be provided. As regards inland transport, the transport hazard class (and subsidiary risks) assigned to the substances or mixtures on the basis of the predominant hazard that they present according to ADR, RID and ADN shall be provided.

Kommentiert [A225]: The packing group number from the UN Model Regulations shall be provided, if applicable, as required by the UN Model Regulations, ADR, RID and ADN. The packing group number is assigned to certain substances in accordance with their degree of hazard.

Kommentiert [A226]: Information shall be provided on any special precautions, which a user should or must take or be aware of in connection with transport or conveyance either within or outside his premises, for all relevant modes of transport.

Kommentiert [A227]: This subsection only applies when cargoes are intended to be carried in bulk according to IMO instruments: Chapter VI or Chapter VII of SOLAS, Annex II or Annex V of MARPOL, the IBC Code, the IMSBC Code, and the IGC Code or its earlier versions, namely EGC Code or GC Code .

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Authorisations and/or restrictions on use
Authorisations
Restrictions on use
Restrictions of occupation

Other EU regulations

Directive 2010/75/EC on industrial emissions

CHAPTER III: SPECIAL PROVISIONS FOR COMBUSTION PLANTS

Categories of fuel: *Liquid fuels*

Bemerkung: *The fuel is no subject of use restrictions according to Directive 2010/75/EC on industrial emissions (article 34(4)).*

CHAPTER V: SPECIAL PROVISIONS FOR INSTALLATIONS AND ACTIVITIES USING ORGANIC SOLVENTS

Volatile organic compounds (VOC) content in percent by weight:

Value	Temperature	Method	Remark
33 +/-1,5	*20 °C*		
37,5 +/-1,7	*140 °C*		*Baking temperature of the coating*

Ingredients of the mixture which are CMR-VOC or halogenated VOC:

Stoffname	CAS-Nr.	INDEX-NR.	EG-Nr.
ABC	*123-45-6*	*123-456-78-9*	*123-456-7*
DEF	*234-56-7*	*345-678-90-1*	*456-789-0*

Directive 2004/42/CE on the limitation of emissions of volatile organic compounds

Regulation (EC) No. 842/2006 on certain fluorinated greenhouse gases.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer

Kommentiert [A228]: This section of the safety data sheet shall describe the other regulatory information on the substance or mixture that is not already provided in the safety data sheet (such as whether the substance or mixture is subject to Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer, Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC or Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals.

Kommentiert [A229]: Information shall be provided regarding relevant Union safety, health and environmental provisions (for example, Seveso category/named substances in Annex I to Council Directive 96/82/EC or regarding the national regulatory status of the substance or mixture (including the substances in the mixture), including advice on action that should be taken by the recipient as a result of these provisions. Where relevant the national laws of the relevant Member States which implement these provisions and any other national measures that may be relevant shall be mentioned. If the substance or mixture covered by this safety data sheet is the subject of specific provisions in relation to the protection of human health or the environment at Union level (such as authorisation given under Title VII or restrictions under Title VIII) these provisions shall be mentioned. Where an authorisation granted under Title VII imposes conditions or monitoring arrangements to a downstream user of the substance or mixture, they shall be provided.

Kommentiert [A230]:
Some examples are listed below

National regulations

Observe in addition any national regulations!

Kommentiert [A231]:
National regulations depending on EU member states. For Germany: please see German Template.

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not required.

Kommentiert [A232]: This subsection of the safety data sheet shall indicate whether the supplier has carried out a chemical safety assessment for the substance or the mixture. Not required for substances < 10 t/a.

SECTION 16: Other information

16.1 Indication of changes

16.2 Abbreviations and acronyms

16.3 Key literature references and sources for data

16.4 Classification for mixtures and used evaluation method according to regulation (EC) 1207/2008 [CLP]
See SECTION 2.1 (classification).

16.5 Relevant H- and EUH-phrases (number and full text)

16.6 Training advice

16.7 Further information

Kommentiert [A233]:
This section of the safety data sheet shall contain other information that is not included in sections 1 to 15, including information on the revision of the safety data sheet such as: (a) in the case of a revised safety data sheet, a clear indication of where changes have been made to the previous version of the safety data sheet, unless such indication is given elsewhere in the safety data sheet, with an explanation of the changes, if appropriate. A supplier of a substance or mixture shall be able to provide an explanation of the changes upon request; (b) a key or legend to abbreviations and acronyms used in the safety data sheet; (c) key literature references and sources for data; (d) in the case of mixtures, an indication of which of the methods of evaluating information referred to in Article 9 of Regulation (EC) No 1272/2008 was used for the purpose of classification; (e) a list of relevant hazard statements and/or precautionary statements. Write out the full text of any statements, which are not written out in full under sections 2 to 15; (f) advice on any training appropriate for workers to ensure protection of human health and the environment.

Annex to extended safety data sheet (ext. SDS)

Kommentiert [A234]:
Only required for substances manufactured or imported in quantities of 10 tonnes or more per year per manufacturer or importer and for those substances which require a SDS according to REACH, article 31 (1).
For all substances > 10 t/a without SDS requirement information must be given according to article 32.

See extra modul „Annex to the SDS“