SAFETY DATA SHEET According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Material: **VINYLCHLORID MONOMER (Vinnolit)**

Version 7.2 (GB) Print Date 27.02.2024 Date of last alteration: 27.02.2024

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

1.1 Product identifier

Commercial product name:	**VINYLCHLORID MONOMER (Vinnolit)**
Product identifier:	Vinyl chloride
CAS No.:	75-01-4
EC-No.:	200-831-0
Index-No.:	602-023-00-7
REACH registration number:	01-2119458772-30-0005

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

Use of substance / preparation:
Industrial.
Raw material for: PVC production

For this product, uses according to REACH have been identified. To provide a better readibility, more specific information on uses is given in section 16.

1.3 Details of the supplier of the safety data sheet

Manufacturer/distributor:	Westlake Vinnolit GmbH & Co. KG	
Street/POB-No.:	Carl-Zeiss-Ring 25	
Postal code/city:	85737 Ismaning	
Country:	Germany	
Telephone:	+49 89 96-103-0	
Telefax:	+49 89 96-103-103	
Information about the Safety Data Sheet:	Telephone	+49 8679 3060-5680
	eMail	sdb@westlakevinnolit.com

1.4 Emergency telephone number

Emergency Information (German):	Plant fire brigade	**+49 8677 83-2222**
Emergency Information (internat.):	National Response Center	**+49 621 60-43333**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

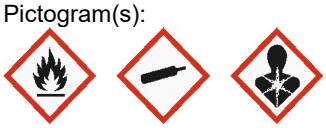
Classification (REGULATION (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567):

Classification	H-Code
Chemically unstable gas, Category B	H231
Gases under pressure, Liquefied gas	H280
Carcinogenicity, Category 1A	H350
Flammable gases, Category 1A	H220

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567):

Pictogram(s):



Signal Word: Danger

H-Code	Hazard Statements
H220	Extremely flammable gas.
H231	May react explosively even in the absence of air at elevated pressure and/or temperature.

H280	Contains gas under pressure; may explode if heated.
H350	May cause cancer.

P-Code	Precautionary Statements
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.
P311	Call a POISON CENTER/ doctor.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P405	Store locked up.
P501	Dispose of contents/container to waste disposal.

Hazard ingredients (labelling):
Vinyl chloride

Code	Additional Labelling
	Restricted to professional users.

EC-No.: 200-831-0

2.3 Other hazards

No data available.
Endocrine disrupting properties - human health: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Endocrine disrupting properties - environment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

3.1.1 Chemical characteristics

CAS No.: 75-01-4

vinyl chloride + stabiliser

3.1.2 Hazardous ingredients

Vinyl chloride			<=100 %
CAS-No.: 75-01-4	EC-No.: 200-831-0	Index-No.: 602-023-00-7	
INHA [1]	REACH No.: 01-2119458772-30		
Classification according to Regulation (EC) No. 1272/2008*	Flam. Gas 1A / H220; Carc. 1A / H350; Press. Gas / H280; Chem. Unst. Gas B / H231		

Type: INHA: ingredient, VERU: impurity

REACH registered substances may be included as impurities. These do not necessarily require identified uses and exposure scenarios in the safety data sheet.

[1] = Hazardous or environmentally harmful substance; [2] = substance with a Community workplace exposure limit; [3] = PBT substance; [4] = vPvB substance; [5] = Endocrine disrupting properties

*Classification codes are explained in section 16.

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) in amounts above ≥ 0.1%.

3.2 Mixtures

not applicable

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:
In case of accident or if you feel unwell seek medical advice immediately (show the label if possible). Where there is a risk of unconsciousness place and transport on one side in a stable position. Keep warm, in restful position, cover up.

After contact with the eyes:
Rinse immediately with plenty of water for 10-15 minutes and seek medical advice.

After contact with the skin:
Wash with plenty of water or soap and water; immediately remove all contaminated clothing. Seek medical advice in case of continuous irritation. Remove contaminated clothes at once.

After inhalation:
Move to fresh air, keep the victim laying down and restful. If breathing has stopped, give artificial respiration. Seek medical advice and clearly identify substance.

After swallowing:
Seek medical advice and clearly identify substance. Do not induce vomiting. Danger of aspiration.

4.2 Most important symptoms and effects, both acute and delayed

Any relevant information can be found in other parts of this section.

4.3 Indication of any immediate medical attention and special treatment needed

Product causes cancer. In the event of prolonged contact with the substance, long-term monitoring of relevant parameters is advisable. Allow cortisone spray inhalation at first possible opportunity. No adrenaline or its derivatives. Further toxicology information in section 11 must be observed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
water spray , extinguishing powder , foam , carbon dioxide .

Extinguishing media which must not be used for safety reasons:
not applicable

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: hydrogen chloride , phosgene , carbon monoxide .

5.3 Advice for firefighters

Special protective equipment for fire fighting:
Use respiratory protection independent of recirculated air. Use tightly fitting chemical protection suit (see section 8).

General information:
Fight fire from a safe distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment (see section 8). Keep unprotected persons away.

6.2 Environmental precautions

Prevent material from entering sewers or surface waters. Observe local/state/federal regulations. Retain contaminated water/extinguishing water.

6.3 Methods and material for containment and cleaning up

Exhaust vapours. Contain larger amounts and pump up into suitable containers.

Further information:
Eliminate all sources of ignition.

6.4 Reference to other sections

Relevant information in other sections has to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling:
Ensure adequate ventilation. Keep away from heat, sparks and flame. Take precautionary measures against electrostatic charging. Use explosion-protected equipment/fittings and spark-free tools. Avoid contact with eyes, skin and clothing. Store in well-sealed containers in a cool and dry area. Observe information in section 8.

Precautions against fire and explosion:
Take precautionary measures against electrostatic charging. Cool endangered containers with water. Keep away from open flames, heat and sparks.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for storage rooms and vessels:
Protect against moisture. Protect against light. Keep container dry and tightly closed. Store in pressure containers (in accordance with German pressure gas regulation and TRG).

Advice for storage of incompatible materials:
not applicable

Further information for storage:
Store cool. Keep away from living quarters. Keep container tightly closed. Do not store together with oxidizing agents like peroxides etc.

7.3 Specific end use(s)

No data available.

If the annex to this safety data sheet contains exposure scenarios for end uses, the information provided therein has to be observed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Maximum airborne concentrations at the workplace:

Substance	Type	mg/m³	ppm	Dust fract.	Fibre/m³
Vinyl chloride	OEL	7,8	3,0		

-

Vinyl choride: STEL is 9 ppm. Capable of causing cancer and/or heritable genetic damage.

Derived No-Effect Level (DNEL):

Vinyl chloride

Area of use:	Value:
Worker; by inhalation; systemic (long term)	7,8 mg/m³ 3 ppm The given value corresponds to typical occupational exposure limits in the EU.
Consumer; by inhalation; systemic (long term)	0,002 mg/m³
Consumer; oral; systemic (long term)	0,0014 µg/kg/day

Predicted No Effect Concentration (PNEC):

Vinyl chloride

Area of use:	Value:
freshwater	0,077 mg/l
marine water	0,0077 mg/l
Intermittent release	0,77 mg/l
Sediment (freshwater)	0,708 mg/kg dry mass
Sediment (marine water)	0,0708 mg/kg dry mass
Soil	0,103 mg/kg dry mass
sewage treatment plant	0,4 mg/l
Secondary poisoning	0,043 mg/kg food

8.2 Exposure controls

8.2.1 Exposure in the work place limited and controlled

General protection and hygiene measures:
Observe standard industrial hygiene practices for the handling of chemical substances. Keep away from foodstuff, drink and feedingstuff. Do not breathe vapours. Do not eat, drink or smoke when handling. Avoid contact with eyes and skin.

Further information for system design and engineering measures

Observe information in section 7. Observe regulations for protection against explosion.

Personal protection equipment:

Respiratory protection

If handled uncovered, use respiratory protective equipment. Observe the equipment manufacturer's information and wear time limits for respirators.
Recommended Filter type: Gas filter type AX (certain low-boiling organic compounds with boiling point ≤ 65°C), according to acknowledged standards such as EN 14387

Eye protection

protective goggles, according to acknowledged standards such as EN 166.

Hand protection

Protective gloves are required at all times when handling the material, according to recognized standards such as EN374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Recommended glove types: Protective gloves made of fluorinated rubber
thickness of the material: 0,7 mm
Wearing time: 8 h
Breakthrough time: > 480 min

Skin protection

Protective clothing, according to acknowledged standards such as EN 13034, in case of long or strong exposure.

8.2.2 Exposure to the environment limited and controlled

Prevent material from entering surface waters and soil.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property:		Value:	Method:
Physical state	:	gaseous	
Form	:	Liquefied gas	
Colour	:	colourless	
Odour	:	sweetish	
Odour Threshold	:	no data available	
Melting point	:	-154 °C	

Boiling point/boiling range	-13,4 °C at 1013 hPa	
Lower explosion limit	3,8 Vol-%	
Upper explosion limit	29,3 Vol-%	
Flash point	-78 °C	(DIN 51755)
Ignition temperature	472 °C	(DIN 51794)
Thermal decomposition	No decomposition when used according to regulations. no data available	
pH	Not applicable. Product displays neutral reaction with water.	
Viscosity, kinematic	no data available	
Viscosity, dynamic	no data available	
Water solubility	2,72 g/l at 20 °C	
Solubility in other solvents	totally miscible with common organic solvents	
Partition coefficient: n-octanol/water	1,58 at 22 °C	
Vapour pressure	510 hPa at -30 °C	
Vapour pressure	7560 hPa at 50 °C	
Vapour pressure	5700 hPa at 38 °C	
Vapour pressure	3330 hPa at 20 °C	
Density	0,911 g/cm³ (20 °C)	(DIN 51757)
Relative vapour density	no data available	
Particle Size Distribution	Not applicable.	

9.2 Other information

No data available.

Property:	**Value:**	**Method:**
Explosivity	Explosive.	
Oxidizing properties	no	
Evaporation rate	no data available	
Molecular weight	62,5	
Explosion group	II A	

SECTION 10: Stability and reactivity

10.1 – 10.3 Reactivity; Chemical stability; Possibility of hazardous reactions

Stable under normal conditions of use. If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

Relevant information can possibly be found in other parts of this section.

10.4 Conditions to avoid

Protect from air. Moisture, direct sunlight, heat, open flames, and other sources of ignition.

10.5 Incompatible materials

Reacts with peroxides and oxygen. The reaction takes place with the formation of heat. Reacts with hydrogen sulfide, aluminum/aluminum chloride and alkali/alkaline earth metals.

10.6 Hazardous decomposition products

hydrogen chloride .

SECTION 11: Toxicological information

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

11.1.1 Acute toxicity

Product details:

Exposure routes	Result/Effect
Oral	LD50 > 4000 mg/kg No mortality observed at this dose. Species: Rat, Source: ECHA
by inhalation (gas)	LC50 390 mg/l; 2 h Species: Rat, Source: ECHA
by inhalation (gas)	LC50 290 mg/l; 2 h Species: Mouse, Source: ECHA

11.1.2 Skin corrosion/irritation

Assessment:

Study technically not feasible.

11.1.3 Serious eye damage/eye irritation

Assessment:

Study technically not feasible.

11.1.4 Respiratory or skin sensitisation

Assessment:

Study technically not feasible.

11.1.5 Germ cell mutagenicity

positive (Metabolic activation: with and without metabolic activation, Test system: mutation assay (in vitro) / bacterial cells, Method: OECD 471, Source: ECHA)
positive (Metabolic activation: with metabolic activation, Test system: mutation assay (in vitro) / mammalian cells, Method: OECD 476, Source: ECHA)
negative (Metabolic activation: without metabolic activation, Test system: mutation assay (in vitro) / mammalian cells, Method: OECD 476, Source: ECHA)
negative (Test system: Rodent Dominant Lethal Test, Species: Mouse, Strain: CD1, Sex: male and female, Application Route: by inhalation, Cell type: germ cells, Method: OECD 478, Source: ECHA)
positive (Test system: micro nucleus assay (in vivo), Species: Mouse, Sex: male and female, Application Route: by inhalation, Cell type: erythrocytes, Method: OECD 474, Source: literature)

11.1.6 Carcinogenicity

Assessment:

The substance can cause cancer in humans.

Product details:

NOAEL: 0,13 mg/kg (target organs: Liver, Species: Rat, Strain: wistar, Sex: male and female, Application Route: Oral, Route of administration: feed, Frequency of Treatment: 7 d/w, hours/day: 4, Method: OECD 453, Source: ECHA)
LOAEC: 0,128 mg/l (Species: Rat, Sex: male and female, Application Route: by inhalation, Route of administration: gas, Test period: 1 a, Frequency of Treatment: 5 d/w, hours/day: 6, Source: ECHA)
LOAEC: 0,128 mg/l (Species: Mouse, Strain: CD1, Sex: male and female, Application Route: by inhalation, Route of administration: gas, Test period: 1 a, Frequency of Treatment: 5 d/w, hours/day: 6, Source: ECHA)

11.1.7 Reproductive toxicity

Product details:

Reproductive Toxicity/Fertility
NOAEC: 1100 ppm (Test system: Two-generation study, Species: Rat, Strain: Sprague-Dawley, Sex: male and female, Generation: Filial generation, Application Route: by inhalation, Route of administration: gas / vapour, hours/day: 6, Method: OECD 416, Source: ECHA)

Reproductive Toxicity/Development/Teratogenicity
NOAEC (developmental): >= 2500 ppm NOAEC (maternal toxicity): < 500 ppm (Species: Rat, Strain: Sprague-Dawley, Sex: female, Application Route: by inhalation, Route of administration: gas, Frequency of Treatment: day 6 - 19 of gestation, hours/day: 7, Source: ECHA)
NOAEC (developmental): 2500 ppm NOAEC (maternal toxicity): 2500 ppm (Species: Rabbit, Strain: New Zealand White, Sex: female, Application Route: by inhalation, Route of administration: gas, Frequency of Treatment: day 6 - 18 of gestation, hours/day: 7, Source: ECHA)
NOAEC (developmental): 500 ppm NOAEC (maternal toxicity): 50 ppm (Species: Mouse, Strain: CD1, Sex: female, Application Route: by inhalation, Route of administration: gas, Frequency of Treatment: day 6 - 15 of gestation, hours/day: 7, Source: ECHA)
NOAEC (developmental): 1100 ppm NOAEC (maternal toxicity): 10 ppm (Test system: Developmental Toxicity Study, Species: Rat, Strain: Sprague-Dawley, Sex: female, Application Route: by inhalation, Route of administration: gas, Frequency of Treatment: day 6 - 19 of gestation, hours/day: 6, Method: OECD 414, Source: ECHA)

11.1.8 Specific target organ toxicity - single exposure

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.9 Specific target organ toxicity - repeated exposure

Product details:

Result/Effect
NOAEL: 30 mg/kg LOAEL: 100 mg/kg (target organs: Blood, hematopoietic system, Liver, Test system: Subchronic study, Species: Rat, Sex: male and female, Application Route: Oral, Route of administration: gavage, Test period: 90 d, Method: OECD 408, Source: ECHA)
: 50 ppm (Test system: chronic study, Species: Rat, Sex: male and female, Application Route: by inhalation, Test period: 1 a, Frequency of Treatment: 5 d/w, hours/day: 6, Source: ECHA)

11.1.10 Aspiration hazard

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

11.2.2 Further toxicological information

None known.

SECTION 12: Ecological information

12.1 Toxicity

Product details:

Result/Effect	Species/Test system	Source
LC50: 210 mg/l (measured)	semi-static test Danio rerio (zebra fish) (96 h)	ECHA OECD 203
EC50: 119 mg/l	Daphnia (water flea) (48 h)	ECHA ECOSAR
ErC50: 77 mg/l	algae (96 h)	ECHA ECOSAR
EC50: 40 mg/l	activated sludge (84 h)	ECHA

12.2 Persistence and degradability

Assessment:

Not readily biodegradable. Product is hydrolytically stable.

Product details:

Biodegradation:

Result	Test system/Method	Source
16 % / 28 d Not readily biodegradable.	biological oxygen demand (BOD)	ECHA OECD 301D

12.3 Bioaccumulative potential

Assessment:

Bioaccumulation is not expected to occur.

Product details:

Result/Effect	Species/Test system	Source
Bioconcentration factor (BCF): <= 100	no data available	no data available

12.4 Mobility in soil

Assessment:

The substance displays high volatility from water.

12.5 Results of PBT and vPvB assessment

This product contains no relevant substances considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

none known

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Material

Recommendation:
Dispose of according to regulations by incineration in a special waste incinerator. Observe local/state/federal regulations. Return to supplier.

13.1.2 Uncleaned packaging

Recommendation:
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations. Uncleaned packaging should be treated with the same precautions as the material.

13.1.3 Waste Disposal Legislation Ref.No.(EC)

It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

SECTION 14: Transport information

14.1 UN number or ID number

ADR	:	UN1086
RID	:	UN1086
IMDG	:	UN1086
ICAO/IATA	:	UN1086

14.2 Proper shipping name

ADR	:	Vinylchlorid, stabilisiert
ADR (Domestic transport regulations)	:	Vinylchloride, stabilized
RID	:	Vinylchlorid, stabilisiert
RID (Domestic transport regulations)	:	Vinylchloride, stabilized
IMDG	:	Vinyl chloride, stabilized
ICAO/IATA	:	Vinyl chloride, stabilized

14.3 Transport hazard class

ADR	:	2.1 (Limited quantity (LQ): 0)
RID	:	2.1
IMDG	:	2.1
ICAO/IATA	:	2.1

14.4 Packing group

ADR	:	Not applicable
RID	:	Not applicable
IMDG	:	Not applicable
ICAO/IATA	:	Not applicable

14.5 Environmental hazards

Environmentally hazardous: no
Marine pollutant (IMDG): no

14.6 Special precautions for user

Land transport: §35 GGVSEB applies within Germany, if transported in tanks

Air transport: It must be ensured that there is a sufficient level of stabilization to prevent the substance in the packaging from dangerous polymerization at a bulk mean temperature of 50°C!

Relevant information in other sections has to be considered.

14.7 Maritime transport in bulk according to IMO instruments

Bulk transport in tankers is not intended.

SECTION 15: Regulatory information

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

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

Relevant regulations:
SI 2002/1689: CHIP Regulations 2002
SI 2002/2677: COSHH Regulations 2002
SI 1999/3242: Management of Health & Safety at Work Regulations 1999
Health & Safety at Work Act 1974
SI 1993/1643: Environmental Protection Act 1993 & Subsidiary Regulations.
Other national and local measures relating to the workplace, pollution control, environmental protection and waste control.

Other specifications, restrictions and prohibitions:

Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors - ANNEX I. RESTRICTED EXPLOSIVES PRECURSORS: Not applicable

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors - ANNEX II. REPORTABLE EXPLOSIVES PRECURSORS: Not applicable

REACh Annex XVII: Due to the numbers 28 to 30, the product is not intended for sale to the general public.

Details of international registration status

Relevant information about individual substance inventories, where available, is given below.

Japan ..... :	**ENCS** (Handbook of Existing and New Chemical Substances): This product is listed in, or complies with, the substance inventory.
Australia ..... :	**AIIC** (Australian Inventory of Industrial Chemicals): This product is listed in, or complies with, the substance inventory.
China..... :	**IECSC** (Inventory of Existing Chemical Substances in China): This product is listed in, or complies with, the substance inventory.
Canada ..... :	**DSL** (Domestic Substance List): This product is listed in, or complies with, the substance inventory.
Philippines..... :	**PICCS** (Philippine Inventory of Chemicals and Chemical Substances): This product is listed in, or complies with, the substance inventory.
United States of America (USA)..... :	**TSCA** (Toxic Substance Control Act Chemical Substance Inventory): All components of this product are listed as active or are in compliance with the substance inventory.
European Economic Area (EEA)..... :	**REACH** (Regulation (EC) No 1907/2006): General note: the registration obligations for substances imported into the EEA or manufactured within the EEA by the supplier mentioned in section 1 are fulfilled by the said supplier. The registration obligations for substances imported into the EEA by customers or other downstream users must be fulfilled by the latter.
South Korea (Republic of Korea) ..... :	**AREC** (Act on Registration and Evaluation of Chemicals; “K-REACH”): Please approach your regular contact for more detailed information.

15.2 Chemical safety assessment

For this product, a chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has been carried out.

SECTION 16: Other information

16.1 Material

The details in this document are based on the state of our knowledge at the time of revision. They do not constitute an assurance of the described product properties in terms of statutory warranty requirements.

The providing of this document to a recipient does not relieve the recipient of his or her responsibility toward compliance with all laws and stipulations applicable to the product. This applies in particular to the further sale or distribution of the product or substances or items containing the product, in other jurisdictions and with regard to the protection of third-party intellectual property rights. If the described product is processed or mixed with other substances or materials, the details stated in this document cannot be conferred to the resultant new product unless this has been expressly mentioned. If the product is repackaged, the recipient is obligated to additionally provide the required safety-related information.

16.2 Identified uses (REACH)

General information:

Please send requests for additional uses or for extension of exposure scenarios to the following e-mail address: REACH-USES@wacker.com

All identified uses have been summarized tabularly. The uses are linked to the subsequently described exposure scenarios by the sequential exposure scenario number given in the table.

Identified uses with exposure scenarios:

Conditions for safe use, and - if applicable - a more detailed specification of the categories, can be found in related the exposure scenarios (ES) which are indicated in the right column.
Please note: Exposure scenarios usually are based only on single registered substances and their uses. Mixtures might contain other hazardous substances which require additional measures.

PVC production; industrial	ES No.
SU 3 – PROC3, PROC15 – SU8	**1**

16.3 Further information:

Commas appearing in numerical data denote a decimal point. Vertical lines in the left-hand margin indicate changes compared with the previous version. This version supersedes all previous versions.

Key or legend to abbreviations and acronyms used in the safety data sheet

ABEK - Multi-Range Filter A, B, E, K; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; APF - Assigned Protection Factor; CAS No. - Chemical Abstracts Service Registry Number; DFG - German Research Foundation; DIN - German institute for standardization; DOC - Dissolved Organic Carbon; d/w - days per week; EC / CE / EG - European Community; EC50 / CE50 - Median effective concentration; ECHA - European Chemicals Agency; ED - endocrine disruptor; EG-RL - test method according to Regulation 440/2008; EN - European Standard; ERC - Environmental Release Category; g/cm³ - gram per cubic centimeter; h - hour(s); H-Code - hazard statement code(s); hPa - Hectopascal; IATA Regs - International Air Transport Association (IATA) Dangerous Goods Regulations;IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;IC50 / CI50 - half maximal inhibitory concentration;IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IMDG Code - International Maritime Dangerous Goods Code; ISO - International Organization for Standardization; LC50 / CL50 - medium lethal concentration; LD50 / DL50 - medium lethal dose; LOAEC - Lowest Observed Adverse Effect Concentration; LOAEL - Lowest Observed Adverse Effect Level; MARPOL - International Convention for the Prevention of Marine Pollution from Ships; mg/g - milligrams per gram; mg/kg - milligrams per kilogram; mg/l - milligrams per liter; mg/m³ - milligrams per cubic meter; min - minutes; mJ - millijoule; mm - millimeter; mm²/s - square millimeter per second; mPa.s - Millipascal second(s); MSDS / SDB / SDS - safety data sheet; No Observed Adverse Effect Concentration; NOAEL - No Observed adverse effect level; NOEC - No Observed Effect Concentration; NOEL - No Observed Effect Level; OECD - Organization for Economic Cooperation and Development; PBT - persistent, bioaccumulative, toxic; PC - product category; P-Code - precautionary statement code(s); ppm - parts per million; PROC - process category; RCP - reciprocal calculation-based procedure; RID - convention concerning international carriage by rail; SU - sector of use; SVHC - substance of very high concern; Vol% - volume percent; UN No. - United Nations Dangerous Goods Number; vPvB - very Persistent, very Bioaccumulative

Explanation of the GHS classification code:

Flam. Gas 1A; H220 .. :	Flammable gases Category 1A; Extremely flammable gas.
Carc. 1A; H350 ..... :	Carcinogenicity Category 1A; May cause cancer.
Press. Gas; H280 ..... :	Gases under pressure Compressed gas; Contains gas under pressure; may explode if heated.
Chem. Unst. Gas B; H231 :	Chemically unstable gas Category B; May react explosively even in the absence of air at elevated pressure and/or temperature.

This safety data sheet contains an annex on the following pages. (Annex to the Safety Data Sheet According to Article 31(7) of Regulation 1907/2006/EC (REACH))

ES1 PVC production; industrial

1. Processes and activities covered by this description

This exposure scenario covers the production of PVC using different techniques like suspension polymerization (S-PVC), mass polymerization (M-PVC) or emulsion polymerization (E-PVC). The conditions of this exposure scenario are also applicable for the handling as chemical intermediate in the synthesis of other chemicals under strictly controlled conditions (SCC).

Relevant use descriptors for this scenario:

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC6c: Industrial use of monomers for manufacture of thermoplastics
PROC3: Use in closed batch process (synthesis or formulation); **PROC15:** Use as laboratory reagent
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Vinyl chloride

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure: ERC6c

Concentration of substance in preparation/mixture or article:

<=100 % Vinyl chloride

Amounts used:

Annual amount per site ..... : 400000 t/a

Amount per site..... : 1110 t/d

Duration and frequency of use:

Environment..... : 365 days/year

Environment factors not influenced by risk management:

Receiving Surface Water (Flow Rate): 18.000 m³/day
Dilution factor (river)..... : 40
Dilution factor (coastal areas) ..... : 100

Risk management measures related to the environment:

Air ..... : The concentration of the substance in the reaction product has to be reduced as much as possible by appropriate design of the stripping column. The condensate is transferred to a water stripper or other facilities, to recover contained substance.

Water ..... : As far as possible, water flows should be collected in closed collection systems to be processed in the water stripper, in order to remove residual substance.

Conditions and measures related to sewage treatment plant:

STP type ..... : default industrial size WWTP
STP effluent ..... : 2.000 m³/day
Sludge treatment..... : Recovery of sewage sludge is assumed.

Conditions and measures related to external treatment of waste for disposal:

Waste from reactor cleaning containing more than 0.1% of the substance have to be treated as hazardous waste and disposed of accordingly.

2.2 Contributing scenario controlling worker exposure:
PROC3

Concentration of substance in preparation/mixture or article:

<=100 % Vinyl chloride

Physical state during application:

gas

Vapour pressure ..... : 3330 hPa

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h

Other given operational conditions affecting worker exposure:

Temperature ..... : Operation is carried out at elevated temperature (> 20°C above ambient temperature)

Risk management measures related to human health (worker):

Handle substance within a predominantly closed system provided with extract ventilation. Drain down and flush system prior to equipment break-in or maintenance.

Clear transfer lines prior to de-coupling. Drain or remove substance from equipment prior to break.in or maintenance.

Wear a full face respirator conforming to EN140 with Type AX filter or better. In case of long or strong exposure: Wear a self-contained, positive-pressure respirator with full facepiece and an APF of 2000.

2.3 Contributing scenario controlling worker exposure:
PROC15

Concentration of substance in preparation/mixture or article:

<=100 % Vinyl chloride

Physical state during application:

gas

Vapour pressure ..... : 3330 hPa

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h

Risk management measures related to human health (worker):

Handle substance within a predominantly closed system provided with extract ventilation. Drain down and flush system prior to equipment break-in or maintenance.

Handle in a fume cupboard or under extract ventilation. Sample via closed loop or other system to avoid exposure.

Wear a full face respirator conforming to EN140 with Type AX filter or better. In case of long or strong exposure: Wear a self-contained, positive-pressure respirator with full facepiece and an APF of 2000.

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
freshwater	-	0,0365 mg/l	0,475	EUSES 2.1.1
marine water	-	0,00365 mg/l	0,475	EUSES 2.1.1
Sediment (freshwater)	-	0,336 mg/l	0,475	EUSES 2.1.1
Sediment (marine water)	-	0,0336 mg/l	0,475	EUSES 2.1.1
Soil	-	0,042 mg/l	0,408	EUSES 2.1.1
sewage treatment plant	-	0,365 mg/l	0,91	EUSES 2.1.1
by inhalation	PROC 3.	2,86 mg/m³	0,37	ECETOC TRA
by inhalation	PROC 15.	2,87 mg/m³	0,37	ECETOC TRA

4. Evaluation guidance to downstream user

no data available .

- End of Safety Data Sheet -