

# Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 985034	NANOCOLOR CATIONIC SURFACTANTS 4	Page: 1/14
Printing date: 14.01.2026	Date of issue: 19.06.2024	Version: 2.2.4.6

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

### 1.1 Product identifier

REF 985034  
 Product name NANOCOLOR CATIONIC SURFACTANTS 4  
 REACH Registration number(s): see SECTION 3.1/3.2 or  
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.  
 20 x 6 mL Cationic Surfactants 4 (R0+R1) UFI: 0D5U-73RM-J20A-8D1R  
 1 x 11 mL Cationic Surfactants 4 (R2) UFI: Y7NU-T359-H20X-PEUW

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

**Relevant identified uses**  
 Product for analytical use.  
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0  
 The exposure scenario is integrated into sections 1-16.  
**Uses advised against**  
 not described

### 1.3 Details of the supplier of the safety data sheet

**Manufactured by:**  
 MACHEREY-NAGEL GmbH & Co. KG  
 Valencienner Str. 11, 52355 Düren, Germany  
 Phone: +49 2421 969 0 E-mail: sds@mn-net.com (msds@mn-net.com)

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
 DE: Gemeinsames Giftinformationszentrum (GGIZ)  
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet: <<http://www.mn-net.com/SDS>>

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product according to Regulation (EC) 1272/2008



Signal word	DANGER
<b>Hazard identification</b>	<b>Hazard classes/categories</b>
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H331	Acute Tox. 3 inh.
H336	resp. irrit. STOT SE 3
H351	Carc. 2
H361	Repr. 2
H371	STOT SE 2
H372	STOT RE 1

### 2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

11 mL Cationic Surfactants 4 (R2)



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GHS02

Signal word: WARNING

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3

## 6 mL Cationic Surfactants 4 (R0+R1)



GHS06



GHS07



GHS08

Signal word: DANGER

Hazard identification	Hazard classes/categories
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H331	Acute Tox. 3 inh.
H336	resp. irrit. STOT SE 3
H351	Carc. 2
H361	Repr. 2
H371	STOT SE 2
H372	STOT RE 1

List of H phrases: see section 16.2

## 2.2 Label elements according regulation (EC) 1272/2008

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 2). Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2).

## 11 mL Cationic Surfactants 4 (R2)



GHS02

Signal word: WARNING

## 6 mL Cationic Surfactants 4 (R0+R1)



GHS06



GHS08

Signal word: DANGER

H331, H351, H361, H372

Toxic if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

P201, P202, P260sh, P264, P270, P271, P280sh, P311, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/vapours. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection. Call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to regulated waste treatment.



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## Label elements of the complete product



GHS02



GHS06



GHS08

Signal word: DANGER

H331, H351, H361, H372

Toxic if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

P201, P202, P260sh, P264, P270, P271, P280sh, P311, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/vapours. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection. Call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to regulated waste treatment.

## 2.3 Other hazards

### Possible hazards from physicochemical properties

In the case of pH values are less than 5 or higher than 9 then it is irritant. Flammable properties.

### Information pertaining to particular risks to human and possible symptoms

Cause severe after inhalation of vapours, impairments of health or can lead to death even when only ingested in small quantities. Cause after oral intake, impairments of health when ingested in small quantities. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. The labelling with GHS06 would indicate acute toxicity hazard which is not given by the closed cuvette system.

### Information pertaining to particular risks to the environment

PBT: not applicable

vPvB: not applicable

### Possible endocrine disrupting effects

no data available

## SECTION 3: Composition / information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 11 mL Cationic Surfactants 4 (R2)

Substance name:	<i>ethanol</i>	
CAS No.:	64-17-5	
	(denatured with 1% 2-butanone)	
Substance rating:	H225, Flam. Liq. 2	
Formula:	C <sub>2</sub> H <sub>6</sub> O; C <sub>2</sub> H <sub>5</sub> OH	
Pseudonym (de):	Äthylalkohol, vergällter Spiritus	
REACH Reg. No.:	01-2119457610-43-xxxx	
EC No.:	200-578-6	Indice No.: 603-002-00-5
Concentration:	5 - <20 %	
acc. CLP (GHS):	H226, Flam. Liq. 3	

#### 6 mL Cationic Surfactants 4 (R0+R1)

Substance name:	<i>methanol</i>	
CAS No.:	67-56-1	
Substance rating:	H225, Flam. Liq. 2, H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H331, Acute Tox. 3 inh., H370, STOT SE 1	
Formula:	CH <sub>4</sub> O, CH <sub>3</sub> OH	
Pseudonym (de):	Methylalkohol	
REACH Reg. No.:	01-2119433307-44-xxxx	
EC No.:	200-659-6	Indice No.: 603-001-00-X
Concentration:	1 - <2,5 %	
acc. CLP (GHS):	H371, STOT SE 2	



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Substance name: *chloroform*  
 CAS No.: 67-66-3

Substance rating: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H331, Acute Tox. 3 inh., H336, resp. irrit. STOT SE 3, H351, Carc. 2, H361d, Repr. 2, H372, STOT RE 1, H412, Aquatic Chronic 3  
 Formula: CHCl<sub>3</sub>  
 Pseudonym (de): Trichlormethan, Kohlenstofftrichlorid  
 REACH Reg. No.: 01-2119486657-20-xxxx  
 EC No.: 200-663-8  
 Concentration: 40 - <75 %  
 acc. CLP (GHS): H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H331, Acute Tox. 3 inh., H336, resp. irrit. STOT SE 3, H351, Carc. 2, H361, Repr. 2, H372, STOT RE 1

Indice No.: 602-006-00-4

Substance name: *water*  
 CAS No.: 7732-18-5

Substance rating: No criteria for classification or naming of chemical not required.  
 Formula: H<sub>2</sub>O  
 REACH Reg. No.: exempt, Annex IV  
 EC No.: 231-791-2  
 Concentration: 30 - <50 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *citrate buffer solution*  
 CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.  
 Concentration: 1 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

### 3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

List of H and P phrases: see section 16.2.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Take to a doctor, in a raised position if there are breathing difficulties.

- 4.1.1 After SKIN Contact**  
 Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.
- 4.1.2 After EYE Contact**  
 After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).
- 4.1.3 After INHALATION of vapours**  
 After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function. ---
- 4.1.4 After ORAL Intake**  
 After oral intake lots of water should be drunk after it has been ingested.

### 4.2 Most important symptoms and effects, both acute and delayed

Damages organs.

CMR Effekte: Suspected of causing cancer. Suspected of damaging fertility or the unborn child.

### 4.3 Indication of any immediate medical attention and special treatment needed

In the event of RESPIRATORY DISTRESS ensure that the patient inhales oxygen. Inform patient respectively further measures and the possibility of long-term damages. ---



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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### 5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

#### 5.1.2 Unsuitable extinguishing media

no data available

### 5.2 Special hazards arising from the substance or mixture

WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible.

### 5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic.

### 5.4 Additional information

no data available

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

### 6.2 Environmental precautions

PBT: not applicable

vPvB: not applicable

### 6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water.

Collect small amounts of leaked liquid and flush with water into drains. Not for organic solvents (see section 13).

### 6.4 Reference to other sections

no data available

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas. Use a safety bottle when shaking test tubes.

### 7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. Products which are also classified as toxic must be kept under lock and key. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 3

Water hazard class (DE): 3

#### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, and store in a well-ventilated place at max. 25 °C, away or preferably separate from substances with which a hazardous reaction could take place, so that they are not immediately accessible to outside parties. Use inbreakable container for transport of glass bottles.

### 7.3 Specific end use(s)

Product for analytical use.

## SECTION 8: Exposure controls /personal protection

### 8.1 Control parameters

6 mL Cationic Surfactants 4 (R0+R1)

Chemical: citrate buffer solution

CAS No.: -



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Chemical: *methanol* CAS No.: 67-56-1  
 DNEL: [derm] 40 mg/kg bw/day; [inh] 260 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)  
 PNEC (fresh water): 20.8 mg/L  
PNEC = Predicted No Effect Concentration  
 EU value: [TWA] 200 ppm / 260 mg/m<sup>3</sup>  
 TRGS 900 (DE): 200 ppm / 270 mg/m<sup>3</sup>  
E/e respirable  
 Short-term exposure factor: 4 (II), H, Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded  
 SUVA(CH) MAK value: 200 ppm/ 260 mg/m<sup>3</sup>  
 SUVA(CH) BAT value: [U/c,b] 30 mg/L  
 TRGS 903 (DE): U/c,b 30 mg/L  
B blood, U urine, a no limitation, b end of exposition or shift  
 NIOSH: [TWA, skin] 200 ppm / 260 mg/m<sup>3</sup>  
 NIOSH STEL: 250 ppm / 325 mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: [TWA] 200 ppm / 260 mg/m<sup>3</sup>

Chemical: *chloroform* CAS No.: 67-66-3  
 DNEL: [derm] 0.94 mg/kg bw/day; [inh] 2.5 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)  
 PNEC (fresh water): 0.146 mg/L  
PNEC = Predicted No Effect Concentration  
 EU value: 0.5 ppm / 2.5 mg/m<sup>3</sup>  
 TRGS 900 (DE): 0,5 mL/m<sup>3</sup> / 2,5 mg/m<sup>3</sup>  
E/e respirable  
 Short-term exposure factor: 2 (II), H, X, Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded  
 SUVA(CH) MAK value: 0,5 ppm / 2,5 mg/m<sup>3</sup>  
 NIOSH: Ca ST 2 ppm / 9.78<sub>60 min</sub> mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: 50 ppm / 240 mg/m<sup>3</sup>

Chemical: *water* CAS No.: 7732-18-5

**11 mL Cationic Surfactants 4 (R2)**

Chemical: *ethanol* CAS No.: 64-17-5  
 DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)  
 PNEC (fresh water): 0.96 mg/L  
PNEC = Predicted No Effect Concentration  
 TRGS 900 (DE): 200 ppm / 380 mg/m<sup>3</sup>  
E/e respirable  
 Short-term exposure factor: 4 (II), Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded  
 SUVA(CH) MAK value: 500 ppm / 960 mg/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: 1000 ppm / 1900 mg/m<sup>3</sup>

## 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

### 8.2.1 Respiratory protection

Use for open access of these substances for example a protection filter, class A/AX. No additional recommendations.

### 8.2.2 Skin protection / Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril, for chlorinated carbons consist of viton (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

### 8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection.

### 8.2.4 Skin protection

Recommended to avoid contamination with these hazards.



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- 8.2.5 Personal hygiene**  
Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.
- 8.2.6 Thermal hazards**  
no data available
- 8.3 Limitation and monitoring of environmental exposure**  
Do not release product into environment.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 6 mL Cationic Surfactants 4 (R0+R1)

- |  |                   |
|--|-------------------|
| a) State of aggregation:                       | liquid (2 phases) |
| b) Colour:                                     | colourless        |
| c) Odor:                                       | like chloroform   |
| d) Melting point:                              | no data available |
| e) Boiling point:                              | no data available |
| f) Flammability:                               | no data available |
| g) Explosive limits (lower / upper):           | no data available |
| h) Flash point:                                | no data available |
| i) Flashing temperature:                       | no data available |
| j) Decomposition temperature:                  | no data available |
| k) pH value:                                   | 2,0               |
| l) Kinematic viscosity:                        | no data available |
| m) Solubility in water:                        | no data available |
| n) Dispersion coefficient (K <sub>o/w</sub> ): | no data available |
| o) Vapour pressure (20°C):                     | no data available |
| p) Specific gravity:                           | no data available |
| q) Relative vapour density (air=1):            | no data available |
| r) Particle size:                              | no data available |

#### 11 mL Cationic Surfactants 4 (R2)

- |  |                   |
|--|-------------------|
| a) State of aggregation:                       | liquid            |
| b) Colour:                                     | blue              |
| c) Odor:                                       | alcoholic         |
| d) Melting point:                              | no data available |
| e) Boiling point:                              | no data available |
| f) Flammability:                               | no data available |
| g) Explosive limits (lower / upper):           | no data available |
| h) Flash point:                                | no data available |
| i) Flashing temperature:                       | no data available |
| j) Decomposition temperature:                  | no data available |
| k) pH value:                                   | 6-8               |
| l) Kinematic viscosity:                        | no data available |
| m) Solubility in water:                        | no data available |
| n) Dispersion coefficient (K <sub>o/w</sub> ): | no data available |
| o) Vapour pressure (20°C):                     | no data available |
| p) Specific gravity:                           | 0,98 g/cm³        |
| q) Relative vapour density (air=1):            | no data available |
| r) Particle size:                              | no data available |

### 9.2 Other information

- 9.2.1 Information on physical hazard classes**  
no data available

- 9.2.2 Other safety-related parameters**  
No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.



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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no further data available.

### 10.2 Chemical stability

no known instability.

### 10.3 Possibility of hazardous reactions

No further data available.

### 10.4 Conditions to avoid

Observe the storage temperature printed on it. No more required.

### 10.5 Incompatible materials

no additional data available

### 10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

## SECTION 11: Toxicological information

### 11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

#### 6 mL Cationic Surfactants 4 (R0+R1)

Chemical: *citrate buffer solution*  
 TSCA Inventory: all listed  
 Korea Exist.Chem.Inventory: listed

CAS No.: -

#### Chemical: *methanol*

TSCA Inventory: listed  
 ACGIH: 200 ppm / 160 mg/m<sup>3</sup>  
 Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, gastrointestinal tract  
 Symptoms: irritation eyes, skin, upper respiratory system; headache, drowsiness, dizziness, nausea, vomiting; visual disturbance, optic nerve damage (blindness)  
 Australia NICNAS: Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: PAC yes, Japan PDSCL: Deleterious Substance  
 Japan ISHL: listed ≥0,3%/≥0,1%, Article 57-2 (SDS required)  
 South Korea TCCA: Accident Precaution Chemical yes  
 Korea Exist.Chem.Inventory: KE-23193, Toxic 97-1-80  
 LD50 orl rat : 5628 mg/kg  
 LC<sub>Low</sub> ihl rat : 64,000 mg/L/4H  
 LC<sub>Low</sub> orl hmn : 143 mg/kg  
 LC50 ihl rat : >80 mg/L/4H  
 LD50 orl mus : 7300 mg/kg

CAS No.: 67-56-1

Chronic Effects:  
 TRGS 905 (DE): R F C

#### Chemical: *chloroform*

TSCA Inventory: listed  
 ACGIH: 10 ppm  
 Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact  
 Target Organs: Liver, kidneys, heart, eyes, skin, central nervous system  
 Symptoms: irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potent  
 Australia NICNAS: not listed  
 Japan CSCL/PRTR: PCA Yes, PRTR: ≥1,0% class I, Japan PDSCL: Deleterious Substance  
 Japan ISHL: listed ≥1,0%/≥0,1%, Article 57-1+2 (Labelling&SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-34076, Toxic 97-1-281  
 LD50 orl rat : 908 mg/kg  
 LC<sub>Low</sub> ihl hmn : 25 mg/L  
 LC<sub>Low</sub> orl hmn : 140 mg/kg  
 LC<sub>Low</sub> orl rbt : 500 mg/kg

CAS No.: 67-66-3

California Proposition 65 List: listed: cancer, developmental



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LC50 *ihl rat* : 9,17 mg/L/6H  
 Acute Effects: Cause severe after inhalation of vapours, impairments of health or can lead to death even when only ingested in small quantities. Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.  
 Chronic Effects:  
 Carcinogenic Effects: Suspected of causing cancer. Suspected of damaging fertility or the unborn child.  
 EU carcinogen: carc. 2, repr. 2  
 TRGS 905 (DE): K 1B, M 2, R<sub>D</sub> 2

Chemical: *water* CAS No.: 7732-18-5  
 TSCA Inventory: listed  
 Korea Exist.Chem.Inventory: KE-35400  
 LD50 *orl rat* : > 90000 mg/kg

### 11 mL Cationic Surfactants 4 (R2)

Chemical: *ethanol* CAS No.: 64-17-5  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 ACGIH: 1000 ppm  
 Exposure Routes: inhalation, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system  
 Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCCL: not listed  
 Japan ISHL: listed ≥0,1%/≥0,1%, Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50 *orl rat* : 6200 mg/kg  
 LC<sub>Low</sub> *ihl gpg* : 21,900 mg/L  
 LC<sub>Low</sub> *orl hmn* : 1400 mg/kg  
 LC50 *ihl mus* : 123,4 mg/L/4H  
 LC50 *ihl rat* : 115,9-133,8 mg/L/4H  
 LD50 *orl mus* : 3450 mg/kg  
 TRGS 905 (DE): K5, M5, R<sub>F</sub> C

## 11.2 Other hazards

**Possible endocrine disrupting effects**  
 no data available

**Other information**  
 no additional data available

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 6 mL Cationic Surfactants 4 (R0+R1)

Substance name: *citrate buffer solution* CAS-Nr.: -  
 Water hazard class (DE): 0  
 Storage class (VCI): 12

Substance name: *methanol* CAS-Nr.: 67-56-1

PNEC (fresh water) : 20.8 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected  
 LC50 *daphnia magna/48h* : [24h] 23.5 g/L  
 LC50 *pimephales promelas/96h* : 29.4 g/L  
 LC50 *fish/96h* : 15.4 g/L  
 EC50 *daphnia/48h* : >10 g/L  
 IC50 *scenedesmus quadricauda/72h* : [IC5 8d] 8000 mg/L  
 EC10 *pseudomonas putita/16h* : [EC5] 6.6 g/L  
 Water hazard class (DE): 2 WGK No.: 0145  
 Storage class (VCI): 3



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Substance name: *chloroform* CAS-Nr.: 67-66-3  
 PNEC (fresh water): 0.146 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected  
 LC50 fish/96h: 18 mg/L  
 EC50 daphnia/48h: 6.3 21d NOEC mg/L  
 Water hazard class (DE): 3 WGK No.: 0054  
 Storage class (VCI): 12

Substance name: *water* CAS-Nr.: 7732-18-5

**11 mL Cationic Surfactants 4 (R2)**

Substance name: *ethanol* CAS-Nr.: 64-17-5  
 PNEC (fresh water): 0.96 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected  
 LC50 daphnia magna/48h: >100 g/L  
 LC50 pimephales promelas/96h: 13.4-15.1 g/L  
 LC50 leuciscus idus/96h: [48h] 8.14 g/L  
 LC50 fish/96h: 13 g/L  
 EC50 daphnia/48h: 9.3-14.2 g/L  
 IC50 scenedesmus quadricauda/72h: [7d] 5000 mg/L  
 EC10 pseudomonas putita/16h: [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Storage class (VCI): 3

**12.2 Persistence and degradability**

**12.3 Bioaccumulative potential**

Substance name: *methanol* CAS-Nr.: 67-56-1  
 Dispersion coefficient (K<sub>o/w</sub>): -0,77  
 Substance name: *chloroform* CAS-Nr.: 67-66-3  
 Dispersion coefficient (K<sub>o/w</sub>): 1,97

**11 mL Cationic Surfactants 4 (R2)**

Substance name: *ethanol* CAS-Nr.: 64-17-5  
 Dispersion coefficient (K<sub>o/w</sub>): -0,31

**12.4 Mobility in soil**

**12.5 Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6 Endocrine disrupting properties**

no data available

**12.7 Other adverse effects**

no additional data available

**SECTION 13: Disposal considerations**

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06). Or collect in solvent waste (waste code number 07 07 04). Close container tightly.

**13.1 Waste treatment methods**

Not necessary, see above.



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## SECTION 14: Transport information

**14.1. UN number: 3316**

**14.2. UN proper shipping name: Chemical Kit**

**14.3. Class: 9**

**14.4. Packing group: II**

*Road transport ADR*

Classification code: M11 Tunnel restriction code: E

Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation

*Air transport IATA DGR*

Limited Quantity: PAX: 960 max. quantity PAX: 10 KG

CAO: 960 max. quantity CAO: 10 KG

*Maritime transport IMDG*

EmS: F-A, S-P Staukategorie: A

Or use **Alternative declaration for transportation:**

**14.1 UN number: 1888**

**14.2 UN proper shipping name: Chloroform**

**14.3 Class: 6.1**

**14.4 Packing group: III**

*Road transport ADR*

Classification code: T1 Tunnel restriction code: E

Limited Quantity: 5 L

Excepted Quantity: E 1

*Air transport IATA DGR*

Limited Quantity: PAX: 680 max. quantity PAX: 60 L

CAO: 680 max. quantity CAO: 220 L

Excepted Quantity: E 1

*Maritime transport IMDG*

EmS: F-A, S-A Staukategorie: A

**14.1 UN number: 1992**

**14.2 UN proper shipping name: Flammable liquid, toxic, n.o.s. (methanol solution)**

**14.3 Class: 3** Additionally class: **6.1**

**14.4 Packing group: III**

*Road transport ADR*

Classification code: FT1 Tunnel restriction code: E

Limited Quantity: 5 L

Excepted Quantity: E 1

Special instructions: 274

*Air transport IATA DGR*

Limited Quantity: PAX: 355 max. quantity PAX: 60 L

CAO: 366 max. quantity CAO: 220 L

Excepted Quantity: E 1

*Maritime transport IMDG*

EmS: F-E, S-D Staukategorie: A

Special instructions: 223, 274

### 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

### 14.6 Special precautions for user

not necessary

### 14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.



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## SECTION 15: Regulatory information

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

Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017  
 Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020  
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017  
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017  
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017  
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017  
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012  
 TRGS 500, Protective measures, Mai 2008  
 TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015  
 Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)  
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016  
 TRGS 561, Activities involving carcinogenic metals and their compounds, Oct 2017  
 MN leaflet/instructions for use, also at [www.mn-net.com](http://www.mn-net.com)  
 If necessary, observe other country-specific regulations.

### 15.2 Chemical safety assessment

no data available

## SECTION 16: Other information

### 16.1 Changes compared to the last version

Between versions 2.2.4.6 and 2.2.2.2 following changes were applied: - 2 composition data corrected - 4 substance data corrected

### 16.2 List of H and P phrases

#### 16.2.1 List of relevant H phrases

H	Between versions 2.2.4.6 and 2.2.2.2 following changes were applied: - 2 composition data corrected - 4 substance data corrected
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.

#### 16.2.2 List of relevant P phrases

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260sh	Do not breathe dust/vapours.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280sh	Wear protective gloves/eye protection.
P311	Call a POISON CENTER/doctor.
P405	Store locked up.
P501	Dispose of contents/container to regulated waste treatment.

### 16.3 Recommended restriction on use

Only for professional user.

Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!

Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!

An individual package of this product or test kit has a moderate hazardous potential.

### 16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021

Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres

Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at work/SUVA .CH, limit values in the air at work 2009, revised on 01/2009

Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)

Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG

Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)



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Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)  
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)  
 TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016  
 Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progress (11th ATP)  
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)  
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)  
 TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019  
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)  
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG  
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)  
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)  
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)  
 Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

**revisions/updates**

*Reason for revision:* 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary  
 2014-04 adjustment according Regulation 487/2013/EU  
 2016-03 adjustment according Regulation 1221/2015/EU  
 2017–08 adjustment according the Ordinance on Ethanol Denaturation 2016/1867/EU  
 2017-11 adjustment according the ECHA registration dossier  
 2022-11 adjustment according Regulation 878/2020/EU

**16.5 Further information**

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**16.6 Legend / Abbreviations**

acc:	according
ADR:	Convention concerning the International Carriage of Dangerous Goods by Road
Act:	acute
BAT:	biological workplace tolerance value
CAO:	Cargo Aircraft Only
Carc:	carcinogen
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling and Packaging regulation
CMR:	carcinogen, mutagen, reproduction toxic
Corr:	corrosive
COD:	chemical oxygen demand
CSCL:	Chemical Substance Control Law (Jp)
Dam:	damage
DNEL:	Derived No-Effect Level (for workers)
derm:	dermal
dog:	dog
EC10:	Concentration causing a toxic effect in 10% of the test organisms
EC:	European Community
EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not specified)
GHS:	Global Harmonized System of Classification and Labeling of Chemicals
gpg:	guinea pig
ICAO:	International Civil Aviation Organization
ihl:	inhaled
IMDG:	International Maritime Dangerous Goods Code
intrav:	intravenous
ipt:	intraperitoneal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	letale concentration 50%
LD50:	letale dosis 50%
leuciscus idus:	fisch, ide, orfe
MAK:	maximum workplace concentration
Met:	Metall



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- mus: mouse
- Muta: mutagen
- NIOSH: National Institute for Occupational Safety and Health (US)
- NRD: Non-rapidly degradable
- onchorhynchus mykiss: fish, rainbow trout
- orl: oral
- OSHA: Occupational Safety and Health Administration
- PAX: transport on passenger planes allowed
- PBT: persistent, bioaccumulating, toxic substance
- pH: pH value
- pimephales promelas: fish, fathead minnow
- PNEC: Predicted No Effect Concentration
- PROC 15: Process category 'for laboratory use'
- PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
- PVC: polyvinyl chloride
- quail: bird, quail
- rat: rat
- rbt: rabbit
- RD: rapidly degradable
- RE: repeated
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- REF: item number, reference number
- Reg.No.: rRegistration number
- Repr: harmful to reproduction
- Resp: respiratory
- RIP: REACH Implementations Projects
- scu: sub cutan
- SDS: safety data sheet
- Sens: sensitisation
- STEL: short term exposure limit
- STOT: Specific Target Organ Toxicity
- SVHC: Substance of Very High Concern
- t/a: tons per year
- TCCA: Toxic Chemicals Control Act (S. Korea)
- Tox: toxic
- TSCA: The Toxic Substances Control Act (US)
- TWA: time weighted average
- TRGS: technical regulations (DE)
- vPvB: very persistent, very bioaccumulating substance

## 16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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