Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0

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

#### **1.1 Product identifier**

Trade name

: Sikaflex<sup>®</sup>-298 FC

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

Product use : Sealant/adhesive

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

| Company name of supplier | : | Sika Schweiz AG  |
|--------------------------|---|------------------|
|                          |   | Tüffenwies 16    |
|                          |   | 8048 Zürich      |
| Telephone                | : | +41 58 436 40 40 |
| Telefax                  | : | -                |
| E-mail address of person | : | EHS@ch.sika.com  |
| responsible for the SDS  |   |                  |

#### **1.4 Emergency telephone number**

Tox Info Suisse CH-8028 Zurich +41(0)44 251 51 51 / Speed calling: 145

### **SECTION 2: Hazards identification**

#### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

| Respiratory sensitisation, Category 1     | H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
|---|--|
| Specific target organ toxicity - repeated | H373: May cause damage to organs through pro-                                    |

exposure, Category 2, Central nervous system

H373: May cause damage to organs through pro longed or repeated exposure if inhaled.

#### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

| Hazard pictograms | : |        |
|-------------------|---|--------|
| Signal word       | : | Danger |
| Hazard statements | : | H334   |

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Revision Date: 31.08.2023 Date of last issue: 25.08.2021



Version 8.0

| 01 1831 13306. 23.00.2021  |                                    |  |
|----------------------------|------------------------------------|--|
|                            | H373                               | May cause damage to organs (Central nerv-<br>ous system) through prolonged or repeated<br>exposure if inhaled.         |
| Precautionary statements : | <b>Prevention:</b><br>P260<br>P284 | Do not breathe mist or vapours.<br>Wear respiratory protection.  |
|                            | Response:                          |  |
|                            | P304 + P340                        | IF INHALED: Remove person to fresh air and keep comfortable for breathing.   |
|                            | P342 + P311                        | If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.  |
|                            | Disposal:                          |  |
|                            | P501                               | Dispose of contents/ container to an approved waste disposal plant.  |
|                            |                                    | H373<br>Precautionary statements : Prevention:<br>P260<br>P284<br>Response:<br>P304 + P340<br>P342 + P311<br>Disposal: |

#### Hazardous components which must be listed on the label:

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%) 4,4'-methylenediphenyl diisocyanate m-tolylidene diisocyanate

#### **Additional Labelling**

EUH211 Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

"As from 24 August 2023 adequate training is required before industrial or professional use."

#### 2.3 Other hazards

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.

Ecological information: 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.

Toxicological information: 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.

# Sikaflex®-298 FC

Revision Date: 31.08.2023 Date of last issue: 25.08.2021



Version 8.0

## **SECTION 3: Composition/information on ingredients**

#### 3.2 Mixtures

#### Components

| Chemical name  | CAS-No.<br>EC-No.<br>Registration number  | Classification   | Concentration<br>(% w/w) |
|--|---|--|--------------------------|
| Hydrocarbons, C9-C12, n-<br>alkanes, isoalkanes, cyclics, aro-<br>matics (2-25%) | Not Assigned<br>919-446-0<br>265-185-4<br>01-2119458049-33-<br>XXXX [corresponding<br>group CAS 64742-82-<br>1] | Flam. Liq. 3; H226<br>STOT SE 3; H336<br>(Central nervous<br>system)<br>STOT RE 1; H372<br>(Central nervous<br>system)<br>Asp. Tox. 1; H304<br>Aquatic Chronic 2;<br>H411<br>EUH066  | >= 1 - < 2,5             |
| reaction mass of ethylbenzene<br>and xylene                                      | Not Assigned<br>905-588-0<br>01-2119488216-32-<br>XXXX  | Flam. Liq. 3; H226<br>Acute Tox. 4; H332<br>Acute Tox. 4; H312<br>Skin Irrit. 2; H315<br>Eye Irrit. 2; H319<br>STOT SE 3; H335<br>(Respiratory system)<br>STOT RE 2; H373<br>Asp. Tox. 1; H304<br>Aquatic Chronic 3;<br>H412 | >= 1 - < 2,5             |
| Urea,N,N''-(methylenedi-4,1-<br>phenylene)bis[N'-butyl-                          | 77703-56-1<br>416-600-4<br>01-0000016345-72-<br>XXXX  | Aquatic Chronic 4;<br>H413   | >= 1 - < 2,5             |

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

# Sikaflex<sup>®</sup>-298 FC

Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0



| 4,4'-methylenediphenyl diisocya-<br>nate | 101-68-8<br>202-966-0<br>01-2119457014-47-<br>XXXX   | Acute Tox. 4; H332<br>Skin Irrit. 2; H315<br>Eye Irrit. 2; H319<br>Resp. Sens. 1; H334<br>Skin Sens. 1; H317<br>Carc. 2; H351<br>STOT SE 3; H335<br>(Respiratory system)<br>STOT RE 2; H373  | >= 0,1 - < 0,5   |
|--|--|--|------------------|
|  |  | specific concentration<br>limit<br>Eye Irrit. 2; H319<br>>= 5 %<br>STOT SE 3; H335<br>>= 5 %<br>Skin Irrit. 2; H315<br>>= 5 %<br>Resp. Sens. 1; H334<br>>= 0,1 %   |                  |
|  |  | Acute toxicity esti-<br>mate<br>Acute inhalation tox-  |                  |
|  |  | icity (dust/mist): 1,5   |                  |
| m-tolylidene diisocyanate                | 26471-62-5<br>247-722-4<br>01-2119454791-34-<br>XXXX | mg/l           Acute Tox. 1; H330           Skin Irrit. 2; H315           Eye Irrit. 2; H319           Resp. Sens. 1; H334           Skin Sens. 1; H317           Carc. 2; H351           STOT SE 3; H335           (Respiratory system)           Aquatic Chronic 3;           H412 | >= 0,025 - < 0,1 |
|  |  | specific concentration<br>limit<br>Resp. Sens. 1; H334<br>>= 0,1 %   |                  |
|  |  | Acute toxicity esti-<br>mate   |                  |
| For explanation of abbreviations a       |  | Acute inhalation tox-<br>icity (vapour): 0,107<br>mg/l   |                  |

For explanation of abbreviations see section 16.



Revision Date: 31.08.2023 Date of last issue: 25.08.2021

#### **SECTION 4: First aid measures**

| 4.1 Description of first aid measu | 4.1 Description of first aid measures   |  |  |  |  |  |  |
|------------------------------------|---|--|--|--|--|--|--|
| General advice                     | : Move out of dangerous area.<br>Consult a physician.<br>Show this safety data sheet to the doctor in attendance.   |  |  |  |  |  |  |
| If inhaled                         | : Move to fresh air.<br>Consult a physician after significant exposure.   |  |  |  |  |  |  |
| In case of skin contact            | <ul> <li>Take off contaminated clothing and shoes immediately.</li> <li>Wash off with soap and plenty of water.</li> <li>If symptoms persist, call a physician.</li> </ul>  |  |  |  |  |  |  |
| In case of eye contact             | <ul> <li>Remove contact lenses.</li> <li>Keep eye wide open while rinsing.</li> <li>If eye irritation persists, consult a specialist.</li> </ul>  |  |  |  |  |  |  |
| If swallowed                       | <ul> <li>Do not induce vomiting without medical advice.</li> <li>Rinse mouth with water.</li> <li>Do not give milk or alcoholic beverages.</li> <li>Never give anything by mouth to an unconscious person.</li> </ul> |  |  |  |  |  |  |
| 4.2 Most important symptoms ar     | nd effects, both acute and delayed  |  |  |  |  |  |  |
| Symptoms                           | : Asthmatic appearance<br>Allergic reactions<br>See Section 11 for more detailed information on health effects<br>and symptoms.   |  |  |  |  |  |  |
| Risks                              | : sensitising effects   |  |  |  |  |  |  |
|                                    | May cause allergy or asthma symptoms or breathing difficul-<br>ties if inhaled.<br>May cause damage to organs through prolonged or repeated<br>exposure if inhaled.   |  |  |  |  |  |  |
| 4.3 Indication of any immediate r  | medical attention and special treatment needed  |  |  |  |  |  |  |
| Treatment                          | : Treat symptomatically.  |  |  |  |  |  |  |
|                                    |   |  |  |  |  |  |  |

## **SECTION 5: Firefighting measures**

| 5.1 Extinguishing media      |   |  |  |  |  |
|------------------------------|---|--|--|--|--|
| Suitable extinguishing media | : | In case of fire, use water/water spray/water jet/carbon diox-<br>ide/sand/foam/alcohol resistant foam/chemical powder for<br>extinction. |  |  |  |



| Revision Date: 31.08.2023<br>Date of last issue: 25.08.2021      | Version 8.0  | Print Date 31.08.202 |
|--|--|----------------------|
| 5.2 Special hazards arising from t                               | ne substance or mixture  |                      |
| Hazardous combustion prod-<br>ucts                               | No hazardous combustion products are known   | I                    |
| 5.3 Advice for firefighters                                      |  |                      |
| Special protective equipment for firefighters                    | In the event of fire, wear self-contained breath   | ng apparatus.        |
| Further information  | Standard procedure for chemical fires.   |                      |
| <b>6.1 Personal precautions, protect</b><br>Personal precautions | ve equipment and emergency procedures<br>Use personal protective equipment.<br>Deny access to unprotected persons.                             |                      |
| 6.2 Environmental precautions                                    |  |                      |
| Environmental precautions  | Do not flush into surface water or sanitary sew  | er system.           |
| 6.3 Methods and material for cont                                | ainment and cleaning up  |                      |
| Methods for cleaning up  | Soak up with inert absorbent material (e.g. sar<br>acid binder, universal binder, sawdust).<br>Keep in suitable, closed containers for disposa |                      |
| 6.4 Reference to other sections                                  |  |                      |

### 6.4 Reference to other sections

For personal protection see section 8.

## **SECTION 7: Handling and storage**

## 7.1 Precautions for safe handling

| Advice on safe handling                         | : | <ul> <li>Avoid exceeding the given occupational exposure limits (see section 8).</li> <li>For personal protection see section 8.</li> <li>Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.</li> <li>Smoking, eating and drinking should be prohibited in the application area.</li> <li>Follow standard hygiene measures when handling chemical products</li> </ul> |
|---|---|--|
| Advice on protection against fire and explosion | : | Normal measures for preventive fire protection.  |



| Revision Date: 31.08.2023<br>Date of last issue: 25.08.2021 |     | Version 8.0  | Print Date 31.08.2023 |
|---|-----|--|-----------------------|
| Hygiene measures  | :   | Handle in accordance with good industrial practice. When using do not eat or drink. W smoke. Wash hands before breaks and at | Vhen using do not     |
| 7.2 Conditions for safe storage,                            | inc | luding any incompatibilities   |                       |
| Requirements for storage areas and containers               | :   | Keep container tightly closed in a dry and v<br>place. Store in accordance with local regul                                  |                       |
| Further information on stor-<br>age stability               | :   | No decomposition if stored and applied as  | directed.             |
| 7.3 Specific end use(s)                                     |     |  |                       |
| Specific use(s)   | :   | Cleaning with aprotic polar solvents must b<br>Consult most current local Product Data Sh<br>use.                            |                       |

## **SECTION 8: Exposure controls/personal protection**

## 8.1 Control parameters

## **Occupational Exposure Limits**

| Components                                    | CAS-No.   | Value type (Form of exposure)                | Control parame-<br>ters * | Basis *       |
|---|---|--|---------------------------|---------------|
| reaction mass of ethylbenzene and xy-<br>lene | Not Assigned  | TWA  | 50 ppm<br>221 mg/m3       | 2000/39/EC    |
|   |   | ation: Identifies the                        |                           | ficant uptake |
|   | through the sk  | in, Indicative                               |                           |               |
|   |   | STEL   | 100 ppm<br>442 mg/m3      | 2000/39/EC    |
|   |   | TWA  | 50 ppm<br>220 mg/m3       | CH SUVA       |
|   | Further inform  | ation: Toxic by skin                         | resorption possib         | e; Substanc-  |
|   | tional skin reso  | easily absored throu<br>option a substancial | higher risk compa         | ared to only  |
|   | inhalation by the airways., National Institute for Occupational<br>Safety and Health, Institut National de Recherche et de Sécurité<br>pour la prévention des accidents du travail et des maladies pro-<br>fessionnelles  |  |                           |               |
|   |   |  |                           |               |
|   |   | STEL   | 100 ppm<br>440 mg/m3      | CH SUVA       |
| 4,4'-methylenediphenyl diisocyanate           | 101-68-8  | TWA  | 0,02 mg/m3<br>(NCO)       | CH SUVA       |
|   | Further information: Toxic by skin resorption possible; Substanc-<br>es, which are easily absored through the skin, can give by addi-<br>tional skin resoption a substancial higher risk compared to only<br>inhalation by the airways., Sensitizers; Substances marked with<br>an S can lead to very strong allergic reactions., Health and Safety<br>Executive (Occupational Medicine and Hygiene Laboratory), Harm<br>to the unborn child is not to be expected when the OEL-value is<br>respected |  |                           |               |
|   | · ·   | STEL   | 0,02 mg/m3                | CH SUVA       |

# SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

## Sikaflex<sup>®</sup>-298 FC



Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0

|                           |                |                  | (NCO)   |                |
|---------------------------|----------------|------------------|---|----------------|
| m-tolylidene diisocyanate | 26471-62-5     | STEL             | 0,02 mg/m3  | CH SUVA        |
|                           |                | TWA              | 0,02 mg/m3  | CH SUVA        |
|                           |                | TWA              | 0,02 mg/m3<br>(NCO)   | CH SUVA        |
|                           | can lead to ve | ery strong aller | ers; Substances mark<br>gic reactions., Health a<br>sine and Hygiene Labo | and Safety Ex- |
|                           |                | STEL             | 0,02 mg/m3<br>(NCO)   | CH SUVA        |

\*The above mentioned values are in accordance with the legislation in effect at the date of the release of this safety data sheet.

#### **Biological occupational exposure limits**

| Substance name                           | CAS-No.      | Control parame-<br>ters   | Sampling time  | Basis  |
|--|--------------|---|--|--------|
| reaction mass of ethylbenzene and xylene | Not Assigned | methyl hippuric<br>acids: 2 g/l<br>(Urine)                                      | Immediately<br>after exposure<br>or after working<br>hours | CH BAT |
| 4,4'-methylenediphenyl diisocyanate      | 101-68-8     | 4,4'-<br>diaminodiphenyl-<br>methane: 10 μg/g<br>creatinine<br>(Urine)          | Immediately<br>after exposure<br>or after working<br>hours | CH BAT |
|  |              | 4,4'-<br>diaminodiphenyl-<br>methane: 5<br>nmol/mmol creati-<br>nine<br>(Urine) | Immediately<br>after exposure<br>or after working<br>hours | CH BAT |

#### 8.2 Exposure controls

#### **Engineering measures**

Maintain air concentrations below occupational exposure standards. Ensure adequate ventilation, especially in confined areas.

#### Personal protective equipment

| Eye/face protection      | : | Safety glasses with side-shields conforming to EN166<br>Eye wash bottle with pure water  |
|--------------------------|---|--|
| Hand protection          | : | Chemical-resistant, impervious gloves complying with an ap-<br>proved standard must be worn at all times when handling<br>chemical products. Reference number EN 374. Follow manu-<br>facturer specifications.                                     |
|                          |   | Suitable for short time use or protection against splashes:<br>Butyl rubber/nitrile rubber gloves (> 0,1 mm)<br>Contaminated gloves should be removed.<br>Suitable for permanent exposure:<br>Viton gloves (0.4 mm),<br>breakthrough time >30 min. |
| Skin and body protection | : | Protective clothing (e.g. Safety shoes acc. to EN ISO 20345, long-sleeved working clothing, long trousers). Rubber aprons  |

## SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

## Sikaflex<sup>®</sup>-298 FC



| Revision Date: 31.08.2023<br>Date of last issue: 25.08.2021 | Version 8.0  | Print Date 31.08.202  |
|---|--|---|
|   | and protective boots are additionaly reco and stirring work.   | mmended for mixing  |
| Respiratory protection                                      | : In case of inadequate ventilation wear reaction Respirator selection must be based on known exposure levels, the hazards of the producing limits of the selected respirator.<br>Use a properly fitted NIOSH approved aim respirator complying with an approved state sessment indicates this is necessary. | nown or anticipated<br>uct and the safe work-<br>r-purifying or air-fed |

organic vapor filter (Type A)

A1: < 1000 ppm; A2: < 5000 ppm; A3: < 10000 ppm Ensure adequate ventilation. This can be achieved by local exhaust extraction or by general ventilation. (EN 689 - Methods for determining inhalation exposure). This applies in particular to the mixing / stirring area. In case this is not sufficient to keep the concentrations under the occupational exposure limits then respiration protection measures must be used.

| Environmental exposure controls |   |  |  |  |  |
|---------------------------------|---|--|--|--|--|
| General advice                  | : Do not flush into surface water or sanitary sewer system. |  |  |  |  |

## **SECTION 9: Physical and chemical properties**

### 9.1 Information on basic physical and chemical properties

| i mormation on basic physical                       | un  | a onennoar proper |
|---|-----|-------------------|
| Physical state                                      | :   | liquid            |
| Appearance  | :   | paste             |
| Colour  | :   | various           |
| Odour   | :   | slight            |
| Melting point/range / Freezing point                | :   | No data available |
| Boiling point/boiling range                         | :   | No data available |
| Flammability (solid, gas)                           | :   | No data available |
| Upper/lower flammability or e                       | exp | losive limits     |
| Upper explosion limit / Upper flammability limit    | :   | No data available |
| Lower explosion limit /<br>Lower flammability limit | :   | No data available |
| Flash point   | :   | ca. 65 °C         |

#### SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006 Silvaflax® 209 EC

## Sikaflex<sup>®</sup>-298 FC



Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0

|  |   | Method: closed cup  |
|--|---|---|
| Auto-ignition temperature                  | : | No data available   |
| Decomposition temperature                  | : | No data available   |
| рН   | : | Not applicable<br>substance/mixture is non-soluble (in water) |
| Viscosity<br>Viscosity, kinematic          | : | > 20,5 mm2/s (40 °C)  |
| <b>Solubility(ies)</b><br>Water solubility | : | insoluble   |
| Partition coefficient: n-<br>octanol/water | : | No data available   |
| Vapour pressure                            | : | 0,01 hPa  |
| Density                                    | : | ca. 1,18 g/cm3 (20 °C)  |
| Relative vapour density                    | : | No data available   |
| Particle characteristics                   | : | No data available   |
|  |   |   |

## 9.2 Other information

No data available

### **SECTION 10: Stability and reactivity**

#### 10.1 Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

The product is chemically stable.

#### 10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

### 10.4 Conditions to avoid

Conditions to avoid : No data available

| <b>Jika</b> ®         |
|-----------------------|
| Print Date 31.08.2023 |

Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0

#### 10.5 Incompatible materials

Materials to avoid : No data available

#### **10.6 Hazardous decomposition products**

No decomposition if stored and applied as directed.

#### **SECTION 11: Toxicological information**

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

| Acute toxicity<br>Not classified due to lack of da<br><u>Components:</u> | ata. |   |
|--|------|---|
|  |      |   |
| reaction mass of ethylbenze  |      | -   |
| Acute oral toxicity  | :    | LD50 Oral (Rat): 3.523 mg/kg                  |
| Urea,N,N"-(methylenedi-4,1-  | ph   | enylene)bis[N'-butyl-:                        |
| Acute oral toxicity  | :    | LD50 Oral (Rat): > 2.000 mg/kg                |
| -  |      | Method: OECD Test Guideline 401               |
| Acute dermal toxicity  |      | LD50 Dermal (Rabbit): > 2.000 mg/kg           |
| Acute definal toxicity   | •    | Method: OECD Test Guideline 402               |
|  |      |   |
| 4,4'-methylenediphenyl diiso   | осу  | anate:  |
| Acute oral toxicity  | :    | LD50 Oral (Rat): > 5.000 mg/kg                |
|  |      | Method: OECD Test Guideline 401               |
| Acute inhalation toxicity  |      | LC50: 1,5 mg/l                                |
| Addie Innalation toxicity  | •    | Exposure time: 4 h                            |
|  |      | Test atmosphere: dust/mist                    |
|  |      | Method: Expert judgement                      |
|  |      | Acute toxicity estimate: 1,5 mg/l             |
|  |      | Test atmosphere: dust/mist                    |
|  |      | Method: Calculation method                    |
|  |      |   |
| m-tolylidene diisocyanate:   |      |   |
| Acute inhalation toxicity  | :    | LC50 (Rat): 0,107 mg/l                        |
|  |      | Exposure time: 4 h<br>Test atmosphere: vapour |
|  |      | i est aunosphere. vapour                      |
|  |      | Acute toxicity estimate: 0,107 mg/l           |
|  |      | Test atmosphere: vapour                       |
|  |      | Method: Calculation method                    |

Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0



#### Skin corrosion/irritation

Not classified due to lack of data.

#### **Components:**

#### Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):

| Assessment |  |  |
|------------|--|--|
| Result     |  |  |

- Repeated exposure may cause skin dryness or cracking.
   Repeated exposure may cause skin dryness or cracking.
- Serious eye damage/eye irritation

Not classified due to lack of data.

#### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified due to lack of data.

#### Respiratory sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### Germ cell mutagenicity

Not classified due to lack of data.

#### Carcinogenicity

Not classified due to lack of data.

#### Reproductive toxicity

Not classified due to lack of data.

#### STOT - single exposure

Not classified due to lack of data.

#### STOT - repeated exposure

May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

### Aspiration toxicity

Not classified due to lack of data.

#### 11.2 Information on other hazards

#### Endocrine disrupting properties

#### Product:

Assessment

: 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.

Revision Date: 31.08.2023 Date of last issue: 25.08.2021 Version 8.0



>

#### **SECTION 12: Ecological information**

#### 12.1 Toxicity

#### **Components:**

#### reaction mass of ethylbenzene and xylene:

| Toxicity to fish (Chronic tox-<br>icity)                                    | : | NOEC: > 1,3 mg/l<br>Exposure time: 56 d<br>Species: Oncorhynchus mykiss (rainbow trout) |
|---|---|---|
| Toxicity to daphnia and other aquatic invertebrates (Chron-<br>ic toxicity) | : | NOEC: 1,17 mg/l<br>Exposure time: 7 d<br>Species: Daphnia (water flea)                  |

#### Urea,N,N"-(methylenedi-4,1-phenylene)bis[N'-butyl-:

| Toxicity to fish                                    | : | LC50 (Brachydanio rerio (zebrafish)): > 250 mg/l<br>Exposure time: 96 h                       |
|---|---|---|
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h                          |
| Toxicity to algae/aquatic plants                    | : | EC50 (Raphidocelis subcapitata (freshwater green alga)): :<br>100 mg/l<br>Exposure time: 72 h |

#### 12.2 Persistence and degradability

No data available

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

#### Product:

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**

#### Product:

| Assessment | : The substance/mixture does not contain components consid-<br>ered to have endocrine disrupting properties according to<br>REACH Article 57(f) or Commission Delegated regulation<br>(EU) 2017/2100 or Commission Regulation (EU) 2018/605 at |
|------------|--|
|            | levels of 0.1% or higher.  |

#### Revision Date: 31.08.2023 Date of last issue: 25.08.2021

Version 8.0



#### 12.7 Other adverse effects

#### Product:

Additional ecological infor- : There is no data available for this product. mation

#### **SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

| Product                            | The generation of waste should be avoided or minimized<br>wherever possible.<br>Empty containers or liners may retain some product residues.<br>This material and its container must be disposed of in a safe<br>way.<br>Dispose of surplus and non-recyclable products via a licensed<br>waste disposal contractor.<br>Disposal of this product, solutions and any by-products should<br>at all times comply with the requirements of environmental<br>protection and waste disposal legislation and any regional<br>local authority requirements.<br>Avoid dispersal of spilled material and runoff and contact with<br>soil, waterways, drains and sewers. |
|------------------------------------|---|
| Waste code Switzerland<br>VeVA/LVA | 08 04 09 [S] waste adhesives and sealants containing organic solvents or other dangerous substances   |
| Contaminated packaging             | 15 01 10 [S] packaging containing residues of or contaminat-<br>ed by dangerous substances  |

#### **SECTION 14: Transport information**

#### 14.1 UN number or ID number

| ADR                             | : | Not regulated as a dangerous good |
|---------------------------------|---|-----------------------------------|
| IMDG                            | : | Not regulated as a dangerous good |
| ΙΑΤΑ                            | : | Not regulated as a dangerous good |
| 14.2 UN proper shipping name    |   |                                   |
| ADR                             | : | Not regulated as a dangerous good |
| IMDG                            | : | Not regulated as a dangerous good |
| ΙΑΤΑ                            | : | Not regulated as a dangerous good |
| 14.3 Transport hazard class(es) |   |                                   |
| ADR                             | : | Not regulated as a dangerous good |

| <b>Jika</b> ®         |
|-----------------------|
| Print Date 31.08.2023 |

Revision Date: 31.08.2023 Date of last issue: 25.08.2021

| IMDG<br>IATA<br>14.4 Packing group | <ul><li>Not regulated as a dangerous good</li><li>Not regulated as a dangerous good</li></ul> |
|------------------------------------|---|
| ADR                                | : Not regulated as a dangerous good   |
| IMDG                               | : Not regulated as a dangerous good   |
| IATA (Cargo)                       | : Not regulated as a dangerous good   |
| IATA (Passenger)                   | : Not regulated as a dangerous good   |

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Not applicable

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

#### **SECTION 15: Regulatory information**

## **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture** International Chemical Weapons Convention (CWC) : Not applicable Schedules of Toxic Chemicals and Precursors

**REACH Information:** 

All substances contained in our Products are

- registered by our upstream suppliers, and/or
- registered by us, and/or
- excluded from the regulation, and/or
- exempted from the registration.

| REACH - Restrictions on the manufacture, placing on<br>the market and use of certain dangerous substances,<br>mixtures and articles (Annex XVII) | : | Conditions of restriction for the fol-<br>lowing entries should be considered:<br>Number on list 75, 3  |
|--|---|---|
|  |   | 4,4'-methylenediphenyl diisocyanate<br>(Number on list 74, 56)<br>m-tolylidene diisocyanate (Number<br>on list 74)<br>1,2-Benzenedicarboxylic acid, di-C9-<br>11-branched alkyl esters, C10-rich<br>(Number on list 52) |
| REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).  | : | None of the components are listed (=> 0.1 %).   |
| REACH - List of substances subject to authorisation  | : | Not applicable  |

#### SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006 Silvaflax® 209 EC

## Sikaflex<sup>®</sup>-298 FC

Revision Date: 31.08.2023

Date of last issue: 25.08.2021



Version 8.0

| (Annex | XIV)   |
|--------|--|
| (/     | <i>/////////////////////////////////////</i> |

| Regulation (EC) No 1005/2009 on substances that deplete the ozone layer  | : | Not applicable  |
|--|---|---|
| Regulation (EU) 2019/1021 on persistent organic pollu-<br>tants (recast) | : | Not applicable  |
| PIC Ordinance, ChemPICO (814.82)   | : | Not applicable  |
| Chemical Risk Reduction Ordinance (ORRChem, SR<br>814.81)                | : | See respective Annex to the Chemi-<br>cal Risk Reduction Ordinance<br>(ORRChem, 814.81) for Conditions<br>of Restriction. |
| Chemical Risk Reduction Ordinance (ORRChem, SR 814.81)                   | : | 4,4'-methylenediphenyl diisocyanate   |

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

| Volatile organic compounds | : | Law on the incentive tax for volatile organic compounds (VOCV)<br>Volatile organic compounds (VOC) content: 4,32% w/w  |
|----------------------------|---|--|
|                            |   | Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 4,32% w/w |

#### Other regulations:

Article 13 Maternity ordinance (SR 822.111.52): Expectant and nursing mothers are only permitted to come into contact with this product during the course of their work if, based on a risk assessment carried out in accordance with Article 63 of Ordinance 1 on the Employment Act (ArGV 1) (SR 822.111), the chemicals in question have been found not to cause any specific harm to mothers or children or if such harm can be ruled out by taking appropriate protective measures.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Young people undergoing basic vocational training may only work with this product if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not completing any basic vocational training are not permitted to work with this product. Employees of either sex who are under 18 years old are classed as young people.

#### 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

# Povision Doto: 21.08.2022

Revision Date: 31.08.2023 Date of last issue: 25.08.2021



Version 8.0

### **SECTION 16: Other information**

| H226:Flammable liquid and vapour.H304:May be fatal if swallowed and enters airways.H312:Harmful in contact with skin.H315:Causes skin irritation.H317:May cause an allergic skin reaction.H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause respiratory irritation.H335:May cause respiratory irritation.H336:May cause respiratory irritation.H337:Supsected of causing cancer.H372:Causes damage to organs through prolonged or repeated exposure if inhaled.H373:May cause domage to organs through prolonged or repeated exposure if inhaled.H411::Toxic to aquatic life with long lasting effects.H411::Toxic to aquatic life with long lasting effects.H411::Carcin cogenicityAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFiam. Liq.:Flammable liquidsResp. Sens.:Skin sensitisationStin Sens.:Skin irritationSkin Sens.:Skin irritationSkin Sens.:Shin irritationSkin Sens.:Shin irritationSkin Sens.:Shin irritati  | Full text of H-Statements |  |
|--|---------------------------|--|
| H304:May be fatal if swallowed and enters airways.H312:Harmful in contact with skin.H315:Causes skin irritation.H317:May cause an allergic skin reaction.H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H411:Toxic to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviations:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.::Eye irritationStin Irrit.:Skin irritationStin Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationStorin Res.:Specific target organ toxicity - single exposureOto Stan Sens.:Spec  |                           | Elemmable liquid and vanour                                    |
| H312:Harmful in contact with skin.H315:Causes skin irritation.H319:Causes skin irritation.H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause respiratory irritation.H336:May cause drowiness or dizziness.H371:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated exposure if inhaled.H373:May cause damage to organs through prolonged or repeated exposure if inhaled.H411::Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye irritation:Skin is ensitisationStin Irrit.:Specific target organ toxicity - repeated exposureStort RE:Specific target organ toxicity -   |                           |  |
| H315:Causes skin irritation.H317:May cause an allergic skin reaction.H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause respiratory irritation.H336:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H413:May cause dougatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviations:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlammable liquids:Skin sens.Stoi rolt Skin sensitisationSkin sensitisationStoi rolt Skin sensitisationSkin sensitisationStoi rolt Skin sensitisation:Stoi rolt Skin sensitisationSkin sensitisationStoi rolt Skin sensitisation:Stoi rolt Skin sensitisation:Stoi rolt Skin sensitisation:Stoi rolt Carget organ toxicity - repeate   |                           | •  |
| H317:May cause an allergic skin reaction.H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411::H412:Harmful to aquatic life with long lasting effects.H413::H414::H413:May cause dong lasting harmful effects to aquatic life.H414::H413:May cause long lasting harmful effects to aquatic life.H414::H413:May cause long lasting harmful effects to aquatic life.H414::Garc.:Acute tox.:Acute tox.:Acute tox.:Acute tox.:Acute tox.:Asp. Tox.:Asp. Tox.:Aspiration hazardCarc.:Carc.:Carc.:Skin sensilisationStin irrit.:Skin sens.:Skin irrit.:Skin sens.:::Specific target organ toxicity   |                           |  |
| H319:Causes serious eye irritation.H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause respiratory irritation.H336:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause dongatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Aguatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:Carc.:CarcinogenicityEye Irrit.:Eye Irrit.:Eye Irrit.Shin Irrit.:Skin isens.:Skin sens.:Skin sens.:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. Limit values at the work place <td< td=""><td></td><td></td></td<>   |                           |  |
| H330:Fatal if inhaled.H332:Harmful if inhaled.H334:May cause allergy or asthma symptoms or breathing difficul-<br>ties if inhaled.H335:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsKay cause long lasting harmful effects to aquatic life.Full text of chren abbreviations:Acute Tox.:Acute Tox.:Acute Tox.:Acute Tox.:Asp. Tox.:Asp. Tox.:Asp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationSkin sens.:Skin sens.:Skin sens.:Skin sens.:Suit sens.:Suit sens.:Syseific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. Limit Values at the work place <td< td=""><td></td><td></td></td<>   |                           |  |
| H332:Harmful if inhaled.H334May cause allergy or asthma symptoms or breathing difficulties if inhaled.H335:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated exposure if inhaled.H373:May cause damage to organs through prolonged or repeated exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute Tox.:Carc.:Carc.:Carc.:Carc.:Skin Irrit.:Skin Sens.:Respiratory sensitisationSkin Sens.:Skin Sens.:Skin irrit.:Skin Sens.:Skin irrit.:Skin Sens.:Sutin irritationSkin Sens.:   |                           |  |
| H334:May cause allergy or asthma symptoms or breathing difficul-<br>ties if inhaled.H335:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Lorg-term (chronic) aquatic hazardAsp. Tox.:Acute toxicityAquatic Chronic:Lorg-term (chronic) aquatic hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationStin Irrit.:Skin irritationStort SE:Specific target organ toxicity - repeated exposure2000/39/EC:Switzerland. Limit values at the work place2000/39/EC / TWA:Switzerland. Limit valuesCH BAT:Switzerland. Limit values at the work place2000/39/EC / TWA:Switzerland. Limit values at the work place2000/39/EC / TWA:Switzerland. Limit values at the work place2000/39/EC / TWA:Switzerland. Limit values at the work place <t< td=""><td></td><td></td></t<>   |                           |  |
| ties if inhaled.H335:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsMay cause long lasting harmful effects to aquatic life.Acute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationStrin Irrit.:Skin irritationSkin Sens.:Specific target organ toxicity - repeated exposureSTOT SE:Specific target organ toxicity - repeated exposureCH BAT:Switzerland. List of BAT-valuesCH BAT:Switzerland. Limit values at the work place2000/39/EC / TWA:Switzerland. Limit values at the work place2000/39/EC / STEL:Short Term exposure limitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: <td></td> <td></td>                                     |                           |  |
| H335:May cause respiratory irritation.H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationStort RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. List of BAT-valuesCH BAT:Short Term exposure limitCH SUVA / STEL:Short Term exposure limitADR::Short Term exposure limitADR::Chemical Abstracts ServiceDNL/3/EC / TW  | H334                      |  |
| H336:May cause drowsiness or dizziness.H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviations.Acute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Skin irritationSkin Sens.:Skin irritationStort RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit values2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short Term exposure limit<br>values at the work place2000/39/EC / TWA:Short Term exposure limit<br>values at the work place2000/39/EC / TWA:Short Term exposure limit<br>values at the work place2000/39/EC / TWA:Short Term exposure limit<br>dage added add |                           |  |
| H351:Suspected of causing cancer.H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Skin irritationSkin Irrit.:Sypecific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH BAT:Short term exposure limitCH SUVA:Short term exposure limitADR::Short term exposure limitADR::Chemical Abstracts ServiceDOX/39/EC / TWA:Short term exposure limitADR::Chemical Abstracts ServiceDNEL:Derived no-effect levelCA   |                           |  |
| H372:Causes damage to organs through prolonged or repeated<br>exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationStin Irrit.:Specific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-values2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short Term Exposure limitADR:European Agreement concerning the International Carriage of<br>Dargerous Goods by RoadCAS:Chernical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentration </td <td></td> <td></td>       |                           |  |
| exposure if inhaled.H373:May cause damage to organs through prolonged or repeated<br>exposure if inhaled.H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviations.Acute Tox.:Acute Tox.:Acute Tox.:Acute Tox.:Acute Tox.:Acute Chronic:Long-term (chronic) aquatic hazardCarc.:CarcinogenicityEye Irrit.:Eye Irrit.:Eye irritationFlam. Liq.:Flam. Liq.:Skin Irrit.:Skin Sens.:Stor SE:Specific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - single exposureSTOT SE:Switzerland. List of BAT-valuesCH BAT:Switzerland. Limit values at the work place2000/39/EC / TWA:Short Term exposure limitCH SUVA / TWA:CH SUVA / TWA:CH SUVA / TWA:Ch SUA / TWA:Ch SUA / STEL:Short Term exposure limitCH SUVA / TWA:Ch SUA   |                           |  |
| exposure if inhaled.H411::Toxic to aquatic life with long lasting effects.H413::H413::May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.::Aquatic Chronic::Long-term (chronic) aquatic hazardAsp. Tox.::Asp. Tox.::Asp. Tox.::Asp. Tox.::Carc.::Carc.::Carc.::Carc.::Carc.::Carc.::Carc.::Skin Sens.::Respiratory sensitisationSkin Irrit.::Skin sens.::Skin sens.::Shin irritationStort RE::Specific target organ toxicity - repeated exposure2000/39/EC::Europe. Commission Directive 2000/39/EC establishing a firstlist of indicative occupational exposure limit valuesCH BAT::Switzerland. Limit values at the work place2000/39/EC / TWA::CH SUVA / TWA::CH SUVA / TWA::Ch Subart / Time Weighted AverageCH SUVA / TWA::Chemical Abstracts ServiceDNEL:Dorived no-effect levelEC50:CAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:CAS <td>H372</td> <td></td>  | H372                      |  |
| H411:Toxic to aquatic life with long lasting effects.H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Skin irritationSkin Irrit.:Skin irritationSkin Sens.:Specific target organ toxicity - repeated exposure2000/39/EC:Supecific target organ toxicity - single exposure2000/39/EC:Switzerland. List of BAT-valuesCH BAT:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short term exposure limitCH SUVA / TWA:Short term exposure limitADR:Short term exposure limitADR:Chemical Abstracts ServiceDNL::Chemical Abstracts ServiceDNL::Chemical Abstracts ServiceDNEL::Derived no-effect levelEC50::Globally Harmonized SystemIATA:International Air Transport Association   | H373                      |  |
| H412:Harmful to aquatic life with long lasting effects.H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Sens.:Skin irritationStin Sens.:Specific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - single exposure2000/39/EC:Switzerland. List of BAT-valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Short term exposure limit2000/39/EC / TWA:Short term exposure limit2000/39/EC / TWA:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR::European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS::Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS::Globally Harmonized SystemIATA:International Air Transport A   | H411                      | •  |
| H413:May cause long lasting harmful effects to aquatic life.Full text of other abbreviationsAcute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationStin Irrit.:Skin irritationStin Sens.:Skecific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eigh hours2000/39/EC / STEL:Short term exposure limitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association   |                           |  |
| Full text of other abbreviationsAcute Tox.: Acute toxicityAquatic Chronic: Long-term (chronic) aquatic hazardAsp. Tox.: Aspiration hazardCarc.:: CarcinogenicityEye Irrit.: Eye irritationFlam. Liq.: Flammable liquidsResp. Sens.: Respiratory sensitisationSkin Irrit.: Skin irritationStin Sens.: Skin sensitisationSTOT RE: Specific target organ toxicity - repeated exposure2000/39/EC: Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT: Switzerland. Limit values at the work place2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / TWA: Short Term Exposure limitCH SUVA / STEL: Short Term Exposure limitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           |  |
| Acute Tox.:Acute toxicityAquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin sensitisationStort RE:Specific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short Term Exposure limitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS::Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| Aquatic Chronic:Long-term (chronic) aquatic hazardAsp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationSkin Sens.:Specific target organ toxicity - repeated exposureSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS::Globally Harmonized SystemIATA:International Air Transport Association  |                           | -  |
| Asp. Tox.:Aspiration hazardCarc.:CarcinogenicityEye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationSton Irrit.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short term exposure limitCH SUVA:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Short Term Exposure LimitADR::Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS::Globally Harmonized SystemIATA:International Air Transport Association   |                           |  |
| Carc.: CarcinogenicityEye Irrit.: Eye irritationFlam. Liq.: Flammable liquidsResp. Sens.: Respiratory sensitisationSkin Irrit.: Skin irritationSkin Sens.: Skin sensitisationSTOT RE: Specific target organ toxicity - repeated exposure2000/39/EC: Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT: Switzerland. List of BAT-valuesCH BAT: Switzerland. Limit values at the work place2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / STEL: Short Term Exposure LimitADR: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association  |                           |  |
| Eye Irrit.:Eye irritationFlam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationSkin Sens.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposureSTOT SE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a firstlist of indicative occupational exposure limit values:CH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  | •                         |  |
| Flam. Liq.:Flammable liquidsResp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationSkin Sens.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association   |                           |  |
| Resp. Sens.:Respiratory sensitisationSkin Irrit.:Skin irritationSkin Sens.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / TWA:Short term exposure limit2000/39/EC / TWA:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS::Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| Skin Irrit.:Skin irritationSkin Sens.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposureSTOT SE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| Skin Sens.:Skin sensitisationSTOT RE:Specific target organ toxicity - repeated exposureSTOT SE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association   | •                         |  |
| STOT RE:Specific target organ toxicity - repeated exposureSTOT SE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a firstlist of indicative occupational exposure limit valuesIst of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| STOT SE:Specific target organ toxicity - single exposure2000/39/EC:Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| 2000/39/EC: Europe. Commission Directive 2000/39/EC establishing a first<br>list of indicative occupational exposure limit valuesCH BAT: Switzerland. List of BAT-valuesCH SUVA: Switzerland. Limit values at the work place2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / TWA: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           |  |
| Iist of indicative occupational exposure limit valuesCH BAT: Switzerland. List of BAT-valuesCH SUVA: Switzerland. Limit values at the work place2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / TWA: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   | STOT SE                   |  |
| CH BAT:Switzerland. List of BAT-valuesCH SUVA:Switzerland. Limit values at the work place2000/39/EC / TWA:Limit Value - eight hours2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  | 2000/39/EC                | : Europe. Commission Directive 2000/39/EC establishing a first |
| CH SUVA: Switzerland. Limit values at the work place2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / TWA: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           | list of indicative occupational exposure limit values          |
| 2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / STEL: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association  | CH BAT                    | : Switzerland. List of BAT-values                              |
| 2000/39/EC / TWA: Limit Value - eight hours2000/39/EC / STEL: Short term exposure limitCH SUVA / TWA: Time Weighted AverageCH SUVA / STEL: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association  | CH SUVA                   | : Switzerland. Limit values at the work place                  |
| 2000/39/EC / STEL:Short term exposure limitCH SUVA / TWA:Time Weighted AverageCH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  | 2000/39/EC / TWA          |  |
| CH SUVA / TWA: Time Weighted AverageCH SUVA / STEL: Short Term Exposure LimitADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           |  |
| CH SUVA / STEL:Short Term Exposure LimitADR:European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  |                           |  |
| ADR: European Agreement concerning the International Carriage of<br>Dangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association  |                           |  |
| CASDangerous Goods by RoadCAS: Chemical Abstracts ServiceDNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           |  |
| CAS:Chemical Abstracts ServiceDNEL:Derived no-effect levelEC50:Half maximal effective concentrationGHS:Globally Harmonized SystemIATA:International Air Transport Association  | ABR .                     |  |
| DNEL: Derived no-effect levelEC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association  | CAS                       | •  |
| EC50: Half maximal effective concentrationGHS: Globally Harmonized SystemIATA: International Air Transport Association   |                           |  |
| GHS:Globally Harmonized SystemIATA:International Air Transport Association   |                           |  |
| IATA : International Air Transport Association   |                           |  |
|  |                           |  |
|  |                           |  |

## Sikaflex®-298 FC



Revision Date: 31.08.2023 Date of last issue: 25.08.2021

| IMDG<br>LD50 | <ul> <li>International Maritime Code for Dangerous Goods</li> <li>Median lethal dosis (the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals)</li> </ul>  |
|--------------|--|
| LC50         | <ul> <li>Median lethal concentration (concentrations of the chemical in<br/>air that kills 50% of the test animals during the observation<br/>period)</li> </ul>   |
| MARPOL       | : International Convention for the Prevention of Pollution from<br>Ships, 1973 as modified by the Protocol of 1978   |
| OEL          | : Occupational Exposure Limit  |
| PBT          | : Persistent, bioaccumulative and toxic  |
| PNEC         | : Predicted no effect concentration  |
| REACH        | <ul> <li>Regulation (EC) No 1907/2006 of the European Parliament<br/>and of the Council of 18 December 2006 concerning the Reg-<br/>istration, Evaluation, Authorisation and Restriction of Chemi-<br/>cals (REACH), establishing a European Chemicals Agency</li> </ul> |
| SVHC         | : Substances of Very High Concern  |
| vPvB         | : Very persistent and very bioaccumulative   |

#### Further information

| Classification of the mixtu | Classification procedure: |                    |
|-----------------------------|---------------------------|--------------------|
| Resp. Sens. 1               | H334                      | Calculation method |
| STOT RE 2                   | H373                      | Calculation method |

The information contained in this Safety Data Sheet corresponds to our level of knowledge at the time of publication. All warranties are excluded. Our most current General Sales Conditions shall apply. Please consult the product data sheet prior to any use and processing.

Changes as compared to previous version !

CH / EN