

# SAFETY DATA SHEET



n/i-C13/C15 Aldehyde  
10380

Version / Revision  
Supersedes Version

6  
5.00\*\*\*

Revision Date  
Issuing date

25-Jun-2021  
25-Jun-2021

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

### 1.1. Product identifier

Identification of the  
substance/preparation

**n/i-C13/C15 Aldehyde**

Chemical Name

Reaction mass of pentadecanal and tridecanal and 2-methyl-dodecanal and 2-methyl-tetradecanal

CAS-No

-

EC No.

931-038-4

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

Identified uses

Formulation

Uses advised against

None

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

Company/Undertaking  
Identification

**OQ Chemicals GmbH**  
Rheinpromenade 4A  
D-40789 Monheim  
Germany

Product Information

Product Stewardship  
FAX: +49 (0)208 693 2053  
email: sc.psq@oq.com

### 1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)  
available 24/7

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Skin corrosion/irritation Category 2, H315  
Skin sensitization Category 1, H317  
Environmental hazard Aquatic Acute 1; H400  
Aquatic Chronic 1; H410  
M-Factor: 1 (self-classification)

#### Additional information

For full text of Hazard- and EU Hazard-statements see SECTION 16.

### 2.2. Label elements

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Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

## Hazard pictograms



## Signal word

## Warning

## Hazard statements

H315: Causes skin irritation.  
H317: May cause an allergic skin reaction.  
H410: Very toxic to aquatic life with long lasting effects.

## Precautionary statements

P261: Avoid breathing gas/mist/vapours.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.  
P391: Collect spillage.  
P501: Dispose of contents/container in accordance with local regulation.

## 2.3. Other hazards

## PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

| Component   | CAS-No     | 1272/2008/EC   | Concentration (%) |
|---|------------|--|-------------------|
| Alkenes, C12-14, hydroformylation products, distn. lights | 93821-14-8 | Skin Irrit. 2; H315<br>Skin Sens. 1; H317<br>Aquatic Acute 1; H400<br>Aquatic Chronic 1; H410<br>M-Factor: 1 (self-classification) | > 96,5            |

For full text of Hazard- and EU Hazard-statements see SECTION 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

#### Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

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## Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Obtain medical attention.

## Ingestion

Do not induce vomiting without medical advice. Call a physician immediately.

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

### Main symptoms

shortness of breath.

### Special hazard

Lung oedema, Lung irritation.

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

### General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. In case of lung irritation, first treatment with cortisone spray.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

alcohol-resistant foam, dry chemical, carbon dioxide (CO<sub>2</sub>), water spray

#### Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

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

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO<sub>2</sub>)

Combustion gases of organic materials must in principle be graded as inhalation poisons

Vapours are heavier than air and may spread along floors

### 5.3. Advice for firefighters

#### Special protective equipment for firefighters

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

#### Precautions for firefighting

Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire. Water run-off can cause environmental damage.

## SECTION 6: Accidental release measures

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



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For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.  
For emergency responders: Personal protection see section 8.

## 6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant). Water runoff can cause environmental damage.

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

### Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

### Methods for cleaning up

Soak up with inert absorbent material. DO NOT use combustible materials such as sawdust. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

## 6.4. Reference to other sections

For personal protective equipment see section 8.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Further info may be available in the appropriate Exposure scenarios in the annex to this SDS.

#### Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms. Refill and handle product only in closed system.

#### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

#### Incompatible products

acids and bases  
amines  
oxidizing agents

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

#### Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material.

#### Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Handle under nitrogen, protect from moisture.

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Temperature class  
T3

## 7.3. Specific end use(s)

Formulation  
For specific end use information see the annex of this safety data sheet

## SECTION 8: Exposure controls / personal protection

### 8.1. Control parameters

#### Exposure limits European Union

No exposure limits established

#### Exposure limits UK

No exposure limits established.

#### DNEL & PNEC

#### Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8 Workers

|   |   |
|---|---|
| DN(M)EL - long-term exposure - systemic effects - Inhalation          | 24 mg/m <sup>3</sup>                              |
| DN(M)EL - acute / short-term exposure - systemic effects - Inhalation | No hazard identified                              |
| DN(M)EL - long-term exposure - local effects - Inhalation             | Hazard unknown (no further information necessary) |
| DN(M)EL - acute / short-term exposure - local effects - Inhalation    | Hazard unknown (no further information necessary) |
| DN(M)EL - long-term exposure - systemic effects - Dermal              | 3,33 mg/kg bw/day                                 |
| DN(M)EL - acute / short-term exposure - systemic effects - Dermal     | No hazard identified                              |
| DN(M)EL - long-term exposure - local effects - Dermal                 | Medium hazard (no threshold derived)              |
| DN(M)EL - acute / short-term exposure - local effects - Dermal        | Medium hazard (no threshold derived)              |
| DN(M)EL - local effects - eyes  | No hazard identified                              |

#### General population

|   |   |
|---|---|
| DN(M)EL - long-term exposure - systemic effects - Inhalation          | 5,8 mg/m <sup>3</sup>                             |
| DN(M)EL - acute / short-term exposure - systemic effects - Inhalation | No hazard identified                              |
| DN(M)EL - long-term exposure - local effects - Inhalation             | Hazard unknown (no further information necessary) |
| DN(M)EL - acute / short-term exposure - local effects - Inhalation    | Hazard unknown (no further information necessary) |
| DN(M)EL - long-term exposure - systemic effects - Dermal              | 1,67 mg/kg bw/day                                 |
| DN(M)EL - acute / short-term exposure - systemic effects - Dermal     | No hazard identified                              |
| DN(M)EL - long-term exposure - local effects - Dermal                 | Medium hazard (no threshold derived)              |

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|  |                                      |
|--|--------------------------------------|
| <b>DN(M)EL - acute / short-term exposure - local effects - Dermal</b>  | Medium hazard (no threshold derived) |
| <b>DN(M)EL - long-term exposure - systemic effects - Oral</b>          | 1,67 mg/kg bw/day                    |
| <b>DN(M)EL - acute / short-term exposure - systemic effects - Oral</b> | No hazard identified                 |
| <b>DN(M)EL - local effects - eyes</b>                                  | No hazard identified                 |

## Environment

|  |                                  |
|--|----------------------------------|
| <b>PNEC aqua - freshwater</b>            | 0,8 µg/l                         |
| <b>PNEC aqua - marine water</b>          | 0,08 µg/l                        |
| <b>PNEC aqua - intermittent releases</b> | 8 µg/l                           |
| <b>PNEC STP</b>                          | 2,36 mg/l                        |
| <b>PNEC sediment - freshwater</b>        | 0,109 mg/kg dw                   |
| <b>PNEC sediment - marine water</b>      | 0,0109 mg/kg dw                  |
| <b>PNEC Air</b>                          | No hazard identified             |
| <b>PNEC soil</b>                         | 0,0212 mg/kg dw                  |
| <b>Secondary poisoning</b>               | No potential for bioaccumulation |

## 8.2. Exposure controls

### Special adaptations (REACH)

Not applicable.

### Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

### Personal protective equipment

#### General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

#### Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Equipment should conform to EN 166

#### Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

|                           |                              |
|---------------------------|------------------------------|
| <b>Suitable material</b>  | nitrile rubber               |
| <b>Evaluation</b>         | according to EN 374: level 6 |
| <b>Glove thickness</b>    | approx 0,55 mm               |
| <b>Break through time</b> | > 480 min                    |

|                          |                   |
|--------------------------|-------------------|
| <b>Suitable material</b> | polyvinylchloride |
|--------------------------|-------------------|

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**Evaluation** Information derived from practical experience  
**Glove thickness** approx 0,8 mm

## Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

## Respiratory protection

Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

## Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

## Additional advice

Further details on substance data can be found in the registration dossier under the following link:  
<http://echa.europa.eu/information-on-chemicals/registered-substances>.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                                  |   |
|----------------------------------|---|
| <b>Appearance</b>                | liquid  |
| <b>Colour</b>                    | colourless  |
| <b>Odour</b>                     | fruity  |
| <b>Odour threshold</b>           | No data available                                 |
| <b>pH</b>                        | 4,4 (0,002 g/l in water @ 20 °C (68 °F)) OECD 105 |
| <b>Melting point/range</b>       | -9 °C (Pour point) @ 1013 hPa                     |
| <b>Method</b>                    | DIN ISO 3016                                      |
| <b>Boiling point/range</b>       | 263 - 286 °C @ 1013 hPa                           |
| <b>Method</b>                    | OECD 103  |
| <b>Flash point</b>               | 122 °C @ 1013 hPa                                 |
| <b>Method</b>                    | ISO 2719  |
| <b>Evaporation rate</b>          | No data available                                 |
| <b>Flammability (solid, gas)</b> | Does not apply, the substance is a liquid         |
| <b>Lower explosion limit</b>     | No data available                                 |
| <b>Upper explosion limit</b>     | No data available                                 |

#### Vapour pressure

| Values [hPa] | Values [kPa] | Values [atm] | @ °C | @ °F | Method   |
|--------------|--------------|--------------|------|------|----------|
| > 0.001      | > 0.001      | > 0.001      | 20   | 68   | OECD 104 |
| 0.012        | 0.0012       | > 0.001      | 50   | 122  | OECD 104 |

**Vapour density** No data available

#### Relative density

| Values | @ °C | @ °F | Method    |
|--------|------|------|-----------|
| 0,830  | 20   | 68   | DIN 51757 |

**Solubility** 0,002 g/l @ 20 °C, in water, OECD 105

**log Pow** 6,1 - 7,1 @ 25 °C (77 °F), OECD 117

**Autoignition temperature** 215 °C @ 1001 hPa

**Method** DIN 51794

**Decomposition temperature** > 286 °C @ 1013 hPa

**Viscosity** 3,7 mPa\*s @ 20 °C

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|                             |   |
|-----------------------------|---|
| <b>Method</b>               | ASTM D445, dynamic  |
| <b>Explosive properties</b> | Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties |
| <b>Oxidizing properties</b> | Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties |

## 9.2. Other information

|                        |  |
|------------------------|--|
| <b>log Koc</b>         | 3,12 @ 25°C (77 °F)                            |
| <b>Surface tension</b> | 42,3 mN/m @ 20 °C (68 °F) @ 1,9 mg/l, OECD 115 |

## SECTION 10: Stability and Reactivity

### 10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

May form explosive peroxides. When finely distributed, self-ignition is possible.

### 10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

### 10.5. Incompatible materials

bases, amines, acids, oxidizing agents.

### 10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

**Likely routes of exposure** Ingestion, Inhalation, Eye contact, Skin contact

| <b>Acute toxicity</b>   |          |              |                  |                      |
|---|----------|--------------|------------------|----------------------|
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |          |              |                  |                      |
| Routes of Exposure  | Endpoint | Values       | Species          | Method               |
| Oral  | LD50     | > 5000 mg/kg | rat, male/female | OECD 401 read across |
| Dermal  | LD50     | > 5000 mg/kg | rabbit           |                      |

### **Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

#### **Assessment**

Based on available data, the classification criteria are not met for:



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Acute oral toxicity  
Acute dermal toxicity  
For acute inhalation toxicity, no data are available

| <b>Irritation and corrosion</b>   |         |                   |          |                |
|---|---------|-------------------|----------|----------------|
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |         |                   |          |                |
| Target Organ Effects  | Species | Result            | Method   |                |
| Skin  | rabbit  | irritating        | OECD 404 | read across 4h |
| Eyes  | rabbit  | No eye irritation | OECD 405 | read across    |

### **Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

#### **Assessment**

The available data lead to the classification given in section 2  
For respiratory irritation, no data are available

| <b>Sensitization</b>  |         |                 |            |  |
|---|---------|-----------------|------------|--|
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |         |                 |            |  |
| Target Organ Effects  | Species | Evaluation      | Method     |  |
| Skin  | mouse   | sensitizing     | OECD 429   |  |
| Skin  | human   | not sensitizing | Patch-test |  |

### **Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

#### **Assessment**

The available data lead to a classification as skin sensitizer (see section 2)  
For respiratory sensitization, no data are available

| <b>Subacute, subchronic and prolonged toxicity</b>                            |                     |                  |          |      |
|---|---------------------|------------------|----------|------|
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |                     |                  |          |      |
| Type  | Dose                | Species          | Method   |      |
| Subacute toxicity   | NOAEL: 1000 mg/kg/d | rat, male/female | OECD 422 | Oral |

### **Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

#### **Assessment**

Based on available data, the classification criteria are not met for:  
STOT RE

| <b>Carcinogenicity, Mutagenicity, Reproductive toxicity</b>                   |      |                        |   |                            |                |
|---|------|------------------------|---|----------------------------|----------------|
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |      |                        |   |                            |                |
| Type  | Dose | Species                | Evaluation  | Method                     |                |
| Mutagenicity  |      | Salmonella typhimurium | negative (without metabolic activation)<br>negative (with metabolic activation) | OECD 471 (Ames)            | In vitro study |
| Mutagenicity  |      | human lymphocytes      | negative (with metabolic activation)<br>negative (without metabolic activation) | OECD 487 micronucleus test | In vitro study |
| Mutagenicity  |      | V79 cells,             | negative (with  | OECD 476                   | In vitro study |

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|                        |                    |                                 |   |                                |                                   |
|------------------------|--------------------|---------------------------------|---|--------------------------------|-----------------------------------|
|                        |                    | Chinese hamster                 | metabolic activation) negative (without metabolic activation) | (Mammalian Gene Mutation) HPRT | read across                       |
| Reproductive toxicity  | NOAEL 1000 mg/kg/d | rat, 1. Generation, male/female |   | OECD 422, Oral                 | Reproductive toxicity: Fertility  |
| Developmental Toxicity | NOAEL 1000 mg/kg/d | rat                             |   | OECD 422, Oral                 | Maternal toxicity, Fetal toxicity |
| Carcinogenicity        | No data available  |                                 |   |                                |                                   |

## Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8

### CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

### Evaluation

In vitro tests did not show mutagenic effects

Animal testing did not show any effects on fertility

No cancer study was conducted

## Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8

### Main symptoms

shortness of breath.

### Target Organ Systemic Toxicant - Single exposure

Based on available data, the classification criteria are not met for:

STOT SE

### Target Organ Systemic Toxicant - Repeated exposure

Based on available data, the classification criteria are not met for:

STOT RE

### Aspiration toxicity

no data available

### Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:

<http://echa.europa.eu/information-on-chemicals/registered-substances>.

## SECTION 12: Ecological information

### 12.1. Toxicity

|   |               |                              |                      |
|---|---------------|------------------------------|----------------------|
| <b>Acute aquatic toxicity</b>   |               |                              |                      |
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |               |                              |                      |
| Species   | Exposure time | Dose                         | Method               |
| Danio rerio (Zebra fish)  | 96h           | LC50: > 0,4 - < 0,9 mg/l     | OECD 203             |
| Activated sludge (domestic)   | 28 d          | NOEC: 23,6 mg/l              | OECD 310             |
| Daphnia magna (Water flea)  | 48h           | EC50: 1,54 mg/l              | OECD 202 read across |
| Pseudokirchneriella subcapitata   | 72h           | EC50: 4,5 mg/l (Growth rate) | OECD 201 read across |

|   |         |      |        |
|---|---------|------|--------|
| <b>Long term toxicity</b>   |         |      |        |
| <b>Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8)</b> |         |      |        |
| Type  | Species | Dose | Method |

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|                  |                                 |                                   |                      |  |
|------------------|---------------------------------|-----------------------------------|----------------------|--|
| Aquatic toxicity | Pseudokirchneriella subcapitata | NOEC: 0,759 mg/l (3d) Growth rate | OECD 201 read across |  |
|------------------|---------------------------------|-----------------------------------|----------------------|--|

## 12.2. Persistence and degradability

**Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

### Biodegradation

65,4 % (21 d), activated sludge (domestic), non-adapted, aerobic, OECD 310.

| Abiotic Degradation  |                   |        |
|--|-------------------|--------|
| Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8) |                   |        |
| Type   | Result            | Method |
| Photolysis   | No data available |        |
| Hydrolysis   | not expected      |        |

## 12.3. Bioaccumulative potential

| Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8) |                           |          |
|--|---------------------------|----------|
| Type   | Result                    | Method   |
| log Pow  | 6,1 - 7,1 @ 25 °C (77 °F) | OECD 117 |
| BCF  | No data available         |          |

## 12.4. Mobility in soil

| Alkenes, C12-14, hydroformylation products, distn. lights (93821-14-8) |                                      |                        |
|--|--------------------------------------|------------------------|
| Type   | Result                               | Method                 |
| Surface tension  | 42,3 mN/m @ 20 °C (68 °F) @ 1,9 mg/l | OECD 115               |
| Adsorption/Desorption  | log koc: 3,12 @ 25 °C (77 °F)        | calculated read across |
| Distribution to environmental compartments                             | no data available                    |                        |

## 12.5. Results of PBT and vPvB assessment

**Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

### PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

## 12.6. Other adverse effects

**Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

No data available

### Note

Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

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## Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Hazardous waste according to European Waste Catalogue (EWC)

## Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

## SECTION 14: Transport information

### ADR/RID

|                                    |   |
|------------------------------------|---|
| 14.1. UN number                    | UN 3082   |
| 14.2. UN proper shipping name      | Environmentally hazardous substance, liquid, n.o.s.<br>(n/i-C13/C15-Aldehyde) |
| 14.3. Transport hazard class(es)   | 9   |
| 14.4. Packing group                | III   |
| 14.5. Environmental hazards        | Fish and tree   |
| 14.6. Special precautions for user |   |
| ADR Tunnel restriction code        | (E)   |
| Classification Code                | M6  |
| Hazard Number                      | 90  |

### ADN

|                                    |   |
|------------------------------------|---|
| 14.1. UN number                    | UN 3082   |
| 14.2. UN proper shipping name      | Environmentally hazardous substance, liquid, n.o.s.<br>(n/i-C13/C15-Aldehyde) |
| 14.3. Transport hazard class(es)   | 9   |
| 14.4. Packing group                | III   |
| 14.5. Environmental hazards        | Fish and tree   |
| 14.6. Special precautions for user |   |
| Classification Code                | M6  |
| Hazard Number                      | 90  |

### ICAO-TI / IATA-DGR

|                                    |   |
|------------------------------------|---|
| 14.1. UN number                    | UN 3082   |
| 14.2. UN proper shipping name      | Environmentally hazardous substance, liquid, n.o.s.<br>(n/i-C13/C15-Aldehyde) |
| 14.3. Transport hazard class(es)   | 9   |
| 14.4. Packing group                | III   |
| 14.5. Environmental hazards        | Fish and tree   |
| 14.6. Special precautions for user | no data available   |

### IMDG

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|   |   |
|---|---|
| <b>14.1. UN number</b>  | UN 3082   |
| <b>14.2. UN proper shipping name</b>  | Environmentally hazardous substance, liquid, n.o.s.<br>(n/i-C13/C15-Aldehyde) |
| <b>14.3. Transport hazard class(es)</b>   | 9   |
| <b>14.4. Packing group</b>  | III   |
| <b>14.5. Environmental hazards</b>  |   |
| Marking   | Fish and tree   |
| Marine pollutant  | yes   |
| <b>14.6. Special precautions for user</b>                                       |   |
| EmS   | F-A, S-F  |
| <b>14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code</b> | not applicable  |

## SECTION 15: Regulatory information

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

#### Regulation 1272/2008, Annex VI

not listed

#### DI 2012/18/EU (Seveso III)

**Category**

Annex I, part 1:  
E1

#### DI 1999/13/EC (VOC Guideline)

| Component  | Status      |
|--|-------------|
| Alkenes, C12-14, hydroformylation products, distn. lights<br>CAS: 93821-14-8 | not subject |

### International Inventories

#### **Alkenes, C12-14, hydroformylation products, distn. lights, CAS: 93821-14-8**

AICIS (AU)

EC-No. 2986992 (EU)

KECI KE-00631 (KR)

NZIoC-NZ May be used as single component chemical

### National regulatory information Great Britain

#### **Releases to air (Pollution Inventory Substances)**

not subject

#### **Releases to water (Pollution Inventory Substances)**

not subject

#### **Releases to sewer (Pollution Inventory Substances)**

not subject

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The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758 \*\*\*

| Component  | Status                                       |
|--|--|
| Alkenes, C12-14, hydroformylation products, distn. lights<br>CAS: 93821-14-8 | The substance will not be pre-registered.*** |

## 15.2. Chemical safety assessment

The Chemical Safety Report (CSR) has been generated. For Exposure Scenarios see the annex.

## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

### Abbreviations

A table of terms and abbreviations can be found under the following link:

[http://echa.europa.eu/documents/10162/13632/information\\_requirements\\_r20\\_en.pdf](http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf)

### Training advice

For effective first-aid, special training / education is needed.

### Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

### Further information for the safety data sheet

Changes against the previous version are marked by \*\*\*. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage ([www.chemicals.oq.com](http://www.chemicals.oq.com)).

### Disclaimer

**For industrial use only.** The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet

# Annex to the extended Safety Data Sheet (eSDS)

## General information

A quantitative approach used to conclude safe use for:

Long-term Systemic effects via inhalation

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Long-term Systemic effects via skin  
Environmental compartment  
A qualitative approach used to conclude safe use for:  
Acute local hazards via inhalation  
Long term local hazards via inhalation  
Long term local hazards via skin  
Acute local hazards via skin  
Local hazards via eyes

### **Operational conditions and risk management measures**

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.  
Wear protective gloves  
Following operational conditions and risk management measures, are based on qualitative risk characterisation:  
Regular cleaning of equipment and work area  
Substance/Task appropriate respirator, based on potential exposure to the use  
Good standard of personal hygiene  
Avoid contact with contaminated tools and objects.  
Wear protective gloves and eye/face protection  
Minimization of manual phases  
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.  
Skin coverage with appropriate barrier material based on potential for contact with chemicals

### Exposure scenario identification

#### **1 Formulation & (re)packing of substances and mixtures**

#### **Number of the ES 1**

Short title of the exposure scenario

**Formulation & (re)packing of substances and mixtures**

#### **List of use descriptors**

#### **Process categories [PROC]**

PROC1: Use in closed process, no likelihood of exposure  
PROC2: Use in closed, continuous process with occasional controlled exposure  
PROC3: Use in closed batch process (synthesis or formulation)  
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises  
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)  
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities  
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
PROC14: production of preparations or articles by tableting, compression, extrusion, pelettisation  
PROC15: Use as laboratory reagent

#### **Environmental release categories [ERC]**

ERC2: Formulation of preparations (mixtures)

#### **Product characteristics**

Refer to attached safety data sheets

#### **Processes and activities covered by the exposure scenario**

Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities

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## Further explanations

Industrial use

Assessment tool used:

Chesar 3.2

liquid

Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Covers percentage substance in the product up to 100 % (unless stated differently)

Assumes an advanced standard of occupational Health and Safety Management System

**Number of the contributing scenario** 1  
**Contributing exposure scenario controlling environmental exposure for ERC 2**

## Further specification

assessment tool used: Chesar 2.3

### Amounts used

Daily amount per site: 1 to

Annual amount per site: 100 to

### Technical conditions and measures at process level (source) to prevent release

Release fraction to air from process: 2.5%

Release fraction to wastewater from process: 2E-4%

Release fraction to soil from process: 0.01%

### Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Onsite treatment wastewater. Apply acclimated biological treatment. Assumed Efficiency: 99.9 %

### Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/ treatment plant (m<sup>3</sup>/d): 2000

The minimum grade of elimination in the sewage plant is (%): 88,62

Water flow in sewage/river (m<sup>3</sup>/day): 18000

Do not apply industrial sludge to natural soils

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

Dispose of waste product or used containers according to local regulations

**Number of the contributing scenario** 2  
**Contributing exposure scenario controlling worker exposure for PROC 1**

## Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor and outdoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

**Number of the contributing scenario** 3  
**Contributing exposure scenario controlling worker exposure for PROC 2**

## Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor and outdoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

**Number of the contributing scenario** 4



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## Contributing exposure scenario controlling worker exposure for PROC 3

### Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

### Number of the contributing scenario

5

## Contributing exposure scenario controlling worker exposure for PROC 4

### Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

### Number of the contributing scenario

6

## Contributing exposure scenario controlling worker exposure for PROC 5

### Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor and outdoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection. Wear respiratory protection (Efficiency: 95 %).

### Number of the contributing scenario

7

## Contributing exposure scenario controlling worker exposure for PROC 8a

### Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor use

### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.

### Number of the contributing scenario

8

## Contributing exposure scenario controlling worker exposure for PROC 8b

### Frequency and duration of use

8 h (full shift)

### Other given operational conditions affecting workers exposure

Indoor and outdoor use

### Technical conditions and measures to control dispersion from source towards the worker

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provide a basic standard of general ventilation (1 to 3 air changes per hour).

#### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear respiratory protection (Efficiency: 95 %).

**Number of the contributing scenario** 9

#### Contributing exposure scenario controlling worker exposure for PROC 9

#### Frequency and duration of use

8 h (full shift)

#### Other given operational conditions affecting workers exposure

Indoor use

#### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

#### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 90 %).

**Number of the contributing scenario** 10

#### Contributing exposure scenario controlling worker exposure for PROC 14

#### Frequency and duration of use

8 h (full shift)

#### Other given operational conditions affecting workers exposure

Indoor use

#### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

#### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

**Number of the contributing scenario** 11

#### Contributing exposure scenario controlling worker exposure for PROC 15

#### Frequency and duration of use

8 h (full shift)

#### Other given operational conditions affecting workers exposure

Indoor use

#### Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour). Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative); 0 % (dermal).

#### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374) and eye protection.

#### Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Fresh Water (Pelagic)             | PEC: 1.15E-5 mg/l; RCR: 0.014     |
| Fresh Water (Sediment)            | PEC: 1.56E-3 mg/kg dw; RCR: 0.143 |
| Marine Water (Pelagic)            | PEC: 1.16E-6 mg/l; RCR: 0.014     |
| Marine Water (Sediment)           | PEC: 1.57E-4 mg/kg dw; RCR: 0.144 |
| Agricultural Soil                 | PEC: 5.46E-4 mg/kg dw; RCR: 0.257 |
| Sewage Treatment Plant (Effluent) | PEC: 1.14E-4 mg/l; RCR: < 0.01    |

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## Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. Exposure estimates are given for short-term or long-term, systemic or local exposure depending on which lead to more conservative risk characterization ratios. The RMMs described above suffice to control risks for both local and systemic effects. EE(inhal): Estimated inhalative exposure [mg/m<sup>3</sup>]. EE(derm): Estimated dermal exposure [mg/kg b.w./d].

|         |                                   |
|---------|-----------------------------------|
| Proc 1  | EE(inhal): 0.094; EE(derm): 0.034 |
| Proc 2  | EE(inhal): 9.433; EE(derm): 1.37  |
| Proc 3  | EE(inhal): 2.83; EE(derm): 0.69   |
| Proc 4  | EE(inhal): 4.717; EE(derm): 1.372 |
| Proc 5  | EE(inhal): 2.358; EE(derm): 2.742 |
| Proc 8a | EE(inhal): 9.433; EE(derm): 1.371 |
| Proc 8b | EE(inhal): 2.358; EE(derm): 1.371 |
| Proc 9  | EE(inhal): 0.472; EE(derm): 0.686 |
| Proc 14 | EE(inhal): 4.717; EE(derm): 0.686 |
| Proc 15 | EE(inhal): 4.717; EE(derm): 0.34  |

## Risk characterisation

Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

|         |                                     |
|---------|-------------------------------------|
| Proc 1  | RCR(inhal): < 0.01; RCR(derm): 0.01 |
| Proc 2  | RCR(inhal): 0.393; RCR(derm): 0.411 |
| Proc 3  | RCR(inhal): 0.118; RCR(derm): 0.207 |
| Proc 4  | RCR(inhal): 0.197; RCR(derm): 0.412 |
| Proc 5  | RCR(inhal): 0.098; RCR(derm): 0.823 |
| Proc 8a | RCR(inhal): 0.393; RCR(derm): 0.412 |
| Proc 8b | RCR(inhal): 0.098; RCR(derm): 0.412 |
| Proc 9  | RCR(inhal): 0.02; RCR(derm): 0.206  |
| Proc 14 | RCR(inhal): 0.197; RCR(derm): 0.206 |
| Proc 15 | RCR(inhal): 0.197; RCR(derm): 0.102 |

## Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Usage of release factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

## associated uses:

Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe