

## SAFETY DATA SHEET

Version 8.4  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Sodium hypochlorite solution (6-14% active chlorine) EMPLURA®

Product Number : 1.05614  
Catalogue No. : 105614  
Brand : Millipore

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

Identified uses : Reagent for analysis  
Uses advised against : This product is not intended for consumer use.

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

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Skin corrosion (Category 1), H314  
Serious eye damage (Category 1), H318  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

|                            |                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard statement(s)        |                                                                                                                                                                            |
| H314                       | Causes severe skin burns and eye damage.                                                                                                                                   |
| H410                       | Very toxic to aquatic life with long lasting effects.                                                                                                                      |
| Precautionary statement(s) |                                                                                                                                                                            |
| P264                       | Wash skin thoroughly after handling.                                                                                                                                       |
| P273                       | Avoid release to the environment.                                                                                                                                          |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                                                              |
| P301 + P330 + P331         | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.                                                                                                                         |
| P303 + P361 + P353         | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.                                                                       |
| P304 + P340 + P310         | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.                                                       |
| P305 + P351 + P338 + P310  | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P363                       | Wash contaminated clothing before reuse.                                                                                                                                   |
| P391                       | Collect spillage.                                                                                                                                                          |
| P405                       | Store locked up.                                                                                                                                                           |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                                                                        |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Contact with acids liberates toxic gas.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

| Component                           |              | Classification                                                                                                                                          | Concentration  |
|-------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>sodium hypochlorite solution</b> |              |                                                                                                                                                         |                |
| CAS-No.                             | 7681-52-9    | Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H314, H318, H400, H410<br>M-Factor - Aquatic Acute: 10<br>M-Factor - Aquatic Chronic: 10 | >= 10 - < 20 % |
| EC-No.                              | 231-668-3    |                                                                                                                                                         |                |
| Index-No.                           | 017-011-00-1 |                                                                                                                                                         |                |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

**In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

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

Hydrogen chloride gas

Sodium oxides

Not combustible.

Fire may cause evolution of:

Hydrogen chloride gas

Ambient fire may liberate hazardous vapours.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH<sup>-</sup>, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

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

#### Storage conditions

Protected from light. Tightly closed.  
Do not store near acids.

#### Storage class

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

| Component                    | CAS-No.   | Value | Control parameters  | Basis                                               |
|------------------------------|-----------|-------|---------------------|-----------------------------------------------------|
| sodium hypochlorite solution | 7681-52-9 | STEL  | 2 mg/m <sup>3</sup> | USA. Workplace Environmental Exposure Levels (WEEL) |

### 8.2 Exposure controls

#### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

### **Body Protection**

protective clothing

### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains.

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

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

- |                                                 |                                                |
|-------------------------------------------------|------------------------------------------------|
| a) Appearance                                   | Form: liquid<br>Color: light green             |
| b) Odor                                         | of chlorine                                    |
| c) Odor Threshold                               | No data available                              |
| d) pH                                           | 12 - 13 at 20 °C (68 °F)                       |
| e) Melting point/freezing point                 | Melting point: -20 °C (-4 °F)                  |
| f) Initial boiling point and boiling range      | 102 °C 216 °F at 1,013 hPa                     |
| g) Flash point                                  | ( )Not applicable                              |
| h) Evaporation rate                             | No data available                              |
| i) Flammability (solid, gas)                    | No data available                              |
| j) Upper/lower flammability or explosive limits | No data available                              |
| k) Vapor pressure                               | 20 hPa at 20 °C (68 °F)                        |
| l) Vapor density                                | No data available                              |
| m) Density                                      | 1.22 - 1.25 g/cm <sup>3</sup> at 20 °C (68 °F) |

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|    |                                           |                                                          |
|----|-------------------------------------------|----------------------------------------------------------|
|    | Relative density                          | No data available                                        |
| n) | Water solubility                          | soluble                                                  |
| o) | Partition coefficient:<br>n-octanol/water | No data available                                        |
| p) | Autoignition<br>temperature               | Not applicable                                           |
| q) | Decomposition<br>temperature              | Distillable in an undecomposed state at normal pressure. |
| r) | Viscosity                                 | No data available                                        |
| s) | Explosive properties                      | Not classified as explosive.                             |
| t) | Oxidizing properties                      | none                                                     |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Contact with acids liberates toxic gas.

### 10.2 Chemical stability

heat-sensitive Sensitivity to light

Sensitive to air.

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of explosion with:

Acids

hydrochloric acid

nitrous gases

Chlorine

Nitric acid

Cyanides

Oxidizing agents

Reducing agents

oxalic acid

Organic Substances

Methanol

urea

Acetic anhydride

Ammonia

Amines

formic acid

Risk of ignition or formation of inflammable gases or vapours with:

arsenic

Violent reactions possible with:

Generates dangerous gases or fumes in contact with:

Acids

The generally known reaction partners of water.

#### 10.4 Conditions to avoid

Avoid shock and friction.  
no information available

#### 10.5 Incompatible materials

No data available

#### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Mixture

##### Acute toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Dermal: No data available

##### Skin corrosion/irritation

No data available

##### Serious eye damage/eye irritation

Mixture causes serious eye damage. Risk of blindness!

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

##### Reproductive toxicity

No data available

##### Specific target organ toxicity - single exposure

No data available

##### Specific target organ toxicity - repeated exposure

No data available

##### Aspiration hazard

No data available

#### 11.2 Additional Information

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## Components

### sodium hypochlorite solution

#### Acute toxicity

LD50 Oral - Rat - male - 1,100 mg/kg  
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rabbit - male and female - > 20,000 mg/kg  
(OECD Test Guideline 402)

#### Skin corrosion/irritation

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitization

- Guinea pig

Result: Not a skin sensitizer.

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Result: negative

Method: Mutagenicity (micronucleus test)

Species: Mouse - male

Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### 12.6 Other adverse effects

Forms corrosive mixtures with water even if diluted. Harmful effect due to pH shift. Discharge into the environment must be avoided.

##### Components

##### sodium hypochlorite solution

|                                                     |                                                                                                                                       |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | LC50 - Pimephales promelas (fathead minnow) - 0.08 mg/l - 96 h<br>Remarks: (Regulation (EC) No 1272/2008, Annex VI) (ECOTOX Database) |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 0.04 mg/l - 48 h<br>Remarks: (Regulation (EC) No 1272/2008, Annex VI) (ECOTOX Database)           |
| Toxicity to algae                                   | EC50 - Pseudokirchneriella subcapitata - 0.036 mg/l - 72 h                                                                            |
| Toxicity to bacteria                                | static test EC50 - activated sludge - 77.1 mg/l - 3 h (OECD Test Guideline 209)<br>Remarks: (ECHA)                                    |

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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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### SECTION 14: Transport information

#### DOT (US)

UN number: 1791    Class: 8    Packing group: II  
Proper shipping name: Hypochlorite solutions  
Reportable Quantity (RQ): 724 lbs  
Poison Inhalation Hazard: No

#### IMDG

UN number: 1791    Class: 8    Packing group: II    EMS-No: F-A, S-B  
Proper shipping name: HYPOCHLORITE SOLUTION  
Marine pollutant : yes  
Marine pollutant : yes

**IATA**

UN number: 1791 Class: 8

Packing group: II

Proper shipping name: Hypochlorite solution

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**SECTION 15: Regulatory information****SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information****Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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