

**NICKEL CHLORIDE-6-HYDRATE**Version 1.0  
SDS\_US\_GHS

SDS Number: 1665037

Revision Date: 29.04.2015

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**SECTION 1. IDENTIFICATION**

Product name : NICKEL CHLORIDE-6-HYDRATE

Product code : 1665037

**Manufacturer or supplier's details**

Company name of supplier : Atotech Deutschland GmbH

Address : Erasmusstrasse 20  
Berlin 10553  
Germany

Telephone : +4930349850

Company name of supplier : Atotech USA

Address : 1750 OVERVIEW DRIVE  
ROCK HILL 29730  
USA

Telephone : +18038173500

Prepared by  
Product Safety Department (PSD): product-safety@atotech.comInquiries  
Questions about content of Safety Data Sheets: product-safety@atotech.com

Emergency telephone : CHEMTREC +18004249300

Transport Medical : Rocky Mountain Poison Control Center: 303-623-5716

**Recommended use of the chemical and restrictions on use**Recommended use : Plating agents and metal surface treating agents  
Surface treatment

Restrictions on use : For industrial use only.

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**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 3

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|                                                                       |               |
|-----------------------------------------------------------------------|---------------|
| Skin irritation                                                       | : Category 2  |
| Respiratory sensitization                                             | : Category 1  |
| Skin sensitization                                                    | : Category 1  |
| Germ cell mutagenicity                                                | : Category 2  |
| Carcinogenicity                                                       | : Category 1A |
| Reproductive toxicity                                                 | : Category 1B |
| Specific target organ system-<br>ic toxicity - repeated expo-<br>sure | : Category 1  |

**GHS Label element**

Hazard pictograms



Signal Word

: Danger

Hazard Statements

: H301 + H331 Toxic if swallowed or if inhaled.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H360 May damage fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

: **Prevention:**  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/ eye protection/ face protection.  
P285 In case of inadequate ventilation wear respiratory protection.  
**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P309 + P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/ physician.  
**Storage:**  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

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P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

Chemical nature : Solid

Substance name : Nickel(II) chloride hexahydrate

CAS-No. : 7791-20-0

**Hazardous ingredients**

| Chemical Name                   | CAS-No.   | Concentration (%) |
|---------------------------------|-----------|-------------------|
| Nickel(II) chloride hexahydrate | 7791-20-0 | >= 80 - <= 100    |

This product may contain component (s) that are not listed under disclosure. All components not listed, do not contain hazardous materials above deminimus disclosure limits as defined by OSHA, NIOSH, ACGIH or Canadian WHMIS regulations and or guidelines. Please refer to other sections of the MSDS for information on safety, health and environmental guidelines and precautions.

**SECTION 4. FIRST AID MEASURES**

General advice : Call a physician or poison control center immediately.  
Show this material safety data sheet to the doctor in attendance.

If inhaled : Call a physician or poison control center immediately.  
Move to fresh air.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.  
Take off contaminated clothing and shoes immediately.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes.  
If eye irritation persists, consult a specialist.

If swallowed : If swallowed, call a poison control center or doctor immediately.  
Never give anything by mouth to an unconscious person.  
Do not induce vomiting without medical advice.

Most important symptoms and effects, both acute and delayed : Toxic if swallowed or if inhaled.  
Causes skin irritation.  
May cause an allergic skin reaction.  
May cause allergy or asthma symptoms or breathing difficul-

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ties if inhaled.  
Suspected of causing genetic defects.  
May cause cancer.  
May damage fertility or the unborn child.  
Causes damage to organs through prolonged or repeated exposure.

- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing  
No artificial respiration, mouth-to-mouth or mouth to nose. Use suitable instruments/apparatus.
- Notes to physician : For specialist advice physicians should contact the Poison Control Center.
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**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : No information available.
- Hazardous combustion products : Nickel compounds  
hydrogen chloride gas
- Specific extinguishing methods : Use a water spray to cool fully closed containers.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Exposure to decomposition products may be a hazard to health.  
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust).
- Environmental precautions : Should not be released into the environment.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
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Shovel or sweep up.  
Keep in suitable, closed containers for disposal.  
Clean contaminated floors and objects thoroughly while observing environmental regulations.

**SECTION 7. HANDLING AND STORAGE**

- Advice on safe handling : For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Handle in accordance with good industrial hygiene and safety practice.  
In case of insufficient ventilation, wear suitable respiratory equipment.  
Avoid breathing dust.
- Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep locked up or in an area accessible only to qualified or authorized persons.
- Recommended storage temperature : -5 - 40 °C

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters**

| Ingredients                     | CAS-No.   | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|---------------------------------|-----------|-------------------------------|------------------------------------------------|-----------|
| Nickel(II) chloride hexahydrate | 7791-20-0 | TWA                           | 1 mg/m <sup>3</sup> (Nickel)                   | OSHA Z-1  |
|                                 |           | TWA (Inhalable fraction)      | 0.1 mg/m <sup>3</sup> (Nickel)                 | ACGIH     |
|                                 |           | TWA                           | 0.1 mg/m <sup>3</sup> (Nickel)                 | OSHA P0   |
|                                 |           | TWA                           | 0.015 mg/m <sup>3</sup> (Nickel)               | NIOSH REL |

**Personal protective equipment**

- Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.  
  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
In case of insufficient ventilation, wear suitable respiratory equipment.
- Hand protection  
Remarks : Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Follow the instructions for use issued by the producer.

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|                                            |                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye protection                             | : Tightly fitting safety goggles<br>Ensure that eyewash stations and safety showers are close to the workstation location.                                                               |
| Skin and body protection                   | : Impervious clothing<br>Boots                                                                                                                                                           |
| Protective measures / Engineering measures | : Ensure adequate ventilation, especially in confined areas.                                                                                                                             |
| Hygiene measures                           | : Avoid contact with skin, eyes and clothing.<br>Wash hands before breaks and immediately after handling the product.<br>When using do not eat, drink or smoke.<br>Avoid breathing dust. |

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| Appearance                              | : solid                                   |
| Color                                   | : green                                   |
| Odor                                    | : No information available.               |
| Odor Threshold                          | : No data available                       |
| pH                                      | : 3.5, (as aqueous solution)              |
| Melting point/freezing point            | : 140 °C                                  |
| Initial boiling point and boiling range | : not determined                          |
| Flash point                             | : Not applicable                          |
| Evaporation rate                        | : Not applicable                          |
| Flammability (solid, gas)               | : Not classified as a flammability hazard |
| Upper explosion limit                   | : No data available                       |
| Lower explosion limit                   | : No data available                       |
| Vapor pressure                          | : not determined                          |
| Relative vapor density                  | : Not applicable                          |
| Density                                 | : 1.90 - 1.94 g/cm <sup>3</sup>           |
| Solubility(ies)<br>Water solubility     | : soluble                                 |
| Partition coefficient: n-               | : No data available                       |

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octanol/water

Autoignition temperature : No data available

Thermal decomposition : No data available

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Oxidizing properties : Not applicable

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : None under normal processing.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : No dangerous reaction known under conditions of normal use.

Conditions to avoid : Avoid dust formation.  
To avoid thermal decomposition, do not overheat.Incompatible materials : Acids  
Potassium  
Cyanides  
Strong oxidizing agentsHazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation

Ingestion

Skin Absorption

**Acute toxicity**

Toxic if swallowed or if inhaled.

**Product:**Acute oral toxicity : Acute toxicity estimate : 106.6 mg/kg  
Method: Calculation methodAcute inhalation toxicity : Acute toxicity estimate : 0.51 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method**Ingredients:**

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**Nickel(II) chloride hexahydrate:**

Acute oral toxicity : LD50 Oral (Rat): 105 mg/kg

Acute inhalation toxicity : Acute toxicity estimate : 0.5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Remark: The acute toxicity estimate (ATE) of the ingredients are derived using the LD50/LC50 values where available.

**Skin corrosion/irritation**

Causes skin irritation.

**Product:**

Remarks: May cause skin irritation and/or dermatitis.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Respiratory or skin sensitization**

Skin sensitization: May cause an allergic skin reaction.

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Product:**

Remarks: Causes sensitization.

**Germ cell mutagenicity**

Suspected of causing genetic defects.

**Carcinogenicity**

May cause cancer.

**IARC**

Group 1: Carcinogenic to humans

Nickel(II) chloride hexahydrate

7791-20-0

**ACGIH**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**OSHA specified**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP**

Known to be human carcinogen

Nickel(II) chloride hexahydrate

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**Reproductive toxicity**

May damage fertility or the unborn child.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

**Aspiration toxicity**

Not classified based on available information.

**Further information****Product:**Remarks: No data available

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Ingredients:****Nickel(II) chloride hexahydrate:**Toxicity to fish : LC50: 1.3 mg/l  
Exposure time: 96 hToxicity to daphnia and other : EC50: 0.51 mg/l  
aquatic invertebrates Exposure time: 48 h**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Other adverse effects**

No data available

**Product:**No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**Waste from residues : Dispose of in accordance with local regulations.  
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

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**SECTION 14. TRANSPORT INFORMATION****International Regulation****UNRTDG**

UN number : UN 3288  
Proper shipping name : TOXIC SOLID, INORGANIC, N.O.S.  
Technical name(s) : (Nickel(II) chloride hexahydrate)  
Class : 6.1  
Packing group : III  
Labels : 6.1

**IATA-DGR**

UN/ID No. : UN 3288  
Proper shipping name : Toxic solid, inorganic, n.o.s.  
Technical name(s) : (Nickel(II) chloride hexahydrate)  
Class : 6.1  
Packing group : III  
Labels : Toxic  
Packing instruction (cargo aircraft) : 677  
Packing instruction (passenger aircraft) : 670

**IMDG-Code**

UN number : UN 3288  
Proper shipping name : TOXIC SOLID, INORGANIC, N.O.S.  
Technical name(s) : (Nickel(II) chloride hexahydrate)  
Class : 6.1  
Packing group : III  
Labels : 6.1  
EmS Code : F-A, S-A  
Marine pollutant : yes

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****DOT / 49 CFR**

UN/ID/NA number : UN 3288  
Proper shipping name : Toxic solid, inorganic, n.o.s.  
Technical name(s) : (Nickel(II) chloride hexahydrate)  
Class : 6.1  
Packing group : III  
Labels : POISON  
ERG Code : 151  
Marine pollutant : no

**SECTION 15. REGULATORY INFORMATION**

**TSCA 5a** : Not relevant

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**TSCA\_12b** : Not relevant**DEA** : Not applicable**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

| Ingredients                     | CAS-No.   | Component RQ (lbs) | Calculated product RQ (lbs) |
|---------------------------------|-----------|--------------------|-----------------------------|
| Nickel(II) chloride hexahydrate | 7791-20-0 |                    | 101.611                     |

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Acute Health Hazard  
Chronic Health Hazard**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Nickel(II) chloride hexahydrate 7791-20-0

**Massachusetts Right To Know**

Nickel(II) chloride hexahydrate 7791-20-0 80 - 100 %

**Pennsylvania Right To Know**

Nickel(II) chloride hexahydrate 7791-20-0 80 - 100 %

**New Jersey Right To Know**

Nickel(II) chloride hexahydrate 7791-20-0 80 - 100 %

**California Prop 65**

WARNING! This product contains a chemical known in the State of California to cause cancer.

Nickel(II) chloride hexahydrate 7791-20-0

**Remarks:** Components which are only displayed in Section 15 are being reported for local regulatory purposes. These components are not displayed in Section 3 due to one or more of the following conditions being met: being present in the product at concentration(s) below threshold limit values for reporting, not considered hazardous materials, health hazards or because they do not contribute to the overall GHS Classification of the final product as required by OSHA HazCom 2012 final rule ( 29 CFR 1910.1200).

**Substances currently restricted by WEEE/RoHS (European Directive 2002/96/EC , 2002/95/EC) or ELV (European Directive 2000/53/EC):**

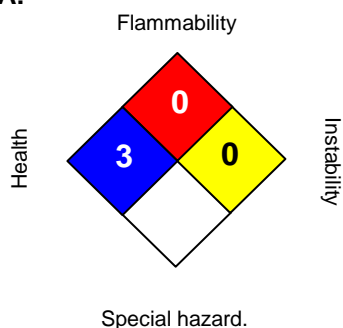
|      |     |      |    |    |    |
|------|-----|------|----|----|----|
| PBDE | PBB | CrVI | Hg | Pb | Cd |
| -    | -   | -    | -  | -  | -  |

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Please note: Current legislation restricting the use of certain substances applies to „homogeneous material“ in finished articles being supplied to the market. Substances deposited during surface finishing may have a composition (weight percent) higher than the weight percent of the substance in the operating solution from which the deposit is made. Atotech encourages its customers to implement systems to ensure their finished products comply with the regulations in force.

**SECTION 16. OTHER INFORMATION****Further information****NFPA:****HMIS III:**

|                        |           |
|------------------------|-----------|
| <b>HEALTH</b>          | <b>3*</b> |
| <b>FLAMMABILITY</b>    | <b>0</b>  |
| <b>PHYSICAL HAZARD</b> | <b>0</b>  |

0 = not significant, 1 =Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Revision Date : 29.04.2015

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.