1 Identification

- Product identifier
  - Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based
  - Article number: 335-164
- Recommended use and restriction on use
  - Recommended use: Electroplating auxiliary
  - Restrictions on use: No further relevant information available.
- Details of the supplier of the Safety Data Sheet
  - Manufacturer/Supplier:
    RIO GRANDE
    7500 Bluewater Rd. NW
    Alburquerque NM 87121-1962
    1-800-545-6566
    info@riogrande.com
  - Emergency telephone number:
    ChemTel Inc.
    (800)255-3924, +1 (813)248-0585

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS08 Health hazard
    Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
    Muta. 2 H341 Suspected of causing genetic defects.
    Carc. 1A H350 May cause cancer.
    Repr. 1B H360 May damage fertility or the unborn child.
    STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
  - GHS05 Corrosion
    Skin Corr. 1C H314 Causes severe skin burns and eye damage.
  - GHS07
    Acute Tox. 4 H302 Harmful if swallowed.
    Skin Sens. 1 H317 May cause an allergic skin reaction.
- Additional information:
  - Contact with acids liberates toxic gas.
  - There are no other hazards not otherwise classified that have been identified.
  - 0 percent of the mixture consists of ingredient(s) of unknown toxicity.
- Label elements
  - GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).
Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

- Hazard pictograms
  - GHS05
  - GHS07
  - GHS08

- Signal word
  - Danger

- Hazard-determining components of labeling:
  - nickel dichloride
  - zinc chloride
  - ammonium chloride
  - sodium thiocyanate

- Hazard statements
  - H302 Harmful if swallowed.
  - H314 Causes severe skin burns and eye damage.
  - H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - H317 May cause an allergic skin reaction.
  - 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
  - P260 Do not breathe mist/vapours/spray.
  - P284 Wear respiratory protection.
  - P264 Wash thoroughly after handling.
  - P280 Wear protective gloves/protective clothing/eye protection.
  - P270 Do not eat, drink or smoke when using this product.
  - P272 Contaminated work clothing must not be allowed out of the workplace.
  - P201 Obtain special instructions before use.
  - P202 Do not handle until all safety precautions have been read and understood.
  - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  - P363 Wash contaminated clothing before reuse.
  - P308+P313 IF EXPOSED OR CONCEALED: Get medical advice/attention.
  - P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Hazard description:
- WHMIS-symbols:
  - D2A - Very toxic material causing other toxic effects
  - E - Corrosive material
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - Health = 3
    - Fire = 0
    - Reactivity = 0
    * - Indicates a long term health hazard from repeated or prolonged exposures.
- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

### 3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7646-85-7 zinc chloride</td>
<td></td>
</tr>
<tr>
<td>☻ Skin Corr. 1B, H314</td>
<td></td>
</tr>
<tr>
<td>☻ Acute Tox. 4, H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-20%</td>
</tr>
<tr>
<td>7718-54-9 nickel dichloride</td>
<td></td>
</tr>
<tr>
<td>☻ Acute Tox. 3, H301; Acute Tox. 3, H331</td>
<td></td>
</tr>
<tr>
<td>☻ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350; Repr. 1B, H360; STOT RE 1, H372</td>
<td></td>
</tr>
<tr>
<td>☻ Skin Irrit. 2, H315; Skin Sens. 1, H317</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-20%</td>
</tr>
<tr>
<td>12125-02-9 ammonium chloride</td>
<td></td>
</tr>
<tr>
<td>☻ Acute Tox. 4, H302; Eye Irrit. 2A, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-10%</td>
</tr>
<tr>
<td>540-72-7 sodium thiocyanate</td>
<td></td>
</tr>
<tr>
<td>☻ Acute Tox. 4, H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-10%</td>
</tr>
</tbody>
</table>

**Additional information:**

For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.

(Contd. on page 4)
4 First-aid measures

- Description of first aid measures
  - General information:
    Immediately remove any clothing soiled by the product.
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
    Take affected persons out into the fresh air.
  - After inhalation:
    Supply fresh air and to be sure to call for a doctor.
    Provide oxygen treatment if affected person has difficulty breathing.
  - After skin contact:
    Immediately rinse with water.
    If skin irritation continues, consult a doctor.
    Seek immediate medical help for blistering or open wounds.
  - After eye contact:
    Protect unharmed eye.
    Remove contact lenses if worn.
    Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing:
    Rinse out mouth and then drink plenty of water.
    Do not induce vomiting; immediately call for medical help.

- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    Asthma attacks
    Headache
    Breathing difficulty
    Coughing
    Dizziness
    Allergic reactions
    Acidosis
    Strong caustic effect on skin and mucous membranes.
    May cause respiratory irritation.
    Disorientation
    Unconsciousness
  - Danger
    Danger of gastric perforation.
    Danger of impaired breathing.
    Causes serious eye damage.
    Harmful if swallowed.
    Causes damage to organs through prolonged or repeated exposure.
  - Indication of any immediate medical attention and special treatment needed
    Severe allergic skin reaction, bronchial spasms and anaphylactic shock are possible.
    Medical supervision for at least 48 hours.
    If necessary oxygen respiration treatment.
    Contains nickel dichloride. May produce an allergic reaction.
    In cases of irritation to the lungs, initial treatment with cortical steroid inhalants.
### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** None.
- **Special hazards arising from the substance or mixture**
  - During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:**
  - Wear self-contained respiratory protective device.
  - Wear fully protective suit.
- **Additional information**
  - In case of fire involving large quantities, evacuate area and fight fire from the upwind side.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Use respiratory protective device against the effects of fumes/dust/aerosol.
  - Wear protective equipment. Keep unprotected persons away.
  - Ensure adequate ventilation.
  - For large spills, wear protective clothing.
- **Environmental precautions:**
  - Do not allow to enter sewers/ surface or ground water.
  - Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
  - Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
  - Use only in well ventilated areas.
  - Prevent formation of aerosols.
  - Avoid splashes or spray in enclosed areas.
- **Information about protection against explosions and fires:**
  - Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
  - Provide ventilation for receptacles.
  - Avoid storage near extreme heat, ignition sources or open flame.
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

Store only in the original receptacle.

- **Information about storage in one common storage facility:**
  - Do not store together with acids.
  - Store away from oxidizing agents.
  - Store away from foodstuffs.

- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

- **Specific end use(s)** No further relevant information available.

---

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Control parameters**

  **Components with limit values that require monitoring at the workplace:**

  **7646-85-7 zinc chloride**

<table>
<thead>
<tr>
<th>Source</th>
<th>Long-term value</th>
<th>Short-term value</th>
<th>Fume</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>1 mg/m³</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>REL (USA)</td>
<td>1 mg/m³</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>1 mg/m³</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>2 mg/m³</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>2 mg/m³</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>LMPE (Mexico)</td>
<td>2 mg/m³</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**7718-54-9 nickel dichloride**

<table>
<thead>
<tr>
<th>Source</th>
<th>Long-term value</th>
<th>Short-term value</th>
<th>Fume</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>1 mg/m³</td>
<td>0.015 mg/m³</td>
<td>as Ni</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>0.015 mg/m³</td>
<td>0.1 mg/m³</td>
<td>as Ni; See Pocket Guide App. A</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>as Ni; inhalable fraction</td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>0.05 mg/m³</td>
<td>0.1 mg/m³</td>
<td>as Ni; ACGIH A1, IARC 1</td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>Inhalable fraction, as Ni</td>
</tr>
<tr>
<td>LMPE (Mexico)</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>Fracción inhalable; A4; como Ni</td>
</tr>
</tbody>
</table>

(Contd. on page 7)
Safety Data Sheet  
acc. to OSHA HCS (29 CFR 1910.1200)  

Printing date 05/13/2015  
Reviewed on 05/13/2015  

Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based  

<table>
<thead>
<tr>
<th>12125-02-9 ammonium chloride</th>
</tr>
</thead>
</table>
| REL (USA)                   | Short-term value: 20 mg/m³  
|                             | Long-term value: 10 mg/m³  
| TLV (USA)                   | Short-term value: 20 mg/m³  
|                             | Long-term value: 10 mg/m³  
| EL (Canada)                 | Short-term value: 20 mg/m³  
|                             | Long-term value: 10 mg/m³  
|                             | fume  
| EV (Canada)                 | Short-term value: 20 mg/m³  
|                             | Long-term value: 10 mg/m³  
|                             | fume  
| LMPE (Mexico)               | Short-term value: 20 mg/m³  
|                             | Long-term value: 10 mg/m³  

**Additional information:** The lists that were valid during the creation were used as basis.  
**Exposure controls**  
**Personal protective equipment:**  
**General protective and hygienic measures:**  
The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.  
**Engineering controls:** No further relevant information available.  
**Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.  
**Protection of hands:**  

Protective gloves  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation  
**Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.  
**Penetration time of glove material**  
The exact break through glove material has to be found out by the manufacturer of the protective gloves and has to be observed.  
**Eye protection:**  

Safety glasses  
**Body protection:** Protective work clothing  
**Limitation and supervision of exposure into the environment** Avoid release to the environment.  

(Contd. on page 8)
9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
  - Appearance:
    - Form: Liquid
    - Color: Dark green
  - Odor: Characteristic
  - Odor threshold: Not determined.
  - pH-value: Not determined.
- Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: >100 °C (>212 °F)
- Flash point: Not applicable.
- Flammability (solid, gaseous): Not applicable.
- Auto-ignition temperature: Not determined.
- Decomposition temperature: Not determined.
- Auto igniting: Product is not self-igniting.
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapor pressure: Not determined.
- Density: Not determined.
- Relative density: Not determined.
- Vapour density: Not determined.
- Evaporation rate: Not determined.
- Solubility in / Miscibility with
  - Water: Fully miscible.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Other information No further relevant information available.
10 Stability and reactivity

- Reactivity
- Chemical stability
- Thermal decomposition / conditions to be avoided:
  No decomposition if used and stored according to specifications.
- Possibility of hazardous reactions
  Reacts with strong acids.
  Reacts with strong alkali.
  Contact with acids releases toxic gases.
  Reacts with oxidizing agents.
  Reacts with certain metals.
- Conditions to avoid
  Avoid acids.
  Store away from oxidizing agents.
- Incompatible materials: Oxidizers, strong bases, strong acids
- Hazardous decomposition products:
  Carbon monoxide and carbon dioxide
  Toxic metal oxide smoke
  Ammonia
  Nitrogen oxides (NOx)
  Hydrogen chloride (HCl)
  Chlorine
  Sulfur oxides (SOx)

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    - 7646-85-7 zinc chloride
      - Oral LD50 350 mg/kg (rat)
    - 7718-54-9 nickel dichloride
      - Oral LD50 105 mg/kg (rat)
- Primary irritant effect:
  - on the skin: Caustic effect on skin and mucous membranes.
  - on the eye: Strong caustic effect.
  - Sensitization: May cause sensitisation by inhalation and skin contact.
  - Subacute to chronic toxicity: Causes damage to organs through prolonged or repeated exposure.
- Additional toxicological information:
  Danger through skin absorption.
  Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
  Toxic and/or corrosive effects may be delayed up to 24 hours.
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

- Carcinogenic categories

| NTP (National Toxicology Program) | 7718-54-9 | nickel dichloride | K |

- OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

- Probable Routes of Exposure
  Inhalation.
  Eye contact.
  Skin contact.
  Ingestion.

- Acute effects (acute toxicity, irritation and corrosivity):
  Harmful if swallowed.
  Irritating to respiratory system.
  Causes severe skin burns and eye damage.

- Repeated Dose Toxicity:
  May cause damage to organs through prolonged or repeated exposure.
  Repeated exposures may result in skin and/or respiratory sensitivity.
  Suspected of causing genetic defects.
  May cause cancer by inhalation.
  May damage fertility or the unborn child.

12 Ecological information

- Toxicity
  - Aquatic toxicity: Toxic for aquatic organisms
  - Persistence and degradability: No further relevant information available.

- Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Ecotoxicological effects:
    - Remark: Toxic for fish

- Additional ecological information:
  - General notes:
    Do not allow product to reach ground water, water course or sewage system, even in small quantities.
  - Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
    The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Printing date 05/13/2015 Reviewed on 05/13/2015

Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

(Contd. of page 10)

14 Transport information

- UN-Number
  - DOT
    - UN1760
      Product is additionally classified as a MARINE POLLUTANT based on MARPOL and DOT rules. Labeling as a MARINE POLLUTANT is not required for non-bulk single package shipments by motor vehicle, rail car or aircraft. Bulk packaging consists of a maximum capacity of greater than 450L (119 gallons) for a liquid and a maximum net mass greater than 400kg (882 pounds) for a solid.

- ADR, IMDG, IATA
  - UN proper shipping name
    - UN1760

  - DOT
    - Corrosive liquids, n.o.s. (Zinc chloride)

  - ADR
    - 1760 CORROSIVE LIQUID, N.O.S. (ZINC CHLORIDE), ENVIRONMENTALLY HAZARDOUS

  - IMDG
    - CORROSIVE LIQUID, N.O.S. (ZINC CHLORIDE), MARINE POLLUTANT

  - IATA
    - CORROSIVE LIQUID, N.O.S. (ZINC CHLORIDE)

- Transport hazard class(es)
  - DOT
    - Class 8 Corrosive substances
      - Label 8
  - ADR
    - Class 8 (C9) Corrosive substances
      - Label 8
  - IMDG
    - Class 8 Corrosive substances

(Contd. on page 12)
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

<table>
<thead>
<tr>
<th>Label</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATA</td>
<td></td>
</tr>
</tbody>
</table>

- **Class**: 8 Corrosive substances
- **Label**: 8
- **Packing group**: III
- **DOT, ADR, IMDG, IATA**: 
- **Environmental hazards**: Yes
- **Marine pollutant**: Symbol (fish and tree)
- **Special marking (ADR)**: Symbol (fish and tree)
- **Special precautions for user**: Warning: Corrosive substances
- **Danger code (Kemler)**: 80
- **EMS Number**: F-A-S-B
- **Segregation groups**: Heavy metals and their salts (including their organometallic compounds)
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**: Not applicable.
- **Transport/Additional information**: 
- **DOT**
  - **Quantity limitations**: On passenger aircraft/rail: 5 L
  - On cargo aircraft only: 60 L

**ADR**
- **Excepted quantities (EQ)**: Code: E1
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml

**IMDG**
- **Limited quantities (LQ)**: 5L
- **Excepted quantities (EQ)**: Code: E1
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml

**UN "Model Regulation"**: UN1760, Corrosive liquids, n.o.s. (Zinc chloride), ENVIRONMENTALLY HAZARDOUS, 8, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

**Section 355 (extremely hazardous substances)**:
None of the ingredients is listed.
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

- **Section 313 (Specific toxic chemical listings):**
  Substance / component not listed individually, but listed under family group as Zinc salts.
  Substance / component not listed individually, but listed under family group as Nickel salts.
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7646-85-7</td>
<td>zinc chloride</td>
</tr>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
</tr>
</tbody>
</table>

- **TSCA (Toxic Substances Control Act):**
  All ingredients are listed.

- **Proposition 65 (California):**
  Chemicals known to cause cancer:
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
</tr>
</tbody>
</table>

- **Chemicals known to cause reproductive toxicity for females:**
  None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**
  None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**
  None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>7646-85-7</td>
<td>zinc chloride</td>
<td>D, I, II</td>
</tr>
</tbody>
</table>

- **IARC (International Agency for Research on Cancer):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
<td>1</td>
</tr>
</tbody>
</table>

- **TLV (Threshold Limit Value established by ACGIH):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
<td>A4</td>
</tr>
</tbody>
</table>

- **NIOSH-Ca (National Institute for Occupational Safety and Health):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
</tr>
</tbody>
</table>

- **State Right to Know Listings:**
  None of the ingredients is listed.

- **Canadian substance listings:**

- **Canadian Domestic Substances List (DSL):**
  All ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 0.1%):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7718-54-9</td>
<td>nickel dichloride</td>
</tr>
</tbody>
</table>

- **Canadian Ingredient Disclosure list (limit 1%):**
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7646-85-7</td>
<td>zinc chloride</td>
</tr>
<tr>
<td>12125-02-9</td>
<td>ammonium chloride</td>
</tr>
</tbody>
</table>

- **Other regulations, limitations and prohibitive regulations:**
  This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
Trade name: Midas® Flat Black Pen-Plating Solution, Acid-Based

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Date of preparation / last revision 05/13/2015 / -

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
Skin Corr. 1C: Skin corrosion/irritation, Hazard Category 1C
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Muta. 2: Germ cell mutagenicity, Hazard Category 2
Carc. 1A: Carcinogenicity, Hazard Category 1A
Repr. 1B: Reproductive toxicity, Hazard Category 1B
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1

Sources
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