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

1.1. Product identifier

Product name: Double Nickel LC
Product Type: Liquid Concentrate
EPA Registration No.: 70051-107
Active Ingredient: Bacillus amyloliquefaciens strain D747
CAS No.: 68038-60-8

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

Identified uses: Bio-fungicide
Uses advised against: Any use not listed on the label

1.3. Details of the supplier of the safety data sheet

Name: Certis U.S.A., LLC
Address: 9145 Guilford Road, Suite 175
Columbia, Maryland 21046
U.S.A.
Phone Number: +01 (800) 255-3924
Website: http://www.certisusa.com

1.4. Emergency telephone number

Emergency number: +1 800 255-3924

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Hazard Classification: Not classified as hazardous by OSHA
EPA Signal Word: Caution see section 15
Hazard Statements: None
Pictogram: None
Precautionary Statements: Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.
2.2 Other Hazards: For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
<th>CAS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacillus amyloliquefaciens strain D747</td>
<td>98.85</td>
<td>68038-60-8</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Generic measures

Eye Contact: Immediately flush with water holding eye open for 15-20 minutes. Remove contact lenses after 5 minutes if present and continue rinsing eye. Seek medical attention if irritation persists.

Skin Contact: Remove contaminated clothing and wash affected area with plenty of soap and water. If irritation persists call poison control or doctor for treatment advice.

Inhalation: Remove individual to fresh air. If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible. Call poison control center or doctor for further advice. Have the product label with you when calling a poison control center or doctor.

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

May cause an allergic reaction in some individuals.

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

Note to Physicians: The active ingredient contained in this product has a high affinity for activated charcoal. In case of ingestion of large amounts, administrate 5 mg/kg activated charcoal suspension (50g/400mL water).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media: All extinguishing media

Unsuitable Extinguishing Media: None known

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: None known
5.3. Advice for firefighters

Protection of Firefighters: None specified

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Use personal protections as indicated in Section 8.
For emergency responders: Use personal protection recommended in Section 8.

6.2. Environmental precautions

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local and national health and environmental regulations.

6.3. Methods and material for containment and cleaning up

Methods for Containment: Recover free product. Use absorbent material to minimize runoff of product or mixed product.

Methods for Clean-Up: Sweep up and place in a chemical container. Seal the container and handle in an approved manner. Do not allow wash water to contaminate water supplies. Dispose of in accordance with Federal State and local regulations for disposal of non-hazardous waste.

Other Information: None

6.4. Reference to other sections

See Section 8 for occupational exposure limits and risk management measures. Refer to Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticides got inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

7.2. Conditions for safe storage, including any incompatibilities

Store pesticide in a cool dry area that is inaccessible to children. Store in original containers only. Keep container closed when not in use.

7.3. Specific end use(s)

Wastes resulting from the use of this product maybe be disposed of on site or at an approved waste disposal facility.
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OSHA Permissible Exposure Limits (PELs): Not determined

ACGIH Threshold Limit Values: Not determined

Other Exposure Limits: Not determined

8.2. Exposure controls

Engineering Controls: Use in well ventilated area

Personal Protective Equipment

Eye/Face Protection: None specified

Skin Protection: Long sleeved shirt and long pants

Hand Protection: Waterproof gloves

Body Protection: Shoes plus socks

Respiratory Protection: Mixer loaders and applicators must wear a dust/mist respirator meeting NIOSH standards of at least N-95, R-95, or P-95.

Thermal Hazards: None

General Hygiene Considerations: Repeated exposure to high concentrates of microbial proteins can cause allergic sensitization. Wash clothing and PPE using manufacturer’s instructions immediately after use and before reuse.

Environmental exposure controls: Do not apply directly to water or to areas where surface water is present or intertidal areas below high water mark. Do not contaminate water when disposing of equipment wash water or rinsate. Do not apply when weather conditions favor drift or run off from treated areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance: Tan liquid

Odour: Yeast like

Odour Threshold: Not determined

pH: 4.0-5.0

Melting Point / Freezing Point: 32° F (0°C)

Initial Boiling Point: 212° F (100°C)

Boiling Range: Not available

Flash Point: Not available

Evaporation Rate: Not available

Flammability (solid, gas): Not available
Safety Data Sheet (SDS)

Product Name: Double Nickel ®LC
Date of Compilation: January 19, 2015

Lower & Upper Flammability Limits:
Vapour Pressure: Not available
Vapour Density: Not available
Density: 8.5-8.6 lb./gallon
Solubility: Not available
Partition Coefficient (n-octanol/water): Not available
Auto-ignition Temperature: Not available
Decomposition Temperature: Not available
Viscosity: 4.0-16 cP
Explosive Properties: None known
Oxidising Properties: None known

9.2. Other information
Not available.

SECTION 10: Stability and reactivity

10.1. Reactivity Stable
10.2. Chemical stability Stable
10.3. Possibility of hazardous reactions None known
10.4. Conditions to avoid None known
10.5. Incompatible materials None known
10.6. Hazardous decomposition products None known

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute Toxicity

Toxicological information on the substance or mixture:

\( \text{LD}_{50} \text{ (oral)} \) \( > 5000 \text{ mg/kg body weight rat, test results based on similar product containing the same active ingredient.} \)

\( \text{LD}_{50} \text{ (dermal)} \) \( > 5050 \text{ mg/kg body weight rat, test results based on similar product containing the same active ingredient.} \)

\( \text{LC}_{50} \text{ (inhalation)} \) \( > 2.18 \text{ mg/L, test results based on similar product containing the same active ingredient} \)
Skin corrosion / irritation: Non-irritating, Toxicity Category IV
Eye irritation: No positive effects exhibited in any eyes after treatment Practically non-irritating, Toxicity Category IV
Respiratory or skin sensitization: No data available.

Other information on adverse health effects:

Carcinogenicity
NTP Listed: Not applicable.
IARC Listed: Not applicable.
OSHA: Not applicable.

11.2 Reference to other sections
See Section 4 for symptoms and acute and delayed effects.

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Test species</th>
<th>Test method</th>
<th>Test substance</th>
<th>LC_{50}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Bobwhite</td>
<td>Acute oral</td>
<td><em>B. amyloliquefaciens</em> strain D747</td>
<td>LD_{50} &gt; 2250 mg/kg body weight</td>
</tr>
<tr>
<td>Oncorhynchus mykiss</td>
<td>30 days</td>
<td><em>B. amyloliquefaciens</em> strain D747</td>
<td>LC_{50} &gt; 8.1 x 10^{10} CFU/L</td>
</tr>
<tr>
<td>Daphnia magna</td>
<td>21 days</td>
<td><em>B. amyloliquefaciens</em> strain D747</td>
<td>EC_{50} &gt; 2.3 x 10^{10} CFU/L</td>
</tr>
<tr>
<td>Apis mellifera</td>
<td>48 hour</td>
<td><em>B. amyloliquefaciens</em> strain D747</td>
<td>LC_{50} &gt; 1.0 x 10^{9} CFU/mL</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
The active substance *B. amyloliquefaciens* D747 populations spreading to the environment during or after field application will rapidly decline to naturally occurring background levels.

12.3. Bioaccumulative potential
The active substance *B. amyloliquefaciens* D747 does not multiply and accumulate in animals and humans.

12.4. Mobility in soil
The active substance *B. amyloliquefaciens* D747 spores readily adsorb to the clay fractions in soils and show no evidence of leaching. Therefore the risk of ground water contamination is considered negligible.

12.5. Other adverse effects
No data available
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal Instructions: Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Non-refillable container. Do not reuse or refill this container.

- For containers equal to or less than 5 gallons
  Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

- For containers greater than 5 gallons
  Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

SECTION 14: Transportation information

14.1. UN number
Not regulated.

14.2. UN proper shipping name
Not regulated.

14.3. Transport hazard class(es)
Not regulated.

14.4. Packing group
Not regulated.

14.5. Environmental hazards
Not regulated.

14.6. Special precautions for user
Not regulated.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not regulated.
SECTION 15: Regulatory information

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

EPA: This product is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticidal chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION, KEEP OUT OF REACH OF CHILDREN

Prolonged or frequently repeated skin contact may cause allergic reactions in some individual.

Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

OSHA: N/A
TSCA Status: Exempt
CERCLA Reportable Quantity: N/A
SARA Title III:
Section 302: N/A
Section 311/312: N/A
Section 313: N/A
RCRA Status: N/A

SECTION 16: Other information

Disclaimer:
To the best of our knowledge, the information contained herein is accurate. However, neither Certis USA nor any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

SDS Authoring Information:

Revision date: March 23, 2015
Date of Previous version: April 5, 2012
SDS Prepared by: Certis U.S.A. L.L.C.