

# Double Nickel® 55

## 1. Identification

Product identifier:	Double Nickel® 55
Synonym:	<i>Bacillus amyloliquefaciens</i> subspecies <i>plantarum</i> D747 (active ingredient)
Company product code or Supplier code:	N/A
Fungicide Code:	BM 02
RSA Reg. No. (Act No. 36 of 1947):	L10053
Supplier:	Andermatt Madumbi (Pty) Ltd Unit 19, Midway Square, 1 Prospect Place, Howick, KwaZulu-Natal 3245, South Africa Telephone: +27 (0) 33 342 3984 (09:00 to 16:00) Email address (technical): support@andermatt.co.za
Recommended use:	Biological fungicide
Restrictions on use:	Do not use for any other purpose than described on the product label
Emergency numbers:	<b>+24 Hr Transport / Spill emergency no:</b> (Hazcall24) +27 86 044 4411 Griffon Poison Information Centre +27 82 446 8946 <b>Poisoning Emergency telephone numbers:</b> Griffon Poison Information Centre +27 82 446 8946 Poisons Information Centre +27 861 555 777

## 2. Hazards identification

Double Nickel® 55 is a solid (granular) mixture.

Classification:	Serious eye damage/eye irritation: Category 2
Signal word:	<b>WARNING</b>
Hazard statements:	CAUSES SERIOUS EYE IRRITATION H319
Additional hazard information:	Warning: Contains <i>Bacillus amyloliquefaciens</i> (Gram-positive bacteria). Microorganisms may have the potential to provoke sensitising reactions.



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Precautionary statements:

Wear protective gloves/protective clothing/eye protection.	P280
In case of inadequate ventilation, wear respiratory protection.	P284
Do not eat, drink, or smoke when using this product.	P270
Wash hands and face thoroughly after handling. Do not touch eyes.	P264+P265
Avoid breathing dust, mist or spray.	P261
IF IN THE EYES: Rinse cautiously with water for several minutes.	P305+P351
Remove contact lenses, if present and easy to do. Continue rinsing.	P338
If eye irritation persists: Get medical help.	P337+P317
IF ON SKIN: Wash with plenty of water.	P302+P352
If skin irritation or rash occurs: Get medical help.	P332+P317
Take off contaminated clothing and wash it before reuse.	P362+P364
Contaminated work clothing should not be allowed out of the workplace.	P272
Dispose of the product in a responsible manner.	P501

### 3. Composition/information on ingredients

Ingredient	CAS number	%
<i>Bacillus amyloliquefaciens</i> subsp. <i>plantarum</i> D747	68038-60-8	25 ( $> 1 \times 10^{12}$ CFU/100 g)
Solid formulants	Confidential	75

### 4. First aid measures

Eye contact:	<p>Most important acute symptoms/effects: eye irritation, redness, and excessive tears.</p> <p>IF IN THE EYES: Rinse cautiously with water for several minutes.  Remove contact lenses, if present and easy to do.  Continue rinsing.  If eye irritation persists, get medical help.</p>
Skin contact:	<p>Most important acute symptoms/effects: skin irritation, redness may occur.</p> <p>IF ON SKIN: Wash with plenty of water.  Take off contaminated clothing and wash it before reuse.  If skin irritation occurs, get medical help.</p>
Inhalation:	<p>Most important acute symptoms/effects: irritation of the upper airway, coughing may occur.</p> <p>IF INHALED: Remove person to fresh air and keep comfortable for breathing.  Get medical help if the casualty feels unwell.</p>
Ingestion:	<p>Most important acute symptoms/effects: no symptoms or effects are known.</p>

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IF SWALLOWED:	Rinse cautiously with water for several minutes. Get medical help.
Most important delayed symptoms/effects after exposure:	Microorganisms may have the potential to provoke sensitising reactions, especially if there is prolonged or frequently repeated skin contact.
Indication of immediate medical attention:	If skin irritation or rash occurs, or if eye irritation persists, or if a burning sensation in the upper airways persists, get medical help. Treat symptomatically. In case of ingestion of large amounts, an activated charcoal suspension (50 g in 400 ml water) should be promptly administered. Pre-existing conditions may be aggravated, such as eye, skin or respiratory disorders.
Protection of first responders:	Avoid undue contact with the mixture. Wear gloves and a mask to prevent transmission of pathogens.

## 5. Firefighting measures

Appropriate/suitable extinguishing media:	Water spray, foam, carbon dioxide (CO <sub>2</sub> ) or dry powder may be used but select extinguishing media that is appropriate for local circumstances and the surroundings.
Inappropriate extinguishing media:	None known.
Nature of hazardous combustion products:	None expected.
Other hazards arising from the mixture:	None known when properly stored and handled. There is no direct explosion hazard, no sensitivity to mechanical impact or to static discharge for this mixture.
Special protective equipment:	Avoid breathing vapours and combustion by-products that may be emitted from other sources. Use self-contained breathing apparatus and complete protective clothing. Do not attempt to act without suitable protective equipment.
Precautions and/or protective actions:	Move containers from the fire area if it can be done without risk. Avoid contact with oxidising agents. Use water spray to cool down closed containers, but only after considering other material in the vicinity that may pose a hazard. Stay upwind and keep out of low areas. Take precautions to prevent extinguishing media contaminating surface water or ground water.

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## 6. Accidental release measures

Distinguish between large or small spills or releases.

Personal precautions:	Avoid contact with skin and eyes. Avoid creation and inhalation of dust. Wash hands thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke during clean-up operations.
Protective equipment:	Wear protective gloves/protective clothing/eye protection.
Emergency actions and procedures:	No special emergency actions or procedures are required.
Environmental precautions:	The product is for terrestrial use only. Do not apply directly to areas where surface water is present, or to intertidal areas below the high-water mark. Do not contaminate surface or ground water when disposing of rinsate or water used to wash equipment. Avoid release of spills to the environment. Prevent spills from entering storm sewers or drains. Report release to the appropriate authorities.
Methods and materials for containment and cleaning up:	Move intact containers from the spill area. The product is a water dispersible solid.  <u>Small spills:</u> Sweep up without creating dust clouds and place in an appropriate waste disposal container.  <u>Large spills:</u> Ensure adequate ventilation. Sweep up without creating dust clouds and transfer to containers for disposal. Wash the spill area with water and strong detergent, then flush with water if appropriate.  Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

Precautions for safe handling:	Wear protective gloves/protective clothing/eye protection, such as nitrile rubber gloves, safety glasses, and long-sleeved clothing. Do not eat, drink, or smoke when using this product. Do not touch eyes. Wash hands and face thoroughly after handling.
Conditions for safe storage:	Store locked in the original container below 20 °C if possible. Don't store at higher temperatures for more than 18 months. Store in a dry area out of direct sunlight. Keep containers closed. Store separately from any food, feed, or drinks. Keep out of reach of children and uninformed persons.
Any incompatibilities:	The product is pH sensitive. Ensure that the pH of the water in a mixing vessel is between 5 and 8 before adding the product.



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## 8. Exposure controls/personal protection

No occupational exposure limit values have been established for this mixture.

No biological limit values are available for this mixture.

Appropriate engineering controls include good general ventilation. No other control parameters are considered necessary. Safety showers and eye wash stations should be provided.

Microorganisms may have the potential to provoke sensitising reactions. The product should not be used by subjects affected by immunodeficiency or in treatment with immunosuppressive agents.

Microbial pest control products may cause irritation if inhaled and may cause skin and eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. These reactions can be avoided if exposure is minimized or limited by following label recommendation and precautions.

Users must wear a long-sleeved shirt, long pants, shoes plus socks, water-proof gloves, eye goggles and a dust/mist filtering respirator when handling these mixtures.



## 9. Physical and chemical properties

Physical state	Solid (small granules)
Clarity:	Nor applicable
Colour:	Pale brown
Odour:	Yeast-like
Odour threshold:	Not known
Melting point/freezing point:	Range (it is a mixture)
Boiling point (or initial point and range):	No data available
Flammability (gases, liquids, solids):	Non-flammable
Lower and upper explosion limits:	Not explosive
Lower and upper flammability limits:	Not flammable and not combustible
Flash point:	No data available
Autoignition temperature:	392 °C, at atmospheric pressure
Decomposition temperature:	No data available
pH, neat:	Not applicable
pH, aqueous dilution	8.6 (dilution % not known) or 6.6 at 25 °C (1%)
Dissociation in water, pKa:	Data not available

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Kinematic viscosity (of liquids) in mm <sup>2</sup> /s:	Not applicable
Solubility in water:	Disperses in water
Solubility in a specified non-polar solvent:	Not miscible with non-polar solvents
Partition coefficient (n-octanol/water):	Not applicable
Vapour pressure (at 25 °):	Not applicable
Density and/or relative density:	No reliable data available
Relative vapour density:	Not applicable
Particle characteristics:	Not available
Evaporation rate:	Not applicable

## 10. Stability and reactivity

Chemical stability:	The mixture is chemically stable and not reactive when handled or stored at ambient temperatures and below.
Safety significance of any change in physical appearance:	The mixture is not expected to change in physical appearance over time.
Possibility of hazardous reactions:	No known hazardous reactions and no polymerisation.
Conditions to avoid:	None known. Pressure, shock, static discharge, and vibrations have no known effect.
Incompatible materials:	No known incompatibilities,
Hazardous decomposition products:	The mixture is not expected to produce hazardous decomposition products when used and stored properly. No dangerous decomposition products are expected to form above 250 °C.

## 11. Toxicological information

The following information is available for the end-use product:

Acute toxicity – oral	LD <sub>50</sub> (rat) > 5 000 mg (> 2.5 10 <sup>11</sup> CFU)/kg body weight
– dermal	LD <sub>50</sub> (rat) > 5 050 mg (> 2.53 10 <sup>11</sup> CFU)/kg body weight
– inhalation	LC <sub>50</sub> (rat) > 2.18 mg (> 1.1 x 10 <sup>8</sup> CFU)/kg body weight (maximum attainable concentration) – no adverse effect
Skin corrosion/irritation	Rabbit: 500 mg (2.5 x 10 <sup>10</sup> CFU)/animal – no adverse effect
Serious eye damage/irritation	Rabbit: 88.3 mg (4.42 x 10 <sup>9</sup> CFU)/eye – irritation
Respiratory/skin sensitization	No animal data available. Microorganisms may have the potential to provoke sensitising reactions
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available

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STOT-repeated exposure      No data available  
 Aspiration hazard              No data available

Symptoms related to the physical, chemical, and toxicological characteristics of the mixture include possible irritation and redness upon skin contact. Eye contact causes irritation, redness, and excessive tearing (epiphora).

Effects of exposure: Apart from irritation, no data on immediate, delayed, or chronic effects from short- or long-term exposure is available. Prolonged or frequently repeated skin contact may cause allergic reactions.

## 12. Ecological information

The following information is available for *Bacillus amyloliquefaciens* D747 (chronic toxicity) and the end-use product (acute toxicity):

Chronic aquatic hazard, fish	Rainbow trout, 30-day LC <sub>50</sub>	8.1 x 10 <sup>10</sup> CFU/ℓ NOEC = 1.44 x 10 <sup>10</sup> CFU/ℓ
Chronic aquatic hazard, invertebrates	<i>Daphnia magna</i> , 21-day LC <sub>50</sub>	3.7 x 10 <sup>10</sup> CFU/ℓ NOEC = 2.84 x 10 <sup>8</sup> CFU/ℓ
Acute aquatic hazard, aquatic plants	Algae, 72 h E <sub>b</sub> C <sub>50</sub>	> 2.3 x 10 <sup>10</sup> CFU/ℓ (144 mg/ ℓ)

Acute (short-term) aquatic toxicity:	Not classified based on available data.
Chronic (long-term) aquatic toxicity:	Not classified based on available data.
Toxicity for birds:	No unacceptable risk, based on available data.
Toxicity for earthworms:	No unacceptable risk, based on available data.
Toxicity for terrestrial plants:	No unacceptable risk, based on available data.
Toxicity for honeybees:	No unacceptable risk, based on available data.
Toxicity for soil micro-organisms:	No unacceptable risk, based on available data.
Possible impact on sewage treatment:	No data available.
Degradability:	Rapidly declines to natural background levels.
Persistence and mobility in soil:	Persistence of vegetative cells is very short.
Environmental fate	Rapidly declines to natural background levels.
Bio-accumulative potential:	Will not bio-accumulate, based on the available information.
Ozone depletion potential:	None – does not contain halocarbon molecules.
Photochemical ozone creation potential:	Not expected based on type of ingredients.
Endocrine disrupting potential:	Not expected based on type of ingredients.
Climate change potential:	Not expected based on type of ingredients.
Other adverse effects:	None expected.

There is no ecological concern, as *Bacillus* species are commonly found in nature.

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## 13. Disposal considerations

Avoid release to the aquatic environment. Dispose of waste residues responsibly as low-hazard chemical waste through a licensed waste removal company.

Dispose of the container by rinsing it properly. Do not re-use. Destroy mechanically and dispose of as ordinary waste through a licensed waste removal company.

Refer to the manufacturer or supplier for information on recovery or recycling, for options on reclamation, and on disposal of unused material.

The physical/chemical properties of the product should have no significant effect on disposal procedures.

No special precautions for incineration are required.

There are no special precautions for landfill. The ingredients occur naturally and are of no environmental concern.

There is no other relevant information.

## 14. Transport information

UN number:	Not classified as dangerous in the context of transport regulations.
UN proper shipping name:	Not applicable.
UN packing group number:	Not applicable.
UN transport hazard class(es):	Not applicable.
A known marine pollutant (IMDG Code)?	Not a marine pollutant.
A known severe marine pollutant?	Not a marine pollutant.
Environmentally hazardous, ADR?	Not classified as dangerous in the context of transport regulations.
Environmentally hazardous, RID?	Not classified as dangerous in the context of transport regulations.
Environmentally hazardous, ADN?	Not classified as dangerous in the context of transport regulations.
Transport in bulk by sea, IMO?	Not classified as dangerous in the context of transport regulations.
There are no special precautions which a user needs to be aware of or needs to comply with.	

## 15. Regulatory information

Relevant safety regulations:	Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
Relevant health regulations:	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).
Relevant environmental regulations:	The National Environmental Management Act, 107 of 1998 (NEMA). Guidelines on the administration of incidents, as described in section 30 of the NEMA, Department of Environmental Affairs (2019).
Subject to the Montreal Protocol?	No.



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Subject to the Stockholm Convention? No.  
Subject to the Rotterdam Convention? No.  
Subject to any prohibitions? No.  
Subject to any restrictions? No.

## 16. Other information

SDS identification or reference number: 002

Date of the previous revision of this SDS: 12 July 2022

Previous revision number: 1

There is no additional information relevant to the material's nature or use, or any other relevant information.

Abbreviations that may have been used in this document:

AND means European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADR means Agreement Concerning the International Carriage of Dangerous Goods by Road.  
bw mean body weight.

CAS means Chemical Abstract Service.

Cat. means Category.

CFU means colony forming units.

GHS means Globally Harmonised System of Classification and Labelling of Chemicals.

IMDG Code means International Maritime Dangerous Goods Code.

IMO means International Maritime Organisation.

IRAC MoA means Insecticide Resistance Action Committee Mode of Action (Classification Scheme).

NEMA means National Environmental Management Act.

NOEC means no observed effect concentration.

OB means occlusion body.

RID means Regulations Concerning the International Carriage of Dangerous Goods by Rail.

SDS means safety data sheet.

STOT means specific target organ toxicity.

UN means United Nations.

This safety data sheet was compiled in compliance with the following regulations and guidelines:

- Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
- The globally harmonised system of classification and labelling of chemicals (GHS), 9th Revised Edition, United Nations (2021).
- Globally harmonised system of classification and labelling of chemicals (GHS), SANS 10234:2019, Ed. 2.00 (2019).

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