# Safety Data Sheet according to OSHA-GHS (29 CFR part 1910.1200 HCS 2012)

**PRODUCT NAME** **DIAMOND R 5-11-26 HYDROPONIC VEGETABLE PLUS**

Product Code: NL.2051126DR_112_01_US

Date of issue: August 2013 Supersedes: -

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product identifier** Diamond R 5-11-26 Hydroponic Vegetable Plus

**Recommended uses:**

Fertilizer end-use, preparation of fertilizers mixtures.

Dry fertilizer for mixing with water for foliar and soil applications.

**Restrictions on uses:**

None

**Manufacturer** SQM North America
2727 Paces Ferry Rd, Building Two, Suite 1425
Atlanta, GA 30339

**Company Telephone/Fax** (770) 916 9400 / (770) 916 9404

**Emergency Telephone Number** (800) 424 9300 (CHEMTREC)

## 2. HAZARDS IDENTIFICATION

**Classification of the mixture**

Classification of the chemical in accordance with 29CFR §1910.1200

| Hazard classes and Hazard categories | Hazard statements |
|---|---|
| Toxic to reproduction cat. 1B | May damage fertility. May damage the unborn child. |

**Label elements**

**Hazard pictograms**

**Signal word** DANGER

**Hazard Statements** May damage fertility. May damage the unborn child.

**Precautionary Statements**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Wear protective gloves / protective clothing / eye protection.

IF exposed or concerned: Get medical advice/attention.

Store locked up

Dispose of contents/container according to local/state/federal regulations.

**Other hazards**

None

**Classification of the relevant ingredients of the mixture in accordance with 29CFR §1910.1200**

| | |
|---|---|
| Potassium nitrate | Oxidizing solid, Cat. 3 |
| Boric acid | Toxic to reproduction, Cat. 1B |

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is to be considered as a mixture/preparation

| Substance name | CAS No | EC No | Concentration |
|---|---|---|---|
| Potassium nitrate | 7757-79-1 | 231-818-8 | 5% - 50% |
| Boric acid | 10043-35-3 | 233-139-2 | < 3% |
| Perchlorate ($ClO_4^-$) | | | < 0.01% |
| Iodate ($IO_3^-$) | | | < 50 ppm |

## 4. FIRST AID MEASURES

**Description of first aid measures**

**General information**

In case of persisting adverse effects consult a physician.

Never give anything by mouth to an unconscious person or a person with cramps.

**In case of inhalation**
Remove to fresh air and keep at rest in a position comfortable for breathing.
Get medical attention for any breathing difficulty.
**In case of skin contact**
Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
**In case of eye contact**
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
**In case of ingestion**
Rinse mouth and drink plenty of water. Do not induce vomiting.
Call a POISON CENTER or doctor/physician if you feel unwell.
**Most important symptoms and effects, both acute and delayed**
The following symptoms may occur:

| | |
|---|---|
| In case of inhalation | Irritation to respiratory tract |
| | Delayed lung effects after short term exposure to thermal degradation products. |
| In case of skin contact | May cause redness or irritation |
| In case of eye contact | May cause redness or irritation |
| In case of ingestion | Ingestion of large amounts may cause: gastrointestinal disturbances |

**Indication of any immediate medical attention and special treatment needed**
Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

**Extinguishing media**

| | |
|---|---|
| Suitable extinguishing media: | Use any suitable mean for extinguishing surrounding fire. |
| Unsuitable material: | None, but attention should be paid to compatibility with chemicals surrounding. |

**Specific hazards arising from the chemical**
Thermal decomposition can lead to the escape of toxic/corrosive gases and vapours.
Thermal decomposition products: Nitrous oxides (NOx), nitrites, phosphorus oxides, ammonia and metallic oxides.
**Protective equipment and precautions for firefighters**
Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (self contained breathing apparatus (SCBA)).

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Provide adequate ventilation. Wear personal protection equipment (Section 8).
**Environmental precautions**
Do not allow to enter into surface water or drains. Ensure waste is collected and contained.
**Methods and material for containment and cleaning up**
Take up mechanically, placing in appropriate containers for disposal or recovery.
Unsuitable material for containment/taking up: None specified
**Other information**
None

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling**
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid generation of dust. Provide adequate ventilation. Wear personal protective equipment. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

**Conditions for safe storage, including any incompatibilities**

Keep/store only in original container. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Guidelines**

**Occupational exposure limits**

| | | Potassium nitrate | Boric acid |
|---|---|---|---|
| OSHA | PEL | Not Established | Not Established |
| | STEL/ceiling | Not Established | Not Established |
| ACGIH (2012 TLVs® and BEIs®) | | | |
| | TWA | Not Established | 2 mg/m$^3$ (inhal. fraction) |
| | STEL/ceiling | Not Established | 6 mg/m$^3$ (inhal. fraction) |

**Derived No-Effect Level (DNEL) suggested by the manufacturer**

| | |
|---|---|
| Workers (industrial/professional): | |
| Potassium nitrate | |
| DNEL Human, dermal, long term (repeated): | 20.8 mg/kg/day (systemic) |
| DNEL Human, inhalation, long term (repeated): | 36.7 mg/m$^3$ (systemic) |
| Boric acid | |
| DNEL Human, dermal, long term (repeated): | 4800 mg B/day (systemic) |

Derived No-Effect Level (DNEL) is the level of exposure to the substance above which humans should not be exposed.

**Engineering controls**

Use exhaust ventilation to keep airborne concentrations below exposure limits.

**Personal Protective Equipment**

| | |
|---|---|
| Eye/face protection | Chemical goggles required all the time. |
| Skin Protection | Nitrile rubber gloves, over 0.11 mm thickness, > 480 min breakthrough time, recommended. Overall. |
| Respiratory Protection | Wear respiratory protection, where airborne concentrations are expected to exceed exposure limits |

**General Hygiene Considerations**

Avoid contact with eyes and skin. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | |
|---|---|
| Appearance | Solid, granular or crystalline powder |
| Colour | white to pale blue |
| Odour | Odourless |
| Odour Threshold | No applicable |
| pH value | No data available |
| Melting point / freezing range | No data available |
| Boiling temperature / boiling range | Not applicable |
| Flash point | Not applicable |
| Vapourisation rate / Evaporation rate | No data available |
| Flammable solids | Not flammable |
| Explosion limits (LEL, UEL) | Not applicable |
| Vapour pressure | No data available |
| Vapour density | No data available |

| | |
|---|---|
| Relative Density | No data available |
| Solubility | > 100 g/L at 20°C/68°F (water) |
| Partition coefficient n-octanol /water | Not applicable |
| Auto Ignition temperature (AIT) | Not applicable |
| Decomposition temperature | No data available |
| Viscosity | Not applicable |
| Explosive properties | Not explosive |
| Oxidising properties | Not oxidizer |

**Other information**

None

## 10. STABILITY AND REACTIVITY

**Reactivity**

No hazardous reaction when handled and stored according to provisions.

**Chemical stability**

Stable under normal storage and temperature conditions.

**Possibility of hazardous reactions**

None identified

**Conditions to avoid**

None identified

**Incompatible materials**

None identified

**Hazardous decomposition products**

Thermal decomposition products: Nitrous oxides (NOx), nitrites, phosphorus oxides, ammonia and metallic oxides.

## 11. TOXICOLOGICAL INFORMATION

The following information mostly refers to the major component of the product.

**Likely routes of exposure (inhalation, ingestion, skin and eye contact)**

Eye contact, skin contact and inhalation. Exposure by ingestion is not expected to occur through normal industrial or agricultural use.

**Symptoms related to the physical, chemical and toxicological characteristics**

May be irritant to the respiratory tract. May cause redness or irritation to the skin and eyes. Ingestion of large amounts may cause gastrointestinal disturbances. May cause delayed lung effects after short term exposure to thermal degradation products.

**Information on toxicological effects from short and long term exposure**

There is no data for the mixture itself.

**Acute toxicity**

| | | |
|---|---|---|
| Acute oral toxicity | LD50: | |
| Acute Toxicity Estimate for the mixture | > 2000 mg/kg bw | (additivity formula) |
| Potassium nitrate | >2000 mg/kg bw | |
| Boric acid | 3765 mg/kg bw | |
| Assessment / classification: | Based on available data for the ingredients of the mixture, the classification criteria are not met. | |

**Irritant and corrosive effects**

| Irritation to the skin | Result | Method |
|---|---|---|
| Potassium nitrate | non-irritant. | Equivalent/similar to OECD guideline 404 |
| Boric acid | non-irritant. | Equivalent/similar to OECD guideline 404 |
| Assessment / classification: | Based on available data, the classification criteria are not met | |
| Irritation to eyes | Result | Method |
| Potassium nitrate | Not-irritating | OECD Guideline 405 |
| Boric acid | Not-irritating | Equivalent/similar to OECD guideline 405 |
| Assessment / classification: | Based on available data, the classification criteria are not met | |

**Respiratory or skin sensitisation**

| Skin sensitization | Result | Method |
|---|---|---|
| Potassium nitrate | not sensitizing. | OECD Guideline 429 |
| Boric acid | not sensitizing. | OECD Guideline 406 |

Respiratory sensitisation: No information available.

Assessment / classification: Based on available data, the classification criteria are not met

**Genetic effects**

The product does not contain ingredients classified as germ cell mutagens.

| | Bacterial (Ames Test) | Chromosomal aberrations | Mutation in mammalian cells |
|---|---|---|---|
| Potassium nitrate | negative | negative | negative |
| Boric acid | negative | negative | negative |

Assessment / classification: Based on available data, the classification criteria are not met

**Reproductive toxicity**

Adverse effects on sexual function and fertility/developmental toxicity

| | | |
|---|---|---|
| | | OECD guideline 422. |
| Potassium nitrate | | No adverse effects on fertility/development (NOAEL >1500 mg/kg bw). |
| Boric acid | fertility | NOAEL (male rats): 17.5 mg B/kg bw/day (Multigeneration study)<br>Boron has been shown to adversely affect male reproduction in laboratory animals, however, male reproductive effects attributable to boron have not been demonstrated in studies of highly exposed workers. |
| | developmental toxicity | Benchmark dose (BMDL05): 10.3 mg B/kg bw/day<br>Developmental effects have been observed in laboratory animals. The critical effect is considered to be decreased fetal body weight in rats. There is no evidence of developmental effects in humans attributable to boron in studies of populations with high exposures to boron. |

Assessment / classification: Based on available data for ingredients of the mixture, this product is classified and labelled as **Presumed human reproductive toxicant**, **Category 1B**, in accordance with Appendix A to 29CFR section 1910.1200.

**Specific target organ toxicity (single exposure)**

The product does not contain relevant ingredients classified as Target Organ Toxicant after single exposure.

| | Practical experience / human evidence |
|---|---|
| Potassium nitrate | No relevant effect have been observed after single exposure to potassium nitrate. |
| Boric acid | No relevant effect have been observed after single exposure to the substance. No reliable study supports the designation of boric acid as a respiratory irritant. |

Assessment / classification: Based on available data, the classification criteria are not met

**Specific target organ toxicity (repeated exposure)**

| | Organs affected: | Effects | Guideline |
|---|---|---|---|
| Potassium nitrate | None | No effects (NOAEL >1500 mg/kg bw) | OECD 422 |
| Boric acid | Testes | NOAEL (chronic, rat): 17.5 mg B/kg bw/day | |

A number of studies on boric acid or disodium tetraborate decahydrate in diet or via drinking water for periods of 30 days to two years in rats, mice and dogs are available. Most studies support that boron can cause adverse haematological effects and that the main target organ of boron toxicity is the testis.

Assessment / classification: Based on available data for ingredients of the mixture, this product is classified and labelled as **Presumed human reproductive toxicant**, **Category 1B**, in accordance with Appendix A to 29CFR section 1910.1200.

**Aspiration hazard**

Physicochemical data and toxicological information does not indicate an aspiration hazard.

Assessment / classification: Based on available data, the classification criteria are not met

**Carcinogenicity**

| | |
|---|---|
| International Agency for Research on Cancer (IARC) | No component of this product present at levels ≥0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| National Toxicology Program (NTP) | No component of this product present at levels ≥0.1% is identified as known or anticipated carcinogen by NTP. |
| 29 CFR part 1910, subpart Z | No component of this product present at levels ≥0.1% is identified as carcinogen or potencial carcinogen by OSHA. |
| California Proposition 65 | No component of this product present at levels ≥0.1% is identified as carcinogen by California Prop.65. |
| WHO (2003) Nitrate in drinking water | No association between nitrate exposure in humans and the risk of cancer |
| Assessment / classification: | Based on available data, the classification criteria is not met |

**Other Toxicological Information**

This product contains trace amounts of naturally-occurring perchlorate and iodate. Like other goitrogenic substances, perchlorate may affect iodine uptake by thyroid under specific conditions.

## 12. ECOLOGICAL INFORMATION

There is no data for the mixture itself. The following information mostly refers to the major component of the product.

**Ecotoxicity**

**Aquatic Toxicity**

Potassium nitrate

| | | |
|---|---|---|
| 96-h LC50 | 1378 mg/L | *Poecilia reticulata* (freshwater fish) |
| 24-h EC50 | 490 mg/L | *Daphnia magna* (fresh water flea). |
| 10 d EC50 | > 1700 mg/L | Several algae species |

Boric acid

| | | |
|---|---|---|
| 96-h LC50 | 74 - 725 mg B/L | Fish |
| 48-h EC50 | 45 - 1376 mg B/L | Aquatic invertebrates |
| 72-h EC50 | 40 mg B/L | Algae (*Pseudokirchneriella subcapitata* ) |

Assessment / classification Based on available data, the classification criteria are not met

**Persistence and degradability**

The product contains mainly inorganic nitrate and phosphate salts. In aqueous solutions, these salts dissociate into their respective ions. Phosphate ions are finally incorporated into the Phosphorus cycle. Under anoxic conditions, denitrification occurs and nitrate is ultimately converted into molecular nitrogen as part of the Nitrogen cycle.

**Bioaccumulative potential**

Low potential for bioaccumulation based on physicochemical properties of main components.

**Mobility in soil**

The components of this mixture have a low potential for adsorption. Portion not taken up by plants, can leach to groundwater.

**Other adverse effects**

Excess nitrate leaching may enrich waters leading to eutrophication.

## 13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable federal and state laws.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal method in compliance with applicable regulations.

This product is not listed as dangerous waste in the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

## 14. TRANSPORTATION INFORMATION

**US DOT (49CFR part 172)**

| | |
|---|---|
| UN-No. | Non dangerous good |
| UN Proper Shipping Name | Not applicable |
| Hazard class | Not applicable |
| Packing group | Not applicable |
| Hazard label(s) | Not applicable |
| Special marking | No |
| Special Provision | No |

**International Maritime Organization (IMDG Code)**

| | |
|---|---|
| UN-No. | Non dangerous good |
| UN Proper Shipping Name | Not applicable |
| Hazard class | Not applicable |
| Packing group | Not applicable |
| Marine pollutant | No |
| Hazard label(s) | Not applicable |
| Special marking | No |

**International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA)**

| | |
|---|---|
| UN-No. | Non dangerous good |
| UN Proper Shipping Name | Not applicable |
| Hazard class | Not applicable |
| Packing group | Not applicable |
| Hazard label | Not applicable |
| Special marking | No |

**Special handling procedure**

None

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

Not applicable

**Other special precautions**

None

## 15. REGULATORY INFORMATION

**US Federal**

SARA Title III Rules

Section 311/312 Hazard Classes

| | |
|---|---|
| Acute Health Hazard | No |
| Chronic Health Hazard | Yes (Toxic to reproduction) |
| Fire Hazard | No |
| Release of Pressure | No |
| Reactive Hazard | No |

Section 313 Toxic Chemicals

N511 Nitrate compounds (water dissociable; reportable only when in aqueous solution)

Section 302 Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

None ingredient is listed.

NFPA 704/2012: National Fire Protection Association

| | |
|---|---|
| Health | 1 |
| Fire | 0 |
| Reactivity | 0 |
| Special | None |

**US State Regulations**

| | |
|---|---|
| California Proposition 65 | None ingredient is listed. |
| California Code of Regulations Title 22 (Health & Safety Code), Chapter 33 | See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/ |

**Chemical Inventories**

| | |
|---|---|
| United States TSCA | All ingredients are listed |
| Canada DSL | All ingredients are listed |
| European Union (EINECS) | All ingredients are listed |
| Japan (METI) | All ingredients are listed |

## 16. OTHER INFORMATION

This SDS complies with 29 CFR part 1910 subpart Z (2012) and ANSI Standard Z400.1-2004

| | |
|---|---|
| **Prepared by** | Regulatory Affairs Department, SQM |
| **E-mail** | product_safety@sqm.com<br>spn-northamerica@sqm.com |
| **Preparation date** | August 2013 |

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**Indication of changes**

New