MATERIAL SAFETY DATA SHEET

Trade Name: **Dr.G's Magnesium**
Date Revised: **February 7, 2011**

CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product description: **Magnesium sulfate, heptahydrate + Magnesium Chloride & Water**
Manufacturer:
Dr.G's Marine Aquaculture
3160 SW 189th Terrace
Miramar, Florida, 33029
USA
Telephone: **+1-305-490-5444**
In case of emergency call: **+1-305-490-5444**

Dr.G's Magnesium is a proprietary solution of Magnesium Sulfate, Magnesium Chloride, RO/DI Water and minor traces of minerals and essential elements.

Below are the MSDS for the major elements: Magnesium Sulfate & Magnesium Chloride.

MAGNESIUM SULFATE

1. Product Identification

Synonyms: Magnesium sulfate (1:1) heptahydrate; Epsom salts; sulfuric acid, magnesium salt (1:1), heptahydrate; Magnesium sulfate, 7- hydrate
CAS No.: 7487-88-9 (Anhydrous) 10034-99-8 (heptahydrate)
Molecular Weight: 246.47
Chemical Formula: MgSO4.7H2O
Product Codes:
J.T. Baker: 2500, 2504, 2505
Mallinckrodt: 4200, 5099, 5691, 6046, 6066, 7778

2. COMPOSITION/INFORMATION ON INGREDIENTS – MAGNESIUM SULFATE

Chemical and Common Name CAS Registry
Number Wt. % OSHA PEL ACGIH TLV
Magnesium sulfate, heptahydrate;
Epsom salt 10034-99-8* 100% Not Established Not Established

***** Under the Toxic Substances Control Act (TSCA), hydrates are considered as mixtures of their
anhydrous salt and water. Accordingly, the CAS Numbers 7487-88-9, 7732-18-5 are used for purposes
of TSCA.

3. HAZARDS IDENTIFICATION

Emergency Overview: **White or transparent crystalline odorless powder. Noncombustible. At very high temperatures, magnesium oxide, sulfur dioxide, and sulfur trioxide may be generated. Causes mild eye irritation.**
Eye contact: **Causes mild irritation to the eyes.**
Skin contact: **No known adverse effects.**
Inhalation: **Causes nausea, vomiting, abdominal cramps, and diarrhea.**

Ingestion: **Causes nausea, vomiting, abdominal cramps, and diarrhea.**
Chronic hazards: **No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.**
Physical hazards: **Spilled material can be slippery.**

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4. FIRST AID MEASURES

Eye: **In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation persists.**
Skin: **Not applicable.**
Inhalation: **Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.**
Ingestion: **If large quantities of this material are swallowed, call a physician immediately. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.**

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5. FIRE FIGHTING MEASURES

Flammable limits: **This material is noncombustible.**
Extinguishing Media: **This material is compatible with all extinguishing media.**
Hazards to fire-fighters: **See Section 3 for information on hazards when this material is present in the area of a fire.**
Fire-fighting equipment: **The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, self-contained breathing apparatus.**

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6. ACCIDENTAL RELEASE MEASURES

Personal protection: **Wear chemical goggles, See section 8.**
Environmental Hazards: **Sinks and mixes with water. No adverse effects known. Not a listed toxic chemical under SARA Title III, §313 40 CFR Part 372. Not a CERCLA Hazardous Substance under 40 CFR Part 302.**
Small spill cleanup: **Sweep, scoop or vacuum discharged material. Flush residue with water.**

Observe environmental regulations.
Large spill cleanup: **Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Sweep, scoop or vacuum discharged material. Flush residue with water. Observe environmental regulations.**
CERCLA RQ: **There is no CERCLA Reportable Quantity for this material.**

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7. HANDLING AND STORAGE

Handling: **Avoid breathing dust. Promptly clean up pills.**
Storage: **Keep containers closed. Protect from extremes of temperature and humidity during storage. Recommended storage conditions 68-110o F and 54-87% relative humidity.**

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: **Use with adequate ventilation. Safety shower and eyewash fountain should be within direct access.**
Respiratory protection: **Use a NIOSH-approved dust respirator where dust occurs. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134)**
Skin protection: **Wear gloves if abrasion or irritation occurs.**
Eye protection: **Wear chemical goggles.**

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: **Crystalline odorless powder.**
Color: **White or transparent.**
Odor: **Odorless.**
pH: **Approximately 6-7**
Specific gravity: **1.76 g/cm3, Bulk Density Approximately 1.05 g/cm3**
Solubility in water: **71g/100 ml at 20o C, 91g/100 ml at 40o C**

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10. STABILITY AND REACTIVITY

Stability: **This material is stable under all conditions of use and storage.**
Conditions to avoid: **None.**
Materials to avoid: **Metal hydrides and other water reactive materials.**
Hazardous decomposition products: **At very high temperatures, magnesium oxide, sulfur dioxide, and sulfur trioxide may be generated.**

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11. TOXICOLOGICAL INFORMATION

Acute Data: **When tested for primary irritation potential, this material caused mild eye irritation. RTECS reports Oral TDLo= 428 mg/kg in man 351 mg/kg in women**

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12. ECOLOGICAL INFORMATION

Eco toxicity: **Data not available.**
Environmental Fate: **This material is not persistent in aquatic systems and does not contribute to BOD. It does not bioconcentrate up the food chain.**
Physical/Chemical: **Sinks and mixes with water.**

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13. DISPOSAL CONSIDERATIONS

Classification: **Disposed material is not a hazardous waste.**
Disposal Method: **Landfill according to local, state, and federal regulations. Disposed material is not a RCRA Hazardous waste.**

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14. TRANSPORT INFORMATION

DOT UN Status: **This material is not regulated hazardous material for transportation.**

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15. REGULATORY INFORMATION

CERCLA: **No CERCLA Reportable Quantity has been established for this material.**

SARA TITLE III: **Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Hazard Categories under §§311/312: Acute**
TSCA: **All ingredients of this material are listed on the TSCA inventory.**
FDA: **Magnesium sulfate is an FDA GRAS substance pursuant to 21 CFR 184.1443.**

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16. OTHER INFORMATION

THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO PQ CORPORATION THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING.
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End of Magnesium Sulfate Section

MAGNESIUM CHLORIDE

1. Product Identification

Synonyms: Magnesium chloride, hexahydrate; Magnesium chloride, 6-hydrate, crystal
CAS No.: 7786-30-3 (Anhydrous); 7791-18-6 (Hexahydrate)
Molecular Weight: 203.30
Chemical Formula: MgCl2 6H2O

Product Codes:
J.T. Baker: 2444, 2448, 2449, 2450, 4003
Mallinckrodt: 12131, 5910, 5933, 5954, 5956, 5958, 5960, 7550, 7791

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2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Magnesium Chloride	7786-30-3	98 - 100%	Yes

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3. Hazards Identification

Emergency Overview

CAUTION! MAY BE HARMFUL IF SWALLOWED.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES
Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:
Inhalation of dust may cause mild irritation to the mucous membranes.
Ingestion:
Since magnesium salts are slowly absorbed, abdominal pain, vomiting and diarrhea may be the only symptoms. However, if elimination is blocked by bowel blockage or other reasons, CNS depression, lack of reflexes, hypocalcemia (deficiency of calcium in the blood) may occur.
Skin Contact:

No adverse effects expected but may cause minor skin irritation.
Eye Contact:
No adverse effects expected but dust may cause mechanical irritation.
Chronic Exposure:
No information found.
Aggravation of Pre-existing Conditions:
No information found.

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4. First Aid Measures

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:
Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.
Skin Contact:
Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.
Eye Contact:
Wash thoroughly with running water. Get medical advice if irritation develops.

Note to Physician:
IV administration of calcium gluconate will partially reverse the effects of acute magnesium toxicity. Ventricular support with calcium chloride infusion and mannitol forced diuresis has also been successful.

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5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.
Explosion:
Not considered to be an explosion hazard. At room temperature the addition of magnesium chloride to furan-2-peroxycarboxylic acid, will cause the acid to explode.
Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

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7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:
Wear protective gloves and clean body-covering clothing.
Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Colorless flakes or crystals.
Odor:
Odorless.
Solubility:
167g/100ml water @ 20C (68F)
Density:
1.57
pH:
5% in water is neutral to litmus.
% Volatiles by volume @ 21C (70F): 0
Boiling Point:
Not applicable.
Melting Point:
118C (244F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):
No information found.

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. By strong ignition is converted into oxychloride.
Hazardous Decomposition Products:
When heated to decomposition it emits corrosive hydrochloric acid vapor. When heated to temperatures above 300C (572F) it emits toxic fumes of chlorine gas.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Furan-2-peroxycarboxylic acid. Strong oxidizing agents will release chlorine.
Conditions to Avoid:
Heat, moisture, incompatibles.

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11. Toxicological Information

Oral rat LD50: 8100mg/kg. Investigated as a mutagen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Magnesium Chloride (7786-30-3)	No	No	None

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12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

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13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

Not regulated.

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15. Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Magnesium Chloride (7786-30-3)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Magnesium Chloride (7786-30-3)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Magnesium Chloride (7786-30-3)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------

Ingredient	-RCRA- CERCLA	261.33	-TSCA- 8(d)
Magnesium Chloride (7786-30-3)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **0**
Label Hazard Warning:
CAUTION! MAY BE HARMFUL IF SWALLOWED.
Label Precautions:
Keep container closed.
Wash thoroughly after handling.
Label First Aid:
If swallowed, give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.

Product Use:
Laboratory Reagent.
Revision Information:
No Changes.
Disclaimer:
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