

## Section 1 – Chemical Product and Company Identification

MSDS Name: Phenylmagnesium Chloride in Tetrahydrofuran

Chemical Family: Grignard Reagent

Use of the substance: For Research and Production Use

Company: Optima Chemicals Group, LLC  
200 Willacoochee Hwy.  
Douglas, Georgia 31535  
Telephone (912) 384-5101 FAX (912) 384-6330  
Emergencies: Telephone (912) 384-5101

## Section 2 – Hazards Identification

Hazards:

**DANGER!** May form explosive perioxides. Causes burns through all exposure routes. Reacts violently with water. Contact with water liberates extremely flammable gases. Flammable liquid and vapor.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

NFPA Rating: Special Rating W

Precautionary Statements:

Keep from any possible contact with water, due to violent reaction and possible flash fire.

Handle under inert gas, protect from moisture.

Wear chemical splash goggles with a face shield, rubber gloves and rubber clothing.

Keep away from heat/sparks/open flame – No smoking.

Keep Container tightly closed.

Use explosion-proof electrical, ventilation and lighting equipment.

Use only non-sparking tools.

Do not breathe dust or mist.

Wash thoroughly after handling.

Avoid breathing vapors.

Use only in a chemical fume hood.

In case of fire, use dry chemical for extinction. **DO NOT USE WATER** or Carbon Dioxide.

## Section 3 – Composition, Information on Ingredients

<u>CAS #</u>	<u>Chemical Name</u>	<u>Wt.%</u>
100-59-4	Phenylmagnesium Chloride	25
109-99-9	Tetrahydrofuran	75

#### **Section 4 – First Aid Measures**

Eyes: Flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids. Seek medical attention.

Skin: Quickly wipe off as much as possible, then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and/or shoes. Thoroughly wash with soap and water, and seek immediate medical attention.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention and contact Poison Control Center.

Inhalation: Remove from exposure, to fresh air immediately. If breathing discomfort occurs and persists seek medical attention. If not breathing, **DO NOT GIVE MOUTH TO MOUTH RESUSITATION**, give artificial respiration with the aid of a pocket mask equipped with a one way valve, and seek medical attention.

#### **Section 5 – Fire Fighting Measures**

Flammable Limits: Not Available

General Hazard: Flammable liquid. Reacts violently with water to give off flammable fumes and corrosive dust.

Properties contributing to flammability; Water reactivity

Fire Extinguishing Agents Recommended: DO NOT USE WATER OR CARBON DIOXIDE. Use dry chemical.

Hazardous Decomposition Products: Hydrogen Chloride, Chlorine, Carbon Dioxide, Carbon Monoxide, Oxides of Magnesium.

Special Fire fighting Procedures: Wear self-contained breathing apparatus and protective clothing (approved for firefighting) to prevent contact with skin and eyes. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flashback. Will burn and may explode if involved in a fire. Material will react with water and may release a flammable and/or toxic gas.

Autoignition temperature: Not applicable.

Flashpoint: -17°C

Sensitivity to Static Discharge: Not Available

### **Section 6 – Accidental Release Measures**

Remove all sources of ignition. Absorb spill with inert material and place in suitable transport container. DO NOT EXPOSE SPILL TO WATER. DO NOT GET WATER INSIDE OF CONTAINER. Evacuate all unnecessary personnel. Dispose of waste according to local and Federal laws and regulations. Before cleanup measures begin, review the entire MSDS with particular attention to Section 3, and Section 8.

### **Section 7 - Handling and Storage**

Handling: Do not allow to come in contact with water or for water to enter container due to violent reaction. Keep away from heat, sparks, and flame and do not ingest or inhale. Do not get in eyes, on skin or clothing. Only use in chemical fume hood, if peroxide formation is suspected do not move or open container.

Storage: keep away from sources of ignition. Do not store in direct sunlight. Store In a tightly closed container in a dry area. Store under nitrogen and at room temperature. Container should be dated if open and tested for peroxides periodically. If crystals form, peroxidation may have occurred and product should be considered extremely dangerous. The container should only be opened remotely by professionals.

### **Section 8 – Exposure Controls, Personal Protection**

Exposure Limits (tetrahydrofuran): PEL (OSHA) – 200 ppm, TWA (ACGIH) – 200 ppm, STEL/Ceiling (ACGIH) – 100 ppm.

Engineering Controls: Use explosion proof ventilation equipment. Must be equipped with eyewash facility and shower. Use only under chemical fume hood.

Eyes and Face: Wear splash goggles with a face shield.

Skin: Wear rubber gloves and rubber protective clothing.

Respiratory: When engineering controls are not adequate, wear a NIOSH/MSHA respirator approved for protection against organic vapors and mists.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

## Section 9 – Physical and Chemical Properties

Appearance and Odor: Yellow to brown and no odor reported.

Melting Point: Not available

Flammability: Highly water reactive material

Flash Point: -17°C

Boiling Point: 66 ° C (THF)

Vapor Pressure: Not available

Percent Volatile: 70%-86%

Vapor Density: Not available

Specific Gravity: 1.040

Water Solubility: Not available

Evaporation Rate: Not available

Flammable Limits: Not available

Molecular Weight: 136.87

Autoignition Temperature: Not available

Viscosity: Not available

Decomposition Temperature: Not available

Explosive Properties: Not available

Oxidizing Properties: Not available

pH: Not available

## Section 10 – Stability and Reactivity

Stability: May form explosive peroxides, Reacts violently with water and sensitive to light.

Incompatibility: Heat, sparks, open flame, oxygen, water, alcohols, acids and oxidizers, light, ignition sources, dust generation,.

Hazardous Polymerization: Does not polymerize

## Section 11 – Toxicological Information

Ingestion: No data available for the product. THF: LD50 = 1650 mg/kg (rat)

Inhalation: No data available for the product. THF: LC50 = 21,000 ppm, 3 hr. (rat)

Carcinogenicity: Not listed by IARC, OSHA, or EH40. THF is listed as a substance that is reasonably anticipated to be a carcinogen by the NTP. ACGIH lists THF as Category 3, a confirmed animal carcinogen with unknown relevance to humans.

Mutagenicity: No data available for the product. THF: Negative results in bacterial mutagenicity tests with and without metabolic activation.

Reproductive Toxicity: No data available for the product. THF: One animal study suggests that THF does not cause effects at doses which are not maternally toxic.

### **Section 12 – Ecological Information**

Ecotoxicological Information: No Data available

### **Section 13 – Disposal Considerations**

Dispose of in accordance with federal, state, and local regulations.

### **Section 14 – Transport Information**

DOT Shipping: Organometallic substance, liquid, water-reactive, flammable, N.O.S.,(Phenylmagnesium chloride solution in tetrahydrofuran) 4.3 Dangerous when wet (3, flammable liquid), UN3399, PG 1.

Labels: Dangerous when wet, flammable.

Custom Tariff No: 2931.00.9160

Marine Pollutant: No

USA RQ: 109-99-9- 1000lbs or 454 kg

### **Section 15 – Regulatory Information**

United States:

CAS # 100-59-4 and CAS # 109-99-9 are listed on the TSCA inventory

Canada:

Product Identification No.: 3399

WHMIS: Hazard Classification – Class B, Division 2 (Flammable liquid), Class B, Division 6 (Reactive Flammable Materials/Flammable gas on contact with water), Class E, (Corrosive), Ingredient Disclosure List: Tetrahydrofuran is listed (1%).

### **Section 16 – Additional Information**

Creation Date: 03/29/10

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

This information is believed to be accurate and represents the best information currently available to Optima Chemical Group LLC. However, we make no warranty of merchantability, express or implied, with respect to such information and assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.