Safety Data Sheet

1: Identification of substance / mixture

1. Product Identifier

Mixture

Product Name	**4-Methylpent-3-enylzinc bromide, Tetrahydrofuran**
Product Code	NCS ZT0366
CAS Number	MFCD22685000
Other Names	4-Methylpent-3-enylzinc bromide, 0.05 M in THF
IUPAC	
MFCD Number	
EC/EINECS	
REACH Number	

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

Research and Development

3. Details of the supplier of the safety data sheet

Rieke Metals, LLC
1001 Kingbird Road,
Lincoln
Nebraska
68521
US

Telephone: 402 434 2775
Fax: 402 434 2777
Email: sales@riekemetals.com

4. Emergency telephone number

800-535-5053 / International 1-352-323-3500 -

2. Hazards Identification

1. Classification of the substance or mixture

H225	Flam Liq. 2	
H261	Water-react. 3	
H302	Acute Tox. 4	
H313	Acute Tox. 5	
H316	Skin Irrit. 3	
H318	Eye Dam. 1	
H335	STOT SE 3a	
H336	STOT SE 3b	

2. Label elements

Signal Word **Danger**

Hazard Statements

H225	Highly flammable liquid and vapour.
H261	In contact with water releases flammable gases.
H302	Harmful if swallowed.
H313	Maybe harmful in contact with skin
H316	Causes mild skin irritation
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Precautionary Phrases

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P231 + P232	Handle under inert gas. Protect from moisture.

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P501	Dispose of contents/container to licensed professional waste disposal service to dispose of this material.

3. Other Hazards

Additional precautionary phrases are located throughout the safety data sheet

3. Composition / Information on Ingredients

1. Substances

Mixture

2. Mixtures

Concentration	Product Name	CAS Number	EC/EINECS
70-90%	Tetrahydrofuran[Flam Liq. 2]	109-99-9	203-726-8
10-30-%	4-Methylpent-3-enylzinc bromide[Water-react. 3]		

4. First Aid Measures

1. Description of first aid measures

Skin Contact Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

Eye Contact P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Rinse opened eye for several minutes under running water.
Consult a physician.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Inhalation Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

2. Most important symptoms and effects

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly tested.

3. Indication of any immediate medical attention

P310: Immediately call a POISON CENTER or doctor/physician.

5. Firefighting measures

1. Extinguishing Media

Suitable Dry chemical powder, Carbon dioxide, or Appropriate foam.

Unsuitable Do not use water.

2. Special Hazards arising from the substance or mixture

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides, Hydrogen halides, and Zinc oxides.

3. Advice for Fire Fighters

Wear self-contained breathing apparatus if necessary.
Wear protective clothing to prevent contact with skin and eyes.

6. Accidental Release Measures

1. Personal Precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

2. Environmental Precautions

Prevent further leakage or spillage if safe to do so.
Do not let product enter drains.

3. Methods & Materials

Contain spillage, absorb into dry earth or sand. and then transfer to a closable, labelled salvage container for disposal by an appropriate method. Do not flush with water.

4. Preventing the occurrence of secondary hazards.

No data available

7.Handling and Storage

1. Personal Precautions

Safe Handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge
Protection against explosions and fires	Keep away from sources of ignition - No smoking.

2. Conditions for safe storage, including any incompatibilities

Managing Storage Risks	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Never allow product to get in contact with water during storage. Recommended storage temperature: 2 - 8 °C Store under inert atmosphere. Air sensitive.
Storage Controls	No special requirements
Maintaining Integrity	P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P231 + P232: Handle under inert gas. Protect from moisture.
Other advice	No further information available.

3. Specific End Uses

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes by professionals only.

8. Exposure Controls/Personal Protection

1. Control Parameters

No Data Available

2. Exposure Controls

General protective and hygiene measures	P280: Wear protective gloves/protective clothing/eye protection/face protection. The standard precautionary measures should be adhered to when handling Avoid contact with skin and eyes
Engineering measures	Ensure there is exhaust ventilation of the area. Use only in a chemical fume hood.
Eye / Face Protection	Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Hand protection	Handle with protective gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Respiratory protection	P261: Avoid breathing dust/fume/gas/mist/vapours/spray. Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Skin protection	Protective clothing, antistatic. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Other personal protection advice	No data available

9. Physical and Chemical Properties

1. Physical and Chemical Properties

Appearance	Brown to Black colored solution
Odour	No Data Available
Odour threshold	No Data Available
PH	No Data Available
Melting point / Freezing point	No Data Available
Initial boiling point and boiling range	No Data Available
Flash point	-17.2 °C (1.0 °F)
Evaporation rate	No Data Available
Flammability(solid,gas)	No Data Available
Upper/lower flammability or explosive limits	No Data Available
Vapour pressure	No Data Available
Vapour density	No Data Available
Relative density	No Data Available
Solubility(ies):	No Data Available
Partition coefficient: n-octanol/water	No Data Available
Auto-ignition temperature	No Data Available
Decomposition temperature	No Data Available
Viscosity	No Data Available
Explosive properties	No Data Available
Oxidising properties	No Data Available

2. Other Information

228.45 g/mol
C6H11BrZn

10. Stability and Reactivity

1. Reactivity

Reacts with aqueous media to form 2-Methylpent-2-ene.

2. Stability

Stable under recommended storage conditions.
Store at 2-8°C under Argon or Nitrogen atmosphere.

3. Possibility of Hazardous Reactions

No data Available.

4.Conditions to Avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight. Exposure to moisture.

5. Incompatible Materials

Oxidizing agents, Strong oxidizing agents, Oxygen.

6. Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions.
Carbon oxides, nitrogen oxides (NOx), Hydrogen
Halides, Zinc oxides
Other decomposition products - no data available

11. Toxicology information

1. Information

Acute Toxicity	No data available
Skin corrosion/irritation	No data available
Serious eye Damage/irritation	No data available
Respiratory or skin sensitisation	No data available
Germ Cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

2. Additional

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No additional information available.

12. Ecological Information

1. Toxicity

No data available

2. Persistence and degradability

No data available

3. Bio-Accumulative Potential

No data available

4. Mobility and Soil

No data available

5. Results of PBT & vPvB assessment

No data available

6. Other adverse effects

No data available

13. Disposal Considerations

1. Waste Treatment Methods

Disposal Operations

Disposal of Packaging Disposal must be made according to official regulations.

14. Transport Information

Air (ICAO)

1. **UN Number:** 1993
2. **Shipping Name:** Flammable liquid, n.o.s. (4-Methylpent-3-enylzinc bromide, Tetrahydrofuran)
3. **Transport hazard class(es):** : 3 Sub Class :

4. **Packing group:** II
5. **Environmental hazards:**
6. **Special Precautions for user:**
7. **Transport in bulk:**

Road (ADR)

1. **UN Number:** 1993
2. **Shipping Name:** FLAMMABLE LIQUID, N.O.S (4-Methylpent-3-enylzinc bromide, Tetrahydrofuran). (vapour pressure at 50 °C not more than 110 kPa)
3. **Transport hazard class(es):** : 3 Sub Class :

4. **Packing group:** II
5. **Environmental hazards:**
6. **Special Precautions for user:** For the purposes of documentation and package marking, the Proper Shipping Name shall be supplemented with the technical name (see 3.1.2.8.1).
7. **Transport in bulk:**

Sea (IMDG)

1. **UN Number:** 1993
2. **Shipping Name:** Flammable liquid, n.o.s. (4-Methylpent-3-enylzinc bromide, Tetrahydrofuran)
3. **Transport hazard class(es):** : 3 Sub Class :

4. **Packing group:** II
5. **Environmental hazards:**
6. **Special Precautions for user:** This substance, when containing less alcohol, water or phlegmatizer than specified, shall not be transported, unless specifically authorized by the competent authority.
7. **Transport in bulk:** IBCINS: IBC02

   UNTANKINS: T7
   TANKPROV: TP1 TP8 TP28

15. Safety, health, environmental and national regulations

1. Safety, health, environmental and national regulations:

OSHA Hazards
Flammable Liquid, Water Reactive ,Target Organ Effect, Harmful by ingestion. Irritant, Carcinogen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

2. Safety Assessment

No Chemical Safety Assessment

16. Other Information

1. Other Information:

IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
ICAO-TI: Technical Instructions by the ICAO
GHS: Globally Harmonized System of Classification and Labelling of Chemicals

2. Associated risk phrases according to European directive 67/548/EEC

3. Disclaimer

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product or fitness for a particular use. Rieke Metals, LLC shall not be held liable for any damage resulting from handling or from contact with the above product.

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