



## Safety Data Sheet

Product Name: Thermal Interface Paste

### \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

**Product identifier:** Thermal Interface Paste  
**Other Designations:** Pitel Paste, Magna-Power Paste  
**Product Codes:** 36612R2, 36612R3, 36612R4, 36612R5, AZ-01

**Product Use:** Electrical industry and electronics, electronics cooling, thermal interface filler  
**Uses advised against:** None known

#### Manufacturer/Supplier

Magna-Power Electronics, Inc  
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Support phone #: (908) 237-2200 opt 3  
 Emergency phone #: (908) 237-2200 ext. 101

### \*\*\* Section 2 - Hazards Identification \*\*\*

#### 2.1. Classification of the substance or mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**  
 Chronic aquatic toxicity Category 2 - (H411)

#### 2.2. Label elements

Symbols/Pictograms



Signal word None

Hazard Statements

Precautionary Statement

H411 - Toxic to aquatic life with long lasting effects

P273 - Avoid release to the environment

P391 - Collect spillage

P501 - Dispose of contents to an approved waste disposal plant

#### 2.3. Other hazards

No information available.

### \*\*\* Section 3 - Composition / Information on Ingredients \*\*\*

Complete composition is provided below and may include some components classified as non-hazardous.

Component	CAS #	EC #	Percent	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aluminum	7429-90-5	231-072-3	50 - 80%	Flam. Sol. 1 (H228) Water-react. 2 (H261)
Zinc Oxide	1314-13-2	215-222-5	10 - 30%	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

Polydimethylsiloxane	63148-62-9	613-156-5	10 - 25%	-
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**\*\*\* Section 4 - First Aid Measures \*\*\***

**First Aid: Eye contact**

Rinse immediately with plenty of water or saline for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a physician if irritation persists.

**First Aid: Skin contact**

Wash off with soap and water. Consult a physician if irritation persists.

**First Aid: Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

**First Aid: Ingestion**

If swallowed, clean the mouth with water and then dilute any accidentally ingested product by drinking large amounts of water. Never give anything by mouth to a convulsing or unconscious person. Do **not** induce vomiting. Consult a physician.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to Physician**                      Treat symptomatically.

**\*\*\* Section 5 - Fire Fighting Measures \*\*\***

**Flammable/Combustible Properties**

Thermal decomposition can lead to release of irritating gasses and vapors. The paste may be ignitable.

**Fire/Explosion**

May be a potential hazard under the following conditions:

- \* The paste in contact with acids or alkali can generate flammable/explosive hydrogen gas. Hydrogen gas could present an explosion hazard in confined or poorly ventilated spaces.
- \* The paste in contact with certain metal oxides (e.g., rust). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.

**Extinguishing Media**

Use Class D extinguishing agent or dry inert granular material (e.g. sand) to cover and ring the burning material. If possible, isolate the burning material. Allow the fire to burn out. Avoid mixing of the extinguishing agent with the burning material. Do not disturb the material until completely cool.

**Unsuitable Extinguishing Media**

DO **NOT** USE:

- \* Water.
  - \* Halogenated agents.
  - \* ABC dry chemical agents.
- These agents will react with the burning material.

**Fire Fighting Equipment/Instructions**

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

**\*\*\* Section 6 - Accidental Release Measures \*\*\*****Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Wash thoroughly after handling.

**Environmental Precautions**

Avoid release to the environment. Dispose of contents/container to an approved waste disposal plant. See Section 12 for additional Ecological Information.

**Methods for Cleaning up**

Soak up with inert absorbent material. Recover using non-sparking tools into suitable container for disposal. After complete cleaning, the area may be washed down with detergent and water.

**\*\*\* Section 7 - Handling and Storage \*\*\*****Handling**

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use when applicable. Do not eat, drink or smoke when using this product. Wash thoroughly with soap and water after handling. Wash contaminated clothing before reuse. Take precautionary measures against static discharges. Use personal protection recommended in Section 8.

**Storage**

Keep the container tightly closed in a dry and ventilated place. Avoid exposure to direct sunlight and prolonged exposure to temperatures above 50°C. Storage rooms must be of fire-resistant construction. Keep locked up and out of reach of children.

**Incompatible Products**

Acids, alkali and strong oxidizing agents.

**\*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\***

**Exposure Guidelines:** N/A

**Respiratory protection**

Not required for proper use under normal circumstances

**Eye Protection**

Not required for proper use under normal circumstances

**Skin Protection**

Wear appropriate gloves to avoid direct skin contact.

**Hygiene Measures**

Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

**Additional information**

These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

**\*\*\* Section 9 - Physical & Chemical Properties \*\*\***

<b>Physical State:</b>	Paste
<b>Appearance:</b>	Silvery to gray color
<b>Odor:</b>	Odorless
<b>Boiling Point:</b>	No data available
<b>Flash Point:</b>	315 °C / 599 °F

<b>Melting Point:</b>	No data available
<b>Vapor Pressure:</b>	<0.1 mmHg @ 20°C
<b>Solubility in Water:</b>	Insoluble
<b>Density:</b>	2.3 – 2.4 g/cm <sup>3</sup>
<b>pH Level:</b>	Not applicable
<b>Viscosity at 10 rpm (T-SP-2):</b>	80,000 - 110,000 mPa.s
<b>Octanol-Water Coefficient:</b>	No data available
<b>Auto Ignition:</b>	No data available
<b>VOC Content (%):</b>	0.008%
<b>Water Solubility:</b>	Insoluble
<b>Solubility in other solvents:</b>	No data available
<b>Decomposition Temperature:</b>	No data available
<b>Flammable Properties:</b>	Not flammable
<b>Explosive Properties:</b>	None
<b>Oxidizing Properties:</b>	None

**\*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\***

**Stability:** Stable under normal conditions of use, storage, and transportation as shipped.

**Conditions to Avoid**

- \* **Strong oxidizers:** Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) particularly when heated.
- \* **Acids and alkalis:** Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts).
- \* **Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides):** A violent thermite reaction generating considerable heat can occur.
- \* **Heat, open flame**

**Hazardous decomposition products**

- \* Formaldehyde.
- \* Organic acid vapors.

**\*\*\* Section 11 - Toxicological Information \*\*\***

**Information on likely routes of exposure**

**Acute toxicity:**

Toxicity Criteria	Species	Dose	Material	References
LD50 Oral	Rat	15,000 mg/kg	ZnO	Löser (1972)
LD50 Oral	Rat	>5,000 mg/kg	ZnO	Löser (1977)
LDLo Oral	Human	500 mg/kg	ZnO	
TDLo Oral	Mouse	1260 mg/kg	Al	

**Inhalation:** None under normal use conditions.

**Eye Contact:** May cause irritation.

**Skin Contact:** May cause irritation.

**Ingestion:** None under normal use.

**Delayed and immediate effects and chronic effects from short- and long-term exposure**

**Sensitization:** No information available.

**Mutagenic Effects:** No information available.

**Carcinogenicity:** Not a NTP/IARC carcinogen.

**Reproductive Toxicity:** This product does not contain any known or suspected reproductive hazards.

**Developmental Toxicity:** None known.

**Aluminum:** Low health risk. Generally considered to be biologically inert.

**\*\*\* Section 12 - Ecological Information \*\*\***

**12.1. Toxicity**

Ecology - general : Dangerous for the environment. Very toxic to aquatic life with long lasting effects.

Zinc Oxide (1314-13-2)

LC50 - Fish - 0.169 mg/l Oncorhynchus mykiss (Rainbow trout)

EC50 - Crustacea - 1 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Zinc ion)

NOEC - chronic algae - 0.0299 mg/l

**12.2. Persistence and degradability**

Zinc Oxide (1314-13-2)

Chemical oxygen demand (COD) - Not applicable (inorganic)

ThOD - Not applicable (inorganic)

**12.3. Bioaccumulative potential**

Zinc Oxide (1314-13-2)

BCF - Fish - 78 – 2060 (14 day(s), Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value)

Partition coefficient: n-octanol/water (Log Pow) Not applicable

**12.4. Mobility in soil**

Zinc Oxide (1314-13-2)

Surface tension: Not applicable (solid)

Partition coefficient: n-octanol/water (Log Koc) 2.2 (log Koc, Literature study)

Ecology: soil - Low potential for adsorption in soil.

**\*\*\* Section 13 - Disposal Considerations \*\*\***

**Disposal Instructions**

Reuse or recycle material whenever possible. **Material that cannot be reused may be sent to a metals reclamation facility that is able to handle fines.** Waste material that cannot be reclaimed for metal value should be disposed in an industrial landfill.

**US EPA Waste Number & Descriptions A: General Product Information**

RCRA Status: Not federally regulated in the U.S. if disposed of "as is." Otherwise, characterize in accordance with applicable regulations (40 CFR 261 or state equivalent in the U.S.)

**B: Component Waste Numbers**

RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

**\*\*\* Section 14 - Transportation Information \*\*\***

**DOT:** Not regulated

**TDG:** Not regulated

**MEX:** Not regulated

**Canadian Controlled Products Regulation PIN:** Not regulated

<b>*** Section 15 - Regulatory Information ***</b>
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**US Federal Regulations A: General Product Information**

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.

**B: Component Analysis**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**SARA 311/312 Physical and Health Hazard Categories:**

**Immediate (acute) Health Hazard:** No

**Delayed (chronic) Health Hazard:** Yes

**Fire Hazard:** No

**Sudden Release of Pressure:** No

**Reactive:** No

**State Regulations****A: General Product Information**

No information available for the product.

**B: Component Analysis - State**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA	IL	RI
Aluminum	7429-90-5	Yes	No	Yes	Yes	Yes	Yes	No	No

**B: Component Analysis - WHMIS IDL**

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Aluminum	7429-90-5	1 %

**C: Component Analysis - Inventory**

Component	CAS #	TSCA	DSL	EINECS	AUST.	MITI
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	No

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**Inventory information**

**MITI Inventory:** Pure metals are not specifically listed by CAS or MITI number on the MITI Inventory. However, the class of compounds for each of these metals is listed.

<b>*** Section 16 - Other Information ***</b>
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**DISCLAIMER:**

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THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE.

#### Other Information

- \* NFPA 65, Standard for Processing and Finishing of Aluminum (NFPA phone: 800-344-3555)
- \* NFPA 651, Standard for Manufacture of Aluminum and Magnesium Powder
- \* NFPA 70, Standard for National Electrical Code (Electrical Equipment, Grounding and Bonding)
- \* NFPA 77, Standard for Static Electricity
- \* Aluminum Association Bulletin TR-2, "Recommendations for Storage and Handling of Aluminum Pigments and Powders"
- \* Bureau of Mines #6516, Explosibility of Metal Powders (1964)
- \* Aluminum Association Video, "Safe Handling of Aluminum Powder and Paste".
- \* Guide to Occupational Exposure Values-2007, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
- \* Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1991, Compiled by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH).
- \* NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, February 2004. \* Patty's Industrial Hygiene and Toxicology: Volume II: Toxicology, 4th ed., 1994, Patty, F. A.; edited by Clayton, G. D. and Clayton, F. E.: New York: John Wiley & Sons, Inc. \* expub, www.expub.com, Expert Publishing, LLC.

#### Key-Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Environmental Protection Act
IARC	International Agency for Research on Cancer
LC <sub>50</sub>	Lethal concentration (50 percent kill)
LC <sub>Lo</sub>	Lowest published lethal concentration
LD <sub>50</sub>	Lethal dose (50 percent kill)
LD <sub>Lo</sub>	Lowest published lethal dose
LFL	Lower Flammable Limit
MITI	Ministry of International Trade & Industry
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NORM	Naturally Occurring Radioactive Materials
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PIN	Product Identification Number
PSN	Proper Shipping Name
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UFL	Upper Flammable Limit

WHMIS	Workplace Hazardous Materials Information System
atm	atmosphere
cm	centimeter
g, gm	gram
in	inch
kg	kilogram
lb	pound
m	meter
mg	milligram
ml, ML	milliliter
mm	millimeter
mppcf	million particles per cubic foot
n.o.s.	not otherwise specified
ppb	parts per billion
ppm	parts per million
psia	pounds per square inch absolute
u	micron
ug	microgram

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