



## SAFETY DATA SHEET

### VT-4B\* (\* = Replaced by 1/3/5/7/9)

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

#### 1. Identification

##### Product identifier

**Product name** VT-4B\* (\* = Replaced by 1/3/5/7/9)

**Synonyms; trade names** IMS - Insulated Metal Substrate for Thermal Management Applications. Copper or Aluminium Clad with Epoxy Resin.

##### Recommended use of the chemical and restrictions on use

**Application** Production of printed circuit board materials.

##### Details of the supplier of the safety data sheet

**Supplier** Ventec USA LLC  
311 S. Highland Ave  
Fullerton, CA 92836  
714-773-9621  
SalesWest@ventec-usa.com

**Manufacturer** Ventec Electronics (Suzhou) Co. Ltd.  
308, TaiShan Road,  
New District Suzhou,  
Jiangsu,  
P.R.China 215129  
sales@ventec.com.cn

##### Emergency telephone number

**Emergency telephone** 0086-512-68091810

#### 2. Hazard(s) identification

##### Classification of the substance or mixture

**OSHA Regulatory Status** This Product is Not Hazardous under the OSHA Hazard Communication Standard.

**Physical hazards** Not Classified

**Health hazards** Not Classified

**Environmental hazards** Not Classified

##### Label elements

**Hazard statements** NC Not Classified

**VT-4B\* (\* = Replaced by 1/3/5/7/9)****3. Composition/information on ingredients****Mixtures**

<b>Aluminium</b> CAS number: 7429-90-5	<b>83.0%</b>
<b>Classification</b> Flam. Sol. 1 - H228 Water-react. 2 - H261	
<b>Copper Foil</b> CAS number: 7440-50-8	<b>9.0%</b>
<b>Classification</b> Not Classified	
<b>Epoxy Resin - Proprietary Formulation</b> CAS number: 26265-08-7	<b>8.0%</b>
<b>Classification</b> Skin Irrit. 2 - H315	

The full text for all hazard statements is displayed in Section 16.

**Composition comments**      Based on 0.004" Al - 1.0 / Cu 1oz

**4. First-aid measures****Description of first aid measures**

<b>General information</b>	Get medical advice/attention if you feel unwell. Never give anything by mouth to an unconscious person.
<b>Inhalation</b>	IF INHALED: Move affected person to fresh air at once. If breathing stops, provide artificial respiration. Consult a physician for specific advice.
<b>Ingestion</b>	IF SWALLOWED: Rinse mouth thoroughly with water. Consult a physician for specific advice.
<b>Skin Contact</b>	Remove contaminated clothing. Rinse immediately with plenty of water.
<b>Eye contact</b>	If dust has entered the eyes, proceed as follows. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist after washing.
<b>Protection of first aiders</b>	If it is suspected that airborne contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus.

**Most important symptoms and effects, both acute and delayed**

<b>Inhalation</b>	Inhalation of dust during cutting, grinding or sanding operations involving this product may cause irritation of the respiratory tract.
<b>Ingestion</b>	Due to the physical nature of this product, it is unlikely that ingestion will occur. May cause discomfort if swallowed.
<b>Skin contact</b>	Dust may cause slight irritation.
<b>Eye contact</b>	Dust may cause slight irritation.

**VT-4B\* (\* = Replaced by 1/3/5/7/9)****Indication of immediate medical attention and special treatment needed**

**Notes for the doctor**                      Treat symptomatically.

**5. Fire-fighting measures****Extinguishing media**

**Suitable extinguishing media**      Use fire-extinguishing media suitable for the surrounding fire. Water spray, foam, dry powder or carbon dioxide.

**Unsuitable extinguishing media**      None known.

**Special hazards arising from the substance or mixture**

**Specific hazards**                              The product is not flammable.

**Hazardous combustion products**      Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO<sub>2</sub>). Carbon monoxide (CO). Acrid smoke or fumes. Toxic gases or vapors.

**Advice for firefighters**

**Special protective equipment for firefighters**      Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

**6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

**Personal precautions**                      Avoid inhalation of dust and contact with skin and eyes.

**Environmental precautions**

**Environmental precautions**              Avoid release to the environment. Avoid spreading dust or contaminated materials.

**Methods and material for containment and cleaning up**

**Methods for cleaning up**                      Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into suitable waste disposal containers and seal securely.

**7. Handling and storage****Precautions for safe handling**

**Usage precautions**                              No specific requirements are anticipated under normal conditions of use.

**Advice on general occupational hygiene**              No specific requirements are anticipated under normal conditions of use.

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

**Storage precautions**                              No specific requirements are anticipated under normal conditions of use.

**Specific end uses(s)**

**Specific end use(s)**                              The identified uses for this product are detailed in Section 1.

**8. Exposure Controls/personal protection****Control parameters****Occupational exposure limits**

In relation to copper dust only.

In relation to Aluminium dust only.

**Aluminium**

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Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m<sup>3</sup> respirable fraction  
A4

Long-term exposure limit (8-hour TWA): OSHA 5 mg/m<sup>3</sup> respirable fraction  
as Al

Long-term exposure limit (8-hour TWA): OSHA 15 mg/m<sup>3</sup> total dust  
as Al

**Copper Foil**

Long-term exposure limit (8-hour TWA): ACGIH 0.2 mg/m<sup>3</sup> fume

Long-term exposure limit (8-hour TWA): OSHA 1 mg/m<sup>3</sup> dusts and mists

Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m<sup>3</sup> dusts and mists

Long-term exposure limit (8-hour TWA): OSHA 0.1 mg/m<sup>3</sup> fume

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

OSHA = Occupational Safety and Health Administration.

**Ingredient comments** No data available on the specific mixture.

**Exposure controls**

**Appropriate engineering controls** Mechanical ventilation or local exhaust ventilation may be required.

**Personal protection** The following personal protection may be needed if long term exposure during machining, grinding and sawing.

**Eye/face protection** Wear eye protection.

**Hand protection** Wear protective gloves.

**Other skin and body protection** No specific requirements are anticipated under normal conditions of use.

**Hygiene measures** Good personal hygiene procedures should be implemented.

**Respiratory protection** Wear a suitable dust mask.

**9. Physical and Chemical Properties****Information on basic physical and chemical properties**

<b>Appearance</b>	Solid.
<b>Odor</b>	No characteristic odor.
<b>Odor threshold</b>	Does not apply, as product is odorless.
<b>Flammability (solid, gas)</b>	UL-94 V0
<b>Relative density</b>	~ 1.6 - 1.9
<b>Decomposition Temperature</b>	380°C
<b>Comments</b>	Information given is applicable to the product as supplied.

**10. Stability and reactivity**

**Reactivity** Not reactive under normal use and conditions.

**Stability** Stable under normal use and conditions.

**Possibility of hazardous reactions** Product is stable. Hazardous polymerisation will not occur.

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<b>Conditions to avoid</b>	Avoid generation and spreading of dust.
<b>Materials to avoid</b>	Strong acids. Strong alkalis. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Will decompose at temperatures exceeding 380°C. Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ). Nitrous gases (NO <sub>x</sub> ).

**11. Toxicological information****Information on toxicological effects**

**Toxicological effects** No data available on the specific mixture.

**Skin Contact** Powder may irritate skin.

**Eye contact** Powder may irritate the eyes.

**12. Ecological Information**

**Ecotoxicity** There are no data on the ecotoxicity of this product.

**Persistence and degradability**

**Persistence and degradability** The product is not biodegradable.

**Bioaccumulative potential**

**Bio-Accumulative Potential** No data available on bioaccumulation.

**Mobility in soil**

**Mobility** No data available.

**13. Disposal considerations****Waste treatment methods**

**General information** External recovery, treatment, recycling and disposal of waste should comply with all applicable local and/or national regulations.

**Waste class** As supplied, this material is not regulated as hazardous waste under the US EPA Resources Conservation and Recovery Act (RCRA).

**14. Transport information**

**General** The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

**15. Regulatory information**

**Regulatory Status** Information on safety, health and environmental regulations specific to this product are referred to where data is available.

**US Federal Regulations****SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

Not listed.

**SARA Extremely Hazardous Substances EPCRA Reportable Quantities**

Not listed.

**VT-4B\* (\* = Replaced by 1/3/5/7/9)****SARA 313 Emission Reporting**

Some of the ingredients are listed or exempt.

**SARA (311/312) Hazard Categories**

None

**OSHA Highly Hazardous Chemicals**

Not listed.

**US State Regulations****California Proposition 65 Carcinogens and Reproductive Toxins**

The product does not contain any substances restricted under Proposition 65.

**Massachusetts "Right To Know" List**

Some of the ingredients are listed or exempt.

**Minnesota "Right To Know" List**

Some of the ingredients are listed or exempt.

**New Jersey "Right To Know" List**

Some of the ingredients are listed or exempt.

**Pennsylvania "Right To Know" List**

Some of the ingredients are listed or exempt.

**Inventories****Canada - DSL/NDSL**

All the ingredients are listed or exempt.

**US - TSCA**

All the ingredients are listed or exempt.

**US - TSCA 12(b) Export Notification**

Not listed.

**16. Other information**

<b>Issued by</b>	HS&E Manager.
<b>Revision date</b>	9/16/2017
<b>Revision</b>	Issue 1
<b>SDS No.</b>	4558
<b>SDS status</b>	Approved.
<b>Hazard statements in full</b>	H228 Flammable solid. H261 In contact with water releases flammable gases. H315 Causes skin irritation.
<b>NFPA - health hazard</b>	Exposure to dust could cause irritation but only minor residual injury even if no treatment given
<b>NFPA - flammability hazard</b>	Material is self extinguishing.
<b>NFPA - instability hazard</b>	Normally stable, even under fire exposure conditions, and is not reactive with water.
<b>ACA HMIS Flammability rating.</b>	Minimal Hazard.

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**ACA HMIS Physical hazard rating.** Normally stable. (0)

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.