



SAFETY DATA SHEET

VT-4A1 / VT-4A2 / VT-4A2H

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

1. Identification

Product identifier

Product name VT-4A1 / VT-4A2 / VT-4A2H

Synonyms; trade names IMS - Insulated Metal Substrate for Thermal Management Applications.

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

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3. Composition/information on ingredients**Mixtures**

Aluminium CAS number: 7429-90-5	83.0%
Classification Flam. Sol. 1 - H228 Water-react. 2 - H261	
Copper Foil CAS number: 7440-50-8	8.0%
Classification Not Classified	
Epoxy Resin - Proprietary Formulation CAS number: 26265-08-7	7.0%
Classification Skin Irrit. 2 - H315	
Glass cloth CAS number: 65997-17-3	2.0%
Classification Not Classified	

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**

General information	Get medical advice/attention if you feel unwell. Never give anything by mouth to an unconscious person.
Inhalation	IF INHALED: Move affected person to fresh air at once. If breathing stops, provide artificial respiration. Consult a physician for specific advice.
Ingestion	IF SWALLOWED: Rinse mouth thoroughly with water. Consult a physician for specific advice.
Skin Contact	Remove contaminated clothing. Rinse immediately with plenty of water.
Eye contact	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.
Protection of first aiders	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

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

Skin contact Dust may cause slight irritation.

Eye contact Dust may cause slight irritation.

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 (CO₂). Carbon monoxide (CO). Acid 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**

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In relation to copper dust only.

In relation to glass fiber only.

In relation to Aluminium dust only.

Aluminium

Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m³ respirable fraction
A4

Long-term exposure limit (8-hour TWA): OSHA 5 mg/m³ respirable fraction
as Al

Long-term exposure limit (8-hour TWA): OSHA 15 mg/m³ total dust
as Al

Copper Foil

Long-term exposure limit (8-hour TWA): ACGIH 0.2 mg/m³ fume

Long-term exposure limit (8-hour TWA): OSHA 1 mg/m³ dusts and mists

Long-term exposure limit (8-hour TWA): ACGIH 1 mg/m³ dusts and mists

Long-term exposure limit (8-hour TWA): OSHA 0.1 mg/m³ fume

Glass cloth

In relation to glass fiber only.

Long-term exposure limit (8-hour TWA): OSHA 15 mg/m³ total dust

Long-term exposure limit (8-hour TWA): ACGIH 1 fiber/cm³

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**

Appearance Solid.

Odor No characteristic odor.

Odor threshold Does not apply, as product is odorless.

Flammability (solid, gas) UL-94 V0

Relative density ~ 1.6 - 1.9

Decomposition Temperature 380°C

Comments Information given is applicable to the product as supplied.

VT-4A1 / VT-4A2 / VT-4A2H**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.
Conditions to avoid	Avoid generation and spreading of dust.
Materials to avoid	Strong acids. Strong alkalis. Strong oxidizing agents.
Hazardous decomposition products	Will decompose at temperatures exceeding 380°C. Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrous gases (NO _x).

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.
<u>Persistence and degradability</u>	
Persistence and degradability	The product is not biodegradable.
<u>Bioaccumulative potential</u>	
Bio-Accumulative Potential	No data available on bioaccumulation.
<u>Mobility in soil</u>	
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).
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15. Regulatory information

Regulatory Status	Information on safety, health and environmental regulations specific to this product are referred to where data is available.
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VT-4A1 / VT-4A2 / VT-4A2H**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.

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

Issued by	HS&E Manager.
Revision date	9/16/2017
Revision	Issue 1
SDS No.	4557
SDS status	Approved.
Hazard statements in full	H228 Flammable solid. H261 In contact with water releases flammable gases. H315 Causes skin irritation.

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NFPA - health hazard	Exposure to dust could cause irritation but only minor residual injury even if no treatment given
NFPA - flammability hazard	Material is self extinguishing.
NFPA - instability hazard	Normally stable, even under fire exposure conditions, and is not reactive with water.
ACA HMIS Flammability rating.	Minimal Hazard.
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.