

**1. CHEMICAL PRODUCT AND COMPANY INDENTIFICATION**

PRODUCT NAME : DS-7209A  
 OTHER/GENERIC NAMES : Glass Cloth None woven glass based Epoxy Laminate  
 PRODUCTS USE : Military : None ANSI : CEM-3  
 (Industrial Thermosetting Laminate for printed circuitry)  
 MANUFACTURER : Doosan corporation Electro-Materials BG  
 661 Yongkang-Ri, Jeungpyeong-Eup, Jeungpyeon-Kun,  
 Chungcheongbuk-Do, South-Korea

FOR MORE INFORMATION CALL :  
 (Monday-Friday, 8:30am-6:00pm)  
 82-31-260-6301

IN CASE OF EMERGENCY CALL :  
 (24 Hours/Day, 7days/Week)  
 82-31-260-6301

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

INGREDIENT NAME	CAS #	WEIGHT %
Glass cloth & None woven glass	(65997-17-3)	40 ~ 70 %
Cured Epoxy Resin Blend	(Proprietary)	20 ~ 30 %
Copper	(7440-50-8)	8 ~ 28 %

Trace impurities and additional material names not listed above may also appear in the Regulatory Information section(#15) towards the end of the MSDS. these materials may be listed for local "Right to Know" compliance and for other reasons.

**Information for environmental hazardous sustance**

Sustance Name		Used content
Heavy Metals	Cadimium and its compounds	0 %
	Lead and its compounds (mixtures)	0 %
	Mercury and its compounds	0 %
	6+ Chromium compounds	0 %
Chlorinated Organic Compounds	Polychlorinated biphenyls (PCBs)	0 %
	PCN	0 %
	Chlorinated Paraffin (CP)	0 %
	Mirex(Perchlordecone)	0 %
	Others Chlorine compounds	0 %
Brominated Organic Compounds	Polybrominated biphenyls (PBBs)	0 %
	Polybrominated diphenyl ethers (PBDEs)	0 %
	TBBP-A-BIS	0 %
	FR-720	0 %
	Others	Below 7%
Tributyl compounds & Triphenyl compounds		0 %
Asbestos		0 %
Azo compounds *4		0 %
Formaldehyde		0 %
Poly vinyl chloride (PVC)		0 %

**3. HAZARDS IDENTIFICATION**

**EMERGENCY OVER VIEW :**

A nonflammable, sheet material. Dust, when machined or punched may cause skin or eye irritation. Fumes, if decomposed may irritate eyes, nose, and throat.

**POTENTIAL HEALTH HAZARDS :**

- SKIN : Dust may cause moderate skin irritation
- EYES : Dust may cause moderate eye irritation. Fumes may irritate eyes
- INHALATION : Dust or Fumes may cause irritation of the throat
- INGESTION : Not determined
- DELAYED EFFECTS : None

Although the information and recommendation in this Material Safety Data Sheet(information) are presented in good faith and believed to be correct as of the data stated above.

Doosan Electro-Materials co., LTD.

make no representation or warranty as to the completeness or accuracy of this information.

This information is supplied with the condition that the condition that the person receiving it will make their own determination as to its suitability for their purpose prior to implementation.

**For additional information, please contact our Quality Assurance Department**

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**4. FIRST AID MEASURES**

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- SKIN Wash dust off in flowing water or shower. Change contaminated cloth.
  - EYE Irritate with flowing water for 15 minutes. If irritation persists, consult a physician.
  - INHALATION If overcome by dust or smoke, remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. Call physician.
  - INGESTION If large amounts are ingested, consult physician.
  - ADVICE TO PHYSICIAN : Treat symptomatically
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**5. FIRE FIGHTING MEASURES**

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- FLAMMABLE PROPERTIES N/A
- FLASH POINT N/A
- FLASH POINT METHOD Not determined
- AUTOIGNITION TEMPERATURE N/A
- UPPER FLAME LIMIT(Volume % in air) N/A
- LOWER FLAME LIMIT(Volume % in air) N/A
- FLAME PROPAGATION RATE(Solids) UL V-0
- OSHA FLAMMABILITY CLASS N/A
- EXTINGUISHING MEDIA Water, CO2 and dry chemical
- UNUSUAL FIRE AND EXPLOSION HAZARD : May give off toxic gases and epoxy when burning or when heated to decomposition

**SPECIAL FIREFIGHTING PRECAUSION/INSTRUCTIONS :**

Fireman should wear proper protective equipment and positive pressure self-contained breathing apparatus

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## 6. ACCIDENTAL RELEASE MEASURES

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INCASE OF SPILL OR OTHER RELEASE:(Always wear recommended personal protection equipment)

Not applicable, material is an article.

Spills and releases may have to be reported to federal and/or local authorities.

See the Regulatory Information section(#15) regarding reporting requirements

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## 7. HANDING AND STORAGE

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**NORMAL HANDLING :** (Always wear recommended personal protective equipment)

The primary exposure route is inhalation of dust when machined/punched or from fumes or vapors when heated

**STORAGE RECOMMENDATIONS :** N/A

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**ENGINEERING CONTROLS :** Use local exhaust ventilation to control dust.

**PERSONAL PROTECTIVE EQUIPMENT :**

**SKIN PROTECTION :** For brief contact to dust, no precautions other than clean body-covering clothing should be needed. Use gloves and aprons when prolonged or frequently repeated contact occurs.

**EYE PROTECTION :** Use appropriate eye protection when machining material

**RESPIRATORY PROTECTION :** Atmospheric levels of Glass Fabric Dust should be maintained below exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH-approved dust respirator.

**ADDITIONAL RECOMMENDATIONS :** N/A

**EXPOSURE GUIDELINES :** (Guidelines exist for the following ingredients)

<u>Ingredient Name</u>	<u>CAS. NO.</u>	<u>ACGIHTLV</u>	<u>OSHA PEL</u>	<u>Other Limit</u>
Cured Epoxy Resin Blend	Proprietary	5 PPM	5 PPM	N/A
Glass cloth & None woven glass	65997-17-3	10mg/m <sup>3</sup>	15mg/m <sup>3</sup>	N/A
Copper	7440-50-8	1mg/m <sup>4</sup>	1mg/m <sup>4</sup>	N/A

Other exposure limits for the decomposition products normally associated with product use are as follows : None

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE :** Gray, translucent sheet material

**PHYSICAL STATE :** Solid

**MOLECULAR WEIGHT :** N/A

**CHEMICAL FORMULA :** N/A

**ODOR :** Very faint epoxy odor

**SPECIFIC GRAVITY :** (Water=1.0) 1.20+/-0.25

**SOLUBILITY IN WATER :** (weight %) Negligible in water

pH	:	N/A	
BOILING POINT	:	N/A	
MELTING POINT	:	N/A	
VAPOR PRESSURE	:	N/A	
VAPOR DENSITY	:	(Air=1.0) N/A	
EVAPORATION RATE	:	N/A	Compared to : N/A
% VOLATILES	:	N/A	
FLASH POINT	:	N/A	

(Flash point method and additional flammability data are found in section 5)

## 10. STABILITY AND REACTIVITY

**NORMALLY STABLE ?** (CONDITIONS TO AVOID)

Stable

**INCOMPATIBILITIES :**

Not determined

**HAZARDOUS DECOMPOSITION PRODUCTS :**

CO, CO2 and Epoxy if heated in excess of 300 deg.C

**HAZARDOUS POLYMERIZATION ?**

None known

## 11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS : Dust may cause moderate eye, skin and throat irritation.

DELAYED(SUBCHRONIC & CHRONIC) EFFECTS : None Known

OTHER DATA : N/A

## 12. ECOLOGICAL INFORMATION

Not Biodegradable

## 13. DISPOSAL CONSIDERATIONS

**RCRA :**

Is the unused product a RCRA hazardous waste if discarded ?

No

OTHER DISPOSAL CONSIDERATIONS : Disposal must be made in accordance with all applicable Local, State and Federal regulations. Copper should be recycled.

The information offered here is for the product as shipped. Use and/or alternations the such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

## 14. TRANSPORT INFORMATION

US DOT HAZARD CLASS : Not regulated

US DOT ID NUMBER : N/A

For additional information on shipping regulations affecting this material, contact the information number found on the first page.

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## 15. REGULATORY INFORMATION

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### TOXIC SUBSTANCES CONTROL ACT (TSCA) :

TSCA INVENTORY STATUS : The resin system components used to make this material are on the TSCA inventory list.

OTHER TSCA ISSUES : N/A

### SARA TITLE III/CERCLA :

#### RQs & TPQs :

reportable Quantities "(RQs)" and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

Ingredient	SARA/CERCLA	SARA EHS
	RQ(lbs)	TPQ(lbs)
N/A	N/A	N/A

Spills/releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center (1-800-424-8802) and to your Local Emergency Planning Committee.

### SECTION 311 HAZARD CLASS : N/A

### SARA 313 TOXIC CHEMICALS :

The following ingredients are SARA 313 " Toxic Chemicals". CAS#'s and wt.% are found in section #2.

Ingredient	CAS. NO.	Comment
Glass cloth	(65997-17-3)	None
Cured Epoxy Resin Blend	(Proprietary)	None
Copper	(7440-50-8)	recycle

### STATE RIGHT TO KNOW :

In addition to the ingredients found in section 2, the following are listed for state right-to-know purposes:

Ingredient	Wt. %	Comment
N/A	N/A	N/A

### ADDITIONAL REGULATORY INFORMATION :

Doosan Electro-materials does not use polybromide-biphenyls or polybromide-biphenyloxides as a fire retardant in any our epoxy or phenolic systems.

WHMIS CLASSIFICATION (CANADA) : N/A

FOREIGN INVENTORY STATUS : N/A

## 16. OTHER INFORMATION

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CURRENT ISSUE DATE : 1, 14/03/01

PREVIOUS ISSUE DATE : '13/03/01

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING :

We are using the new A.N.S. I format for material safety data sheets.