# DOOSAN SAFETY DATA SHEET

**CORPORATION ELECTRO-MATERIALS BG**

**661 Young Kang-Ri, Jeung Pyung-Eup, Koesan-Kun,**

**Chung Cheong Bug-Do, Korea**

## 1. CHEMICAL PRODUCT AND COMPANY INDENTIFICATION

| | | |
|---|---|---|
| **PRODUCT NAME** | : | **DST-9000** |
| **OTHER/GENERIC NAMES** | : | Al based Cu Clad Laminate |
| **PRODUCTS USE** | : | Military : N/A NEMA : N/A<br>(Al based Cu Clad Laminate) |
| **MANUFACTURER** | : | Doosan Corporation Electro-Materials BG<br>661 Yong Kang-Ri, Jeung Pyung-Eup<br>Jeung Pyung-Gun, Chung Cheong Bug-Do<br>Korea |

**FOR MORE INFORMATION CALL :**
(Monday-Friday, 8:30am-6:00pm)
82-43-820-8200

**IN CASE OF EMERGENCY CALL:**
(24 Hours/Day, 7days/Week)
82-43-820-8200

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENT NAME | CAS # | WEIGHT % |
|---|---|---|
| Copper | (7440-50-8) | 2.4~88 |
| Cured Epoxy Resin Blend | (Proprietary) | 1.45~40 |
| Al | (7429-90-5) | 9.65~94.3% |

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

## 3. HAZARDS IDENTIFICATION

**EMERGENCY OVER VIEW :**

A nonflammable, copper 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** | : | Copper, Al and dielectric dust may cause moderate skin irritation |
| **EYES** | : | Copper, Al and dielectric dust may cause moderate eye irritation. Fumes may irritate eyes |
| **INHALATION** | : | Copper, Al and dielectric dust may be released when machined. |
| **INGESTION** | : | Do not allow food, drink or tobacco in an area where it may be contaminated |
| **DELAYED EFFECTS** | : | None |

## 4. FIRST AID MEASURES

| | |
|---|---|
| SKIN | Wash dust off in flowing water or shower. Change contaminated cloth. |
| EYE | Irrigate 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 |

## 5. FIRE FIGHTING MEASURES

| | |
|---|---|
| **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)** | ULV-0 |
| **OSHA FLAMMABILITY CLASS** | N/A |
| **EXTINGUISHING MEDIA** | Water, CO2 and dry chemical |
| **UNUSUAL FIRE AND EXPLOSION HAZARD :** | May give off toxic gases of epoxy when burning or when heated to decomposition |

**SPECIAL FIREFIGHTING PRECAUSION/INSTRUCTIONS :**

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

## 6. ACCIDENTAL RELEASE MEASURES

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 fedral and/or local authoritics.

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

## 7. HANDLING AND STORAGE

| | |
|---|---|
| **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 |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**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 PROTECTI** : Atmospheric levels of Copper 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)

| Ingredient Name | CAS. NO. | ACGIHTLV | OSHA PEL | Other Limit |
|---|---|---|---|---|
| Copper | (7440-50-8) | 1mg/m3 | 1mg/m3 | N/A |

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE** : Plate status is composed of brown copper, gray dieletric and gray aluminum

**PHYSICAL STATE** : Solid

**MOLECULAR WEIGHT** : N/A

**CHEMICAL FORMULA** : N/A

**ODOR** : None, unless heated

**SPECIFIC GRAVITY** : (Water=1.0) 2.5 to 3.3

**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, Copper oxides 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 : Non determined

## 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 acoordance 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 alterations 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.

## 15. REGULATORY INFORMATION

**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.

| | SARA/CERCLA | SARA EHS |
|---|---|---|
| Ingredient | RQ(1bs) | TPQ(1bs) |
| Copper | 5000 | None |

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 |
|---|---|---|
| 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 Corporation Electro-materials BG 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

**CURRENT ISSUE DATE : 2013.08.22**

**PREVIOUS ISSUE DATE :**

**CHANGES TO SDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING :**

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