



HANWHA L & C CORPORATION

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Flexible Copper Clad Laminate

Division For Circuit Material

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : HANWHAFLEX HFL(K) SERIES

CHEMICAL NAME : Cured Adhesive, Polyimide Film, Copper

MANUFACTURER : Hanwha L&C Corporation FCCL P&D Team

229 Kuem ho-ri, Buyoug-Myun, Chung won-gun, Chung-buk Korea

FOR MORE INFORMATION CALL : 82-2-729-1330, 82-43-279-8533

IN CASE OF EMERGENCY CALL : 82-2-729-1321, 82-43-279-8533

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS #	WEIGHT %
PI Film	14807-96-6	10~30%
Copper	7440-50-8	40~80%
Epoxy	26265-8-7	5~20%

3. HAZARDS IDENTIFICATION

EMERGENCY OVER VIEW : A nonflammable, sheet materials. Dust when machined or punched may cause skin or eye irritation. Fumes, if decompose may irritate eyes, nose, and throat

EFFECTS OF OVEREXPOSURE : Headache and nausea possible following excessive overexposure.

Exposure to copper dust during machining may cause discoloration

Of the skin, hair, nose, and throat irritation.

INHALATION : Overexposure may cause nose or throat irritation

EYE CONTACT : Dust may cause moderate skin irritation

SKIN CONTACT : Dust may cause moderate skin irritation

INGESTION : Not determined

Delayed EFFECTS : None

“ Although the information and recommendation in the MSDS are presented in good faith and believed to be correct as of the data stated above. Hanwha L&C Corporation FCCL division 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 make their Own determination as to its suitability for their purpose prior to implementation. “

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

UNUSUAL FIRE AND EXPLOSION HAZARDS : May give off toxic gases of hydrogen bromide and epoxy when burning or when heated to decomposition

SPECIAL FIREFIGHTING PRECAUTION/INSTRUCTIONS :

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

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS : Static charge may be produced when handling this material

ENVIRONMENTAL PRECAUTIONS : None known to be required

CLEANING METHODS : Sweep or vacuum spillage of material

RESPONSE TO SPILLS : Normal clean up

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 vapor when heated

STORAGE RECOMMENDATIONS : N/A

8. ENGINEERING CONTROLS AND PERSONAL PROTECTION

RESPIRATORY PROTECTION : None required with normal use

VENTILATION

LOCAL : Required for operations involving heating of material

GENERAL : Recommended as with all industrial operations

PERSONAL PROTECTION

HAND : Wear impervious gloves where skin contact is possible

EYE : Safety glasses with side shields recommended as with all industrial operations

SKIN : As needed to avoid skin contact

OTHER : N/A

9. PHYSICAL AND CHEMICAL PROPERTIES

APPERANCE :	Yellow Clear Sheet Clad with Copper
ODOR :	None
PHYSICAL STATE :	Solid
BOILING POINT :	NA
MELTING POINT :	NA
FREEZING POINT :	NA
WATER SOLUBILITY :	Negligible
VAPOR PRESSURE :	NA
SPECIFIC GRAVITY :	Varies with Construction
PARTITION COEFFICIENT :	NA
EXPLOSIVE PROPERTIES :	NA
EVAPORATION RATE :	NA
DENSITY :	NA
VISCOSITY :	NA
IGNITION :	NA
PH :	NA

10. STABILITY AND REACTIVITY

NORMAL STABLE :	(Conditions to avoid) stable
INCOMPATIBILITIES :	Not determined
HAZARDOUS DECOMPOSITION PRODUCTS :	CO, CO2, Oxides of nitrogen if heated in excess of 300 degrees Laser drilling or cutting may result in copper metal fume
HAZARDOUS POLYMERIZATION :	None known

11. TOXICOLOGICAL INFORMATION

CARCINOGENIC STATUS : NA

12. ECOLOGICAL INFORMATION

NA

13. DISPOSAL CONSIDERATION

ENVIRONMENTAL TOXICITY DATA :	NA
WASTE DISPOSAL METHOD :	In accordance with all local, state, and federal regulations
CONTAINER DISPOSAL :	In accordance with all local, state, and federal regulations

14. TRANSPORT INFORMATION

DOT SHIPPING NAME :	NA
DOT HAZARD CLASSIFICATION :	NA
PACKING GROUP :	NA
UN/NA CODE :	NA

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 /CERCLA :

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 NAME	CAS #	Comment
PI Film	14807-96-6	None
Copper	7440-50-8	Recycle
Epoxy	26265-8-7	None

WHMIS CLASSIFICATION(CANADA) : N/A

FOREIGN INVENTORY STATUS : N/A

16. OTHER INFORMATION

NA = Not Applicable

NE = Not Established

DATE PREPARED : 08/06/2004

PREPARED BY : KIM SEONG EUN

REVIEWED BY : LEE HO SIK

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