

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: IK Products (IK300 IK350 IK370)

SDS Revision Date: April 2020

Product Use: screen printing of UHF, HF antenna, sensors and heaters

Company	Address	Emergency Phone #
IPS SYSTEM CO.,LTD	4-8 Yang Ji Maeul 3 ro,Gwachon city Gyung Gido Korea	+82-2-5035411

2. HAZARDS IDENTIFICATION



Eye irritation – Cat 2A

Skin sensitization – Cat 1



Hazardous to aquatic life – Cat 1

WARNING!

HAZARD STATEMENTS: ¹

H302: Harmful if swallowed

H319: Causes serious eye irritation

H317: May cause an allergic skin reaction

H400: Very toxic to aquatic life

PREVENTION: ¹

¹ Globally Harmonized System of Classification and Labelling of Chemicals (GHS)-**UNECE**- GHS (Rev.4) (2011).

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P202 Do not handle until all safety precautions have been read and understood.

P262: Do not get in eyes, on skin, or on clothing

P264 Wash face and hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Refer to Section 7 for Handling and Storage and to Section 8 for Exposure Controls.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	EC Number	%	classification
Copper particles capped with a polymer	7440-50-8	231-159-6	79-83	H400
Binder	Proprietary		3-6	
Diethylene Glycol Mono-methyle Ether	111-77-3	203-906-6	9-17	H319
Inorganic acid	Proprietary		< 1	

4. FIRST AID MEASURES

Eye Contact: Flush immediately with copious amounts of water for 15 minutes. Seek immediate medical attention.

Skin Contact: Wash affected area with soap and plenty of water. Seek medical attention if adverse effects occur.

Inhalation: Remove person to fresh air. If breathing has stopped, administer artificial respiration and seek immediate medical attention.

Ingestion: If swallowed, rinse mouth with water and seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Water, dry chemical and foam

Special Fire Fighting Procedures and personal protective equipment: Keep personnel away and upwind of fire. Use self-contained breathing apparatus with full face mask.

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Unusual Fire and Explosion Hazards: Decomposition products may include various hydrocarbons, carbon dioxide, carbon monoxide and water. Fumes of metal oxides particles could also be released.

Copper dust may be combustible

6. ACCIDENTAL RELEASE MEASURES

The product does not represent a risk of spillage.

Cleanup and Disposal of Spill: Gather paste and dispose of it in a certified hazardous waste disposal site. Wear suitable respiratory protection and protective clothing (see Section 8). If significant quantities of this material enter the waterways, contact the Federal, State, or local Environmental / Waste Management Authority. Dispose of waste in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

Handling: Wear closed chemical resistant shoes and gloves during manual handling and storage operations.²

Use in well ventilated area or under local exhaust.

Storage: Store properly in a well ventilated, protected, covered place, at temperature below -10C. Avoid contact with incompatibles (see section 10).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Component	ACGIH TLV	OSHA PEL	NIOSH REL
Copper (dust)	1 mg/m ³	1 mg/m ³	1 mg/m ³
Copper (fume)	0.2 mg/m ³	0.1 mg/m ³	0.1 mg/m ³
Diethylene Glycol Mono-methyle Ether	10 ppm	10 ppm	

² According to Standards for Gloves - EN 388: 2016 or compatible.

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Exposure Control

Engineering Controls: Use in well ventilated area or under local exhaust ventilation to maintain the ambient workplace atmosphere below the relevant PEL.

Personal Protective Equipment

Eye/Face Protection: safety goggles or safety glasses with side shields.

Hand and Skin Protection: wear protective clothing to prevent skin exposure. use Nitrile or Neoprene gloves as hand protection.

Wash hands before eating, drinking, smoking, or using toilet facilities. Wash thoroughly after work using soap and water. Promptly remove contaminated clothing and launder safely, separately from other clothes, before reuse.

Respiratory Protection: Use properly fitted respiratory protection equipment approved by the National Institute for Occupational Safety and Health (NIOSH; USA) when exposure may exceed PEL.

Not Dangerous Goods.

If an article or substance could be suspected of being a dangerous goods. But does not meet the criteria for any of the hazard classes or divisions, it may be offered for transport as not restricted if the words “**Not Restricted**” are included in the description of the article or substance on the Air Waybill to indicated that it has been checked. The statement ‘Not restricted, as per special Provision Axx “ must be included in the description of the article on the Air Waybill when required, to indicted that the Special Provision has been applied.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	paste,
Colour:	Copperish
Odour:	Odourless
pH:	NA
Melting Point/Freezing Point:	-68C
Initial Boiling Point/Boiling Range:	230C
Flash Point:	>80C
Volatile content (wt %):	9 -17 %
Flammability:	NA
Upper and Lower Flammability/Explosive Limits:	NA
Vapour Pressure:	< 0.01 mmHg
Vapour Density (air=1):	>5.6
Relative Density:	3.09 gr/ml
Solubility:	miscible

Auto-ignition Temperature: NA
Decomposition Temperature: 130C
Viscosity: (cps) 5000-9000
Viscosity @ 25C , 100rpm, mPa·s (cps)
(DVEHA Brookfiled spindle 14)

10. STABILITY AND REACTIVITY

Reactivity: The product is stable under normal conditions of use, storage and transport.

Chemical Stability: Stable at specified storage temperatures (below -10C) (see section 7).

Physical Stability: stable under normal conditions. Conductivity and other parameter may change slightly at storage temperatures above -10C

Incompatibility with Other Materials: Strong oxidizers, strong acids, peroxides

Hazardous Decomposition Products: Thermal decomposition can release various hydrocarbons, carbon dioxide, carbon monoxide and water. Fumes of metal oxides particles could also be released.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Primary Routes of Exposure: Inhalation and potential exposure to eyes, hands, lungs or other body parts if contact is made with dust or heated product.

Acute Effects: ingestion may be Harmful

Skin Corrosion/Irritation: Skin contact may cause irritation and possible sensitization.

Serious Eye Damage/Irritation: Eye contact may cause severe irritation.

Respiratory Effects

Prolonged inhalation can cause irritation

Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC..

Teratogenicity: No data available

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Mutagenicity: No data available

Toxicity Data:

Hazardous ingredient	LD50 Oral (rat)	Acute dermal toxicity (mouse)	Acute inhalation toxicity (rat 4 h)
copper	472 mg/Kg	>2000 mg/Kg	>5.11 mg/l
Diethylene Glycol Mono-methyle Ether	7,291 mg/kg	2,764 mg/kg (rabbit)	

12. ECOLOGICAL INFORMATION

Environmental Toxicity:

96 Hr LC50 < 0.3 mg/l at most tests on aquatic life .

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Preferred options for disposal are (1) recycling, and (2) landfill. All disposal must be carried out in accordance with all the laws, requirements and guidelines applicable in the location of the user.

14. TRANSPORTATION INFORMATION

ADR³ / RID¹⁴ IMO⁴ / ICAO⁵ US DOT⁶ / IATA⁷	Proper Shipping Name	Not Regulated
	Hazard Class	Not Regulated
	UN Number	Not Regulated

³ ADR and RID stand for the European Agreements Concerning the International Carriage of Dangerous Goods by Rail (RID) and by Road (ADR) and the Joint meeting of RID Safety Committee and the Working Party on the Transport of Dangerous Goods (WP.15). The RID Safety Committee and WP.15 administer the European Agreements governing the Regulations Concerning the International Transport of Dangerous Goods by Rail (RID) and Road (ADR), respectively.

⁴ International Classes for Dangerous Goods

⁵ International Civil Aviation Organization

⁶ Department of Transportation

⁷ International Air Transport Association

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	Packaging Group	Not Regulated
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15. REGULATORY INFORMATION

This Safety Data Sheet (SDS) is according to (EC) No 1272/2008 and the CLP Regulation.

U.S. Federal Regulations:

SARA Title III ⁸ Hazard Classes:

Fire Hazard: No

Reactive Hazard: No

Release of Pressure: No

Acute Health Hazard: Yes

Chronic Health Hazard: Yes

TSCA:⁹ All components of this product are on the TSCA inventory or are exempt from TSCA Inventory requirements.

OSHA Communication Standard: This product meets the definition of a health hazard under 29 CFR Section 1910.1200.

U.S. State Regulations: California Prop 65 List: Crystalline silica is classified as a substance known to the State of California to be a carcinogen. Crystalline silica is on the Right-to-Know substance lists for New Jersey, Massachusetts, and Pennsylvania.

Inventory Information: The substances in this document have been checked against the EINECS,¹⁰ ELINCS,¹¹ and the NLP¹² list. Substances not identified on these inventories are exempt from notification requirements. (The EINECS number for Quartz: 238-878-4.)

16. OTHER INFORMATION

⁸ Superfund Amendments and Reauthorization Act - Title III of SARA is the Emergency Planning and Community Right-To-Know Act (EPCRA).

⁹ Section 8 (b) of the Toxic Substances Control Act (TSCA) requires EPA to compile, keep current and publish a list of each chemical substance that is manufactured or processed, including imports, in the United States for uses under TSCA inventory.

¹⁰ European Inventory of Existing Commercial Chemical Substances

¹¹ European List of Notified Chemical Substances

¹² No Longer Polymer

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Product should be used according to manufacturer using instructions and local regulations Hazard Ratings according to: NFPA(R) ¹³ and HMIS ¹⁴

Health Hazard: 2

Flammability: 1

Reactivity: 0

Key Legend Information:

ACGIH	American Conference of Governmental Industrial Hygienists
IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration
NA	Not Applicable
NTP	National Toxicology Program
PEL (OSHA)	Permissible Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health

The information contained herein is believed to be correct and represents the best information currently available to us. However, ips makes no warranties, expressed or implied, with respect to such information, and we assume no liability resulting from the use thereof. Under no circumstances does the data contained in this Safety Data Sheet constitute a guarantee of specific properties other than such properties explicitly mentioned in this MSDS or create any contractual relationship. The user of the product only is responsible for determining the suitability of the product for its particular application.

It is the exclusive responsibility of the recipient of our product to find out the applicable laws, rules, practices and regulations prior to using the product and to comply with them in all respects. You should note that applicable national and international regulations and laws may change from time to time and it is your responsibility to follow such changes.

The contents of this Safety Data Sheet must not be interpreted as a recommendation to use any product in violation of the laws or safety practices.

¹³ National Fire Protection Association

¹⁴ Hazardous Materials Identification System