

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

**Product name:** FLEXX 100S/M5CA 610X100  
**Product code:** 1015593

Use of the Substance/Mixture

**Product Use:** Conductive Film.

Company/Undertaking Identification

**Supplier:** Carestream Health Taiwan Limited, 4F-1, No. 129, Sec.2, Zhongshan N. Rd., Zhongshan Dist., Taipei, 10448, Taiwan R.O.C.

**For further information, please contact:**

**E-mail Address** - For environment, health and safety information, email: WW-EHS@carestreamhealth.com

Emergency telephone

00801-14-8954

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

This material is not classified as hazardous according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

GHS Label elements, including precautionary statements

This material is not classified as hazardous according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

**Other hazards which do not result in classification**

The toxicological properties of silver nanowires have not been fully investigated. Some studies suggest that exposure to some engineered nanoparticles can cause adverse health effects in lab animals. Silver nanoparticles may cause pulmonary inflammation and may be a weak skin sensitizer. Take precautions to prevent exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Proprietary film comprised of a transparent polyester film base with a conductive coating and hard coat.

Chemical Name	Weight %
Mylar	50-100
Blend of HDPE and EVA	15-40
Acrylic Polymers	1-5
Binder	<1
Silver Nanomaterial	<0.1

Additives, Residuals, and Impurities	<0.01
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#### 4. FIRST AID MEASURES

##### Description of necessary first-aid measures

<b>General advice</b>	This product is not expected to cause any health or safety hazards when used as intended.
<b>Eye contact</b>	Not an expected route of exposure.
<b>Skin contact</b>	Wash hands thoroughly after handling.
<b>Inhalation</b>	Not an expected route of exposure.
<b>Ingestion</b>	Not an expected route of exposure.

##### Most important symptoms/effects, acute and delayed

<b>Skin contact</b>	No known hazard in contact with skin.
<b>Eye contact</b>	Not an expected route of exposure.
<b>Inhalation</b>	Not an expected route of exposure.
<b>Ingestion</b>	Not an expected route of exposure. Do not taste or swallow.

##### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	Treat symptomatically.
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#### 5. FIRE-FIGHTING MEASURES

##### Suitable Extinguishing Media

<b>Suitable Extinguishing Media</b>	Water spray. Dry chemical. Carbon dioxide (CO <sub>2</sub> ).
<b>Extinguishing media which shall not be used for safety reasons</b>	Do not use a solid water stream as it may scatter and spread fire.

##### Specific hazards arising from the chemical

<b>Special Hazard</b>	Although the film base is a combustible material, it is not easily flammable. Considerable heating above ambient conditions is required before ignition and combustion can occur. The products of combustion depend on the burning conditions and are likely to include carbon monoxide, oxides of nitrogen and oxides of sulfur.
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##### Special protective actions for fire-fighters

<b>Special protective equipment for fire-fighters</b>	Wear self-contained breathing apparatus and protective suit.
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##### Other information

**Other information**

None known.

**6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. For personal protection see section 8. During unexpected circumstances and elevated temperatures such as a fire, evacuate personnel to safe areas and use personal protective equipment to prevent exposure to volatiles.

**Advice for emergency responders**

For personal protection see section 8

Environmental precautions

No special environmental precautions required. Do not allow material to contaminate ground water system.

Methods and materials for containment and cleaning up

No special requirements.

Pick up and transfer to properly labeled containers.

Other information

See Section 12 for additional Ecological information.

**7. HANDLING AND STORAGE**

Precautions for safe handling

**Advice on safe handling**

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

**Technical measures/Storage conditions**

Keep in a dry, cool and well-ventilated place.

**Materials to Avoid**

None known.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

**Exposure limits**

Chemical Name	Taiwan	China	ACGIH TLV	European Union
Silver Nanomaterial	STEL 0.03 mg/m <sup>3</sup>		TWA: 0.1 mg/m <sup>3</sup>	TWA 0.1 mg/m <sup>3</sup>

Appropriate engineering controls

**Engineering Measures** Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Individual protection measures, such as personal protective equipment (PPE)

**Personal Protective Equipment**

<b>General Information</b>	If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.
<b>Respiratory protection</b>	None under normal use conditions.
<b>Eye Protection</b>	No special protective equipment required.
<b>Skin and body protection</b>	No special protective equipment required.
<b>Hand Protection</b>	Protective gloves.

**Hygiene measures** When using, do not eat, drink or smoke. Wear suitable gloves and eye/face protection. Wash hands before breaks and at the end of workday. Wash hands with water as a precaution. Regular cleaning of equipment, work area and clothing is recommended. Avoid breathing vapors, mist or gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b> Solid	<b>Odor</b> No information available
<b>ph</b> No information available	<b>Color</b> No information available
<b>Flash point:</b> No information available	<b>Autoignition temperature:</b> No information available
<b>Boiling point/boiling range</b> No information available	
<b>Vapor Pressure</b>	
<b>Vapor density</b> No information available	
<b>Density</b> No information available	
<b>Water Solubility</b> No information available	
<b>Melting point/range:</b> No information available	
<b>Specific Gravity</b> No information available	
<b>Bulk Density:</b> No information available	

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Conditions to Avoid

Heat, flames and sparks.

Materials to Avoid

None known.

Hazardous Decomposition Products

Carbon oxides. Nitrogen oxides (NOx). Sulfur oxides.

**11. TOXICOLOGICAL INFORMATION**

Acute toxicity Product Information.

<b>Skin contact</b>	No known hazard in contact with skin.
<b>Eye contact</b>	Not an expected route of exposure.
<b>Inhalation</b>	Not an expected route of exposure.
<b>Ingestion</b>	Not an expected route of exposure. Do not taste or swallow.
<b>Oral</b>	No information available
<b>Dermal</b>	No information available
<b>Inhalation</b>	
<b>Gas</b>	No information available
<b>Mist</b>	No information available
<b>Vapor</b>	No information available

Acute toxicity - Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Silver Nanomaterial	2000 mg/kg ( Rat ) Oral LD50 Rat >2000 mg/kg (Source: IUCLID)		

**Aggravated Medical Conditions** None known.

Subchronic toxicity

no data available

Chronic toxicity

<b>Chronic toxicity</b>	Excessive absorption of silver compounds from chronic overexposure may result in argyria, a bluish-gray discoloration of the skin, eyes, and mucous membranes.
<b>Sensitization</b>	No information available.
<b>Neurological effects</b>	No information available.
<b>Target Organ Effects</b>	No information available.

CMR Effects

**Carcinogenicity** Contains no ingredient listed as a carcinogen.

**12. ECOLOGICAL INFORMATION**

## Ecotoxicity

### **Acute aquatic toxicity Product Information**

Contains materials that are very toxic to aquatic organisms. However, the environmental impact of the product in its intended form has not been fully investigated.

### **Acute aquatic toxicity Component Information**

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Silver Nanomaterial		0.00155 - 0.00293: 96 h Pimephales promelas mg/L LC50 static 0.0062: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.064: 96 h Lepomis macrochirus mg/L LC50 static	0.00024: 48 h Daphnia magna mg/L EC50 Static

### **Persistence and degradability**

No information available

### **Bioaccumulative potential**

No information available

### **Mobility in soil**

No information available

## 13. DISPOSAL CONSIDERATIONS

### **Waste from Residues / Unused Products**

Dispose of in accordance with local regulations. Can be landfilled or incinerated, when in compliance with local regulations.

### **Contaminated packaging**

Do not re-use empty containers. Dispose of in accordance with local regulations.

## 14. TRANSPORT INFORMATION

The information given below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions. Please consult the product packaging for further details.

ADR/RID Not regulated

IMDG/IMO Not regulated

ICAO/IATA Not regulated

ADN Not regulated

TDG Not regulated

For transportation information, go to: <http://ship.carestream.com>

## 15. REGULATORY INFORMATION

## International Inventories

"Does not comply" indicates a component is either not on the public inventory or is subject to exemption requirements. If additional information is needed contact manufacturer listed in Section 1.

<b>EINECS/ELINCS</b>	Does not comply
<b>TSCA</b>	Does not comply
<b>DSL/NDL</b>	Does not comply
<b>ENCS</b>	Does not comply
<b>IECSC</b>	Does not comply
<b>KECL</b>	Does not comply
<b>PICCS</b>	Does not comply
<b>AICS</b>	Does not comply
<b>NZIoC</b>	Does not comply

### Legend

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

## 16. OTHER INFORMATION

Revision Date	2014-05-29
Revision Note	Initial Release

### Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

**End of Safety Data Sheet**