

Released date: 4 February 2024

Manufacturer: PT Nanoma Teknologi Indonesia

## PRODUCT DESCRIPTION

CoFilm+ Clear is a clear antiviral and antibacterial coating with nanocopper and nanosilver technology.

Brand : CoFilm+ Clear  
Code : CDC 02

## APPLICATION

- Metal
- Stainless steel
- Wood
- Plastic
- Leather
- Rubber

## ADVANTAGES

- Effective against viruses & bacteria
- Automatic, rapid, & permanent disinfection
- Smooth and seamless
- Satin Finish
- Good abrasion resistance
- Good adhesion
- Good Chemical Resistant

## TECHNICAL DATA

Product name	: Cofilm+ Clear
Type	: CDC 02
Color	: Transparant
Finish	: Satin
Material Consumption	: 10m <sup>2</sup> /liter
Drying time at 28°C and relative humidity 60%	
• Touch Dry	: 30 minute
• Cured	: 1 hours
• Optimum Strength	: 1 Day
Application methods	: Spray gun
Application temperature	: 23° -30°C
Humidity maximum	: 60% RH

Dilute with	: Distilled water
Dilution Percentage	: 25% - 60%
Component	: 2 ( A and B)
Mixing Ratio	: A : B , 19 : 1
Solid Component	: Approx 45%
Viscosity	: Krebs Stormer 110 KU @ +20°C
Substrate	: Surfaces must be clean, dry and free from dust or grease.

Recommended Wet Thickness : 100 – 150 microns

Tool cleaning instruction : use water and soap

## STORAGE

Keep in a dry, cool and frost-free place.  
Directly use the coating after opening

Shelf Life: One Year in cool and dry storage (above freezing point) and in original unopened packaging

## FIRST AID

Eye Contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

(Detailed health and safety protocols can be found in the Technical Data Sheet)

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CoFilm+ Clear CDC 02  
Antibacterial Coating

## Section 1. IDENTIFICATION

Product name	: CoFilm+ Clear	Supplier details	: PT Nanoma Teknologi Indonesia
Synonyms	: Not available		Kompleks Science Techno Park,
Code	: CDC 02		Jl. Teknik Kimia, Keputih,
Color	: Grey		Kec. Sukolilo, Surabaya,
Type	: Colloid		Jawa Timur 60117
Density	: 1.1 g/ml	Emergency telephone	: +62 896 993 934 32
Binder type	: Water-based		

## Section 2. HAZARDS IDENTIFICATION

Health Rating	: 4-MINIMAL – No great risk to health
Inhalation	: Irritating
Skin	: No hazard expected. Direct contact best to be avoided.
Eyes	: May cause irritation, any possible contact to be avoided.
Ingestion	: Irritating and nauseating. No carcinogenic, mutagenic or genetic effects established. Non-toxic but may have undesirable environmental side effects. Contain, monitor & remove.
Hazard pictogram	: 
Hazard statements	: - Harmful if swallowed. - May cause damage to organs through prolonged or repeated exposure. - Cause eye irritation.
Precautionary state ments prevention	: - Wear protective gloves, protective clothing, and eye or face protection. - Do not eat, drink, or smoke when using this product. - Wash thoroughly after handling. - Avoid release to the environment.
Precautionary state ments response	: - If swallowed, call a poison center or doctor and rinse mouth. - If in eyes, rinse cautiously with water for several minutes and if irritation persists: get medical advice/attention. - If exposed or concerned and feel unwell, get medical advice or attention. - Collect spillage.
Precautionary state ments storage	: Keep container tightly closed. Store locked up.
Precautionary state ments disposal	: Dispose of contents and container in accordance with all local, regional, national, and international regulations.

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### Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCES
Copper Nanoparticle
Silver Nanoparticle

\*There are no additional ingredients present which, within the current knowledge of the supplier are classified as hazardous to health or the environment and hence require reporting in this section.

### Section 4. FIRST AID MEASURES

- Eye contact : Immediately flush eyes with plenty of water for at least 10 minutes, occasionally lifting the upper and lower eyelids. Get medical attention.
- Skin contact : Immediately remove contaminated clothing and shoes. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Get medical attention.
- Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing as a collar, tie, belt, or waistband.

Indication of any immediate medical attention and special treatment needed

- Specific treatments : No specific treatment.
- Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

### Section 5. FIRE-FIGHTING MEASURE

- Extinguishing media : The product itself is non-flammable  
No direct explosion hazard expected

### Section 6. ACCIDENTAL RELEASE MEASURE

Personal precautions, protective equipment, and emergency procedures

See section 8.

Environmental precautions

See section 12

Methods and material for containment and cleaning up

- Spillage : - Clean up all spills.  
- Avoid contact with skin and eyes.  
- Control personal contact with the substance, by using protective equipment.  
- Place in a suitable, labelled container for waste disposal.

Do not allow product to enter drains and sewers.

## Section 7. HANDLING AND STORAGE

### Safe handling

- Safe handling : - Avoid all personal contact.  
- Use in a well-ventilated area.  
- Prevent concentration in hollows and sumps.  
- Do not allow material to contact humans, exposed food or food utensils.  
- When handling, DO NOT eat, drink or smoke.
- Other information : - Store in original containers.  
- Keep containers securely sealed.  
- Avoid prolonged exposure in the open air, tighten the container immediately after use.  
- Store in a cool, dry area protected from environmental extremes.  
- Store away from incompatible materials and foodstuff containers.  
- Protect containers against physical damage and check regularly for leaks.  
- Observe manufacturer's storage and handling recommendations contained within this SDS.  
For major quantities:  
- Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).  
- Ensure that accidental discharge to water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

### Conditions for safe storage, including any incompatibilities.

- Suitable container : - Polyethylene or polypropylene container.  
- Aluminium container.
- Storage incompatibility: - Steel and metal oxides or salts may react with this product.  
- Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive.  
- Avoid reaction with borohydrides or cyanoborohydrides.

## Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure controls

- Appropriate engineering controls : - Local exhaust ventilation is required.  
- Employers may need to use multiple types of controls to prevent employee overexposure.  
- Ensure cleaning utensil station is close to the workstation location.

### Individual protection measures

- Personal protection : Gloves, medical mask, safety goggles with side shields, protective clothing, and enclosed shoes. Medical and first-aid personnel should be trained in their removal and suitable equipment
- Skin protection : - Gloves should be worn all the time when handling the product. Use latex-based or polyvinylchloride-based gloves, do not use fiber-based gloves. Suitability and durability of glove type is dependent on usage.  
- Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, using the lavatory, and at the end of the working period.  
- Wash contaminated clothing before reusing.

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Hands/feet protection	: - Use gloves when handling the product. - Use enclosed, appropriate footwear when handling the product.
Body protection	: See Other protection below.
Respiratory protection	: - Use medical mask or positive flow mask. Use gas mask when handling a large quantity of this product.
Other protection	: - P.V.C. apron. - Ensure water and soap are ready to use and close to the workstation. - Eye wash unit.

## Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	: Grey colloid.
Physical state	: Liquid colloid.
Odour	: Pungent scent
Upper explosive limit	: Non explosive
Lower explosive limit	: Non explosive
Vapour pressure	: Not available
Vapour density	: Not available
Relative density	: 1.1 g/ml
Solubility	: Soluble in water
Viscosity	: Krebs Stormer 110 KU @ +20°C

## Section 10. STABILITY AND REACTIVITY

Reactivity	: Heating may change the quality of the product
Chemical stability	: Product is considered stable.
Possibility of hazardous reaction	: Hazardous reactions will not occur under normal conditions.
Conditions to avoid	: Avoid prolonged exposure to air as it may cause discoloration and the physical state of the product.
Incompatible materials	: Avoid Chlorine
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section II. TOXICOLOGICAL INFORMATION

- Ingestion** : Accidental ingestion of the material may be harmful. A metallic taste, nausea, vomiting and burning feeling in the upper stomach region may occur after ingestion of copper and its derivatives. Meanwhile, there are no data available for silver ingestion.
- Skin contact** :  
- This material can cause inflammation of the skin on contact in some persons.  
- The material may accentuate any pre-existing dermatitis condition  
- There are no reports of toxicity from applications of this material to surfaces in contact with the skin.  
- Open cuts, abraded or irritated skin should not be exposed to this material.  
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
- Eye** :  
- This material can cause eye irritation and damage in some persons.  
- In contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.
- Inhaled** : Inhalation of the product vaporation during the course of normal handling, may be harmful. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
- Copper poisoning following exposure to copper may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur. Tolerance to the fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours following removal from exposure.
- There are no data available for silver inhalation.
- Chronic** : Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.
- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.
- Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
- There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.
- Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung. For copper and its compounds (typically copper chloride):
- Acute toxicity: There are no reliable acute oral toxicity results available. Animal testing shows that skin in exposure to copper may lead to hardness of the skin, scar formation, exudation and reddish changes. Inflammation, irritation and injury of the skin were noted.

## Section 12. ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters. Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

For copper:

**Aquatic Fate:** Toxicity of copper is affected by pH and hardness of water. Total copper is rarely useful as a predictor of toxicity. In natural sea water, more than 98% of copper is organically bound and in river waters a high percentage is often organically bound, but the actual percentage depends on the river water and its pH.

**Atmospheric Fate - Copper** is unlikely to accumulate in the atmosphere due to a short residence time for airborne copper aerosols. Airborne coppers, however, may be transported over large distances. Air Quality Standards: no data available.

**Ecotoxicity:** Copper accumulates significantly in the food chain. The toxic effect of copper in the aquatic biota depends on the bio-availability of copper in water which, in turn, depends on its physico-chemical form (i.e. speciation).

**For copper: Ecotoxicity - Significant effects** are expected on various species of microalgae, some species of macroalgae, and a range of invertebrates, including crustaceans, gastropods and sea urchins. Copper is moderately toxic to crab and their larvae and is highly toxic to gastropods (mollusks, including oysters, mussels and clams). In fish, the acute lethal concentrations of copper depends both on test species and exposure conditions. Waters with high concentrations of copper can have significant effects on diatoms and sensitive invertebrates, notably cladocerans (water fleas). Most taxonomic groups of macroalgae and invertebrates will be severely affected.

**Terrestrial Fate: Plants - Generally,** vegetation reflects soil copper levels in its foliage. This is dependent upon the bioavailability of copper and the physiological requirements of species concerned. Crops are often more sensitive to copper than the native flora. **Soil:** In soil, copper levels are raised by application of fertilizer, fungicides, from deposition of highway dusts and from urban, mining and industrial sources. Chronic and or acute effects on sensitive species occur as a result of human activities such as copper fertilizer addition and addi-

For silver:

No available data

DO NOT discharge into sewer or waterways.

**Bioaccumulative potential** : Copper accumulates significantly in the food chain while silver has low bioaccumulation potential.

**Mobility in soil** : No available data

## Section 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

- Product/packaging disposal** :
- Containers may still present a chemical hazard/ danger when empty.
  - Return to supplier for reuse/ recycling if possible. Otherwise:
  - If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
  - Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14. TRANSPORT INFORMATION

### Labels Required

Marine Pollutant

:



### Land transport (ADG)

UN Number

:-

UN proper shipping name

: Water based copper & silver coating

Transport hazard class

: Not yet available

Packing group

: Not yet available

Special precautions for user

: Not yet available

### Air transport (ICAO-IATA / DGR)

UN Number

:-

UN proper shipping name

: Water based copper & silver coating

Transport hazard class

: Not yet available

Packing group

: Not yet available

Special precautions for user

: Not yet available

### Sea transport (IMDG-Code / GGVSee)

UN Number

:-

UN proper shipping name

: Water based copper & silver coating

Transport hazard class

: Not yet available

Packing group

: Not yet available

Special precautions for user

: Not yet available

## Section 15. REGULATORY INFORMATION

### Applicable national regulations:

Standards on Hazard communication for hazardous chemicals and dangerous goods

- SS 586: Part 1: 2014-Transport and storage of dangerous goods
- SS 586: Part 2: 2014-GHS of classification and labelling of chemicals
- SS 586: Part 3: 2008-Preparation of safety data sheet MOM: Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations
- This product is subject to SDS, labelling, PEL and other requirements in the Acts/Regulations.



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NEA: Environmental Protection and Management Act & Environmental Protection and Management (Hazardous Substances) Regulations

- This product is not subject to control under this Acts/Regulations. SCDF: Fire Safety Act & Fire Safety (Petroleum and Flammable Materials) Regulations
- This product is subject to the requirement of this Acts/Regulations. SPF: The Arms and Explosive Act, the Arms and Explosives (Explosives) Rules, and the Arms and Explosives (Explosive Precursors) Rules
- This product is not subject to the requirement of this Acts/Regulations.

#### National Inventory Status

Australia	All components are listed or exempted.
Canada	All components are listed or exempted.
China	All components are listed or exempted.
Europe	All components are listed or exempted.
Japan	All components are listed or exempted.
Korea	All components are listed or exempted.
New Zealand	All components are listed or exempted.
Philippines	All components are listed or exempted.
USA	All components are listed or exempted.
Taiwan	All components are listed or exempted.
Mexico	All components are listed or exempted.
Vietnam	All components are listed or exempted.
Russia	All components are listed or exempted.
Thailand	All components are listed or exempted.

## Section 16. OTHER INFORMATION

Revision Date : 4 February 2024  
Initial Date : 9 August 2022  
Version : 2.1

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