

## Section 1. Product and Company Identification

Product Name: UN-PL-ANTIMICROBIAL  
Product Information: UN-PL-ANTIMICROBIAL is an 'Antifungal- Antibacterial' additive specially developed for antimicrobial protection of plastic materials against spoilage. It helps to prevent microbic growth which leads to polymer degradation and also unsightly discoloration and unpleasant odor issues.

Company Name: United Nanotech Products Limited  
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## Section 2. Composition / Information on Ingredients

Chemical Name: PE Wax based product with a combination Nano & micron size based particles of Metal Oxide; Silver Nanoparticles; Non-ionic Surfactants.  
CAS no.: Mixture  
Active component: ~ 30%

## Section 3. Hazards Identification

Emergency Overview: Material is irritant to skin and eyes. Avoid bodily contact. Material may be a skin sensitizer in susceptible individuals.

Inhalation: May cause irritation to the mucous membranes, nose and throat.  
Skin Contact: May cause irritation. Skin irritation effects can be delayed for hours.  
Eye Contact: May cause irritation and corneal injury  
Ingestion: May cause irritation and/or burns of the mucous membranes

## Section 4. First – Aid Measures

Inhalation: Move the exposed person to fresh air at once. Seek prompt medical attention.  
Skin Contact: Promptly wash contaminated area with plenty of water. Seek medical attention.  
Eye Contact: Promptly wash eyes with water. Seek prompt medical attention.  
Ingestion: Rinse mouth thoroughly with water. Seek medical attention.

## Section 5. Fire Fighting Measures

The above product is flammable. Suitable firefighting agents are CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray. Use firefighting methods suitable to surrounding conditions.

## Section 6. Accidental Release Measures

Personal precautions: Wear protective equipment. Keep unprotected person away.

Environmental precautions: Do not discharge into drains/ surface-water/ ground-water

Method for cleaning up: Spillages should be absorbed using an inert material and transferred to containers for disposal. Spillages should be disposed through specialist disposal contractors and according to local regulations.

## Section 7. Handling and Storage

Handling: Where direct handling is necessitated, personnel should always wear protective clothing. This will include a rubber apron, suitable impervious full-length gloves and footwear. Protective chemical splash goggles should also be worn.

Storage: The product should be stored at temperatures within the range 5-55°C. Storage conditions should also be in conformance with applicable legal, fire and insurance regulations.

## Section 8. Exposure Control / Personal Protection

Engineering measures: Normal room ventilation is usually adequate. If necessary, use appropriate local exhaust ventilation to keep exposures below the regulated limits.

### Personal Protective Equipment:

Eyes/Face: Wear face shield or splash goggles. Eye wash fountain and emergency shower facilities in work area.

Skin: Use impervious gloves, boots, and coveralls or apron.

Respiratory: Under normal conditions of use, inhalation of product is unlikely. Wear OSHA/NIOSH approved respirator if aerosol or mist is encountered.

General: Use good hygiene practices when handling this material including changing and laundering work clothes after use. A safety shower should be available. An eyewash fountain should be available in the work area.

## Section 9. Physical and Chemical Properties

Appearance: Powder

Form: Solid

Colour: White

Odour: Nil

Specific gravity: 0.98 – 1.02

Drop melting point 105 -120°C

## Section 10. Stability and Reactivity

Chemical Stability: Stable under ordinary conditions of use and storage.

Hazardous Reactions: Nil

Hazardous Decomposition Product(s): Nil

Conditions to avoid: High and very low temperature. Product is stable in the temperature range 5-55°C

Materials to avoid: Strong acid. Product is stable in the pH range 2-10

Corrosivity: Non-corrosive in presence of glass

Polymerisation: Will not occur

## Section 11. Toxicology Information

### Health Effects:

Inhalation (LC<sub>50</sub>): >14 mg/l/6h (rat)

Skin Contact (Dermal – LD<sub>50</sub>): > 5000 mg/kg (rat)

Ingestion (Oral – LD<sub>50</sub>): > 3000 mg/Kg (rat)

Primary Skin Irritation: Caustic effect on the skin and the mucous membranes.

Eye Contact: Strong caustic effect.

Sensitisation: Sensitisation possible by skin contact, Sub-acute and Chronic

Toxicology: Non-mutagenic (Ames test), non-carcinogenic (18 month feeding study, mouse)

### Acute Potential Health Effects:

Skin: May cause mild skin irritation.

Eyes: May cause mechanical eye irritation and conjunctivitis.

Inhalation: May cause mechanical irritation of the respiratory tract. Inhalation of high concentrations of the product may cause "Metal Fume Fever." Symptoms of metal fume fever may include a flu-like condition involving headache, chills, fever, sweats, nausea, vomiting, cough, muscle aches and pains, and difficulty breathing, May also affect the liver.

Ingestion: May cause digestive tract irritation although the product has a low toxicity by oral exposure route.

### Chronic Potential Health Effects:

Ingestion: Prolonged or repeated ingestion may affect blood, metabolism, and the thyroid.

## Section 12. Ecological Information

### Environmental Hazards:

Persistence and Degradation: The product is biodegradable when diluted below the minimum inhibitory concentration and does not bioaccumulate.

Toxicity: The product does not contain any toxic materials or other heavy metals.

This product and possible degradation products are not considered to be environmentally persistent or toxic.

## Section 13. Disposal Considerations

A: General Product Information: None identified.

B: Component Waste Numbers: No EPA Waste Numbers are applicable for this product's components.

C. Disposal Instructions: Absorbed material should stand for 48 hours in vented containers to avoid pressure buildup. Prior to disposal, residual contents of containers should be drained into the product to be preserved. To ensure that containers are not reused, they should be pierced before disposal.

## Section 14. Transport Information

The original containers should always be used for safe storage and transport. Should it be necessary to transfer to alternative containers please contact United Nanotech Products Ltd.

## Section 15. Regulatory Information

DSCL (EEC): R36- Irritating to eyes. R40- Possible risks of irreversible effects. S2- Keep out of the reach of children. S36/37- Wear suitable protective clothing and gloves.

Personal Protection: A

OSHA Hazard Category: Skin and eye irritant

EPCRA 311/312 Hazard Category: Acute

Protective Equipment: Gloves. Lab coat. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

## Section 16. Other Information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is responsibility of the user.

### Abbreviations:

DSCL - Dangerous Substances Classification and Labeling (Europe)

EPA: Environmental Protection Agency

EPCRA: Emergency Planning and Community Right-to-Know Act

LD<sub>50</sub>/LC<sub>50</sub> - Lethal Dose/Concentration kill 50%

OSHA: Occupational Safety and Health Administration