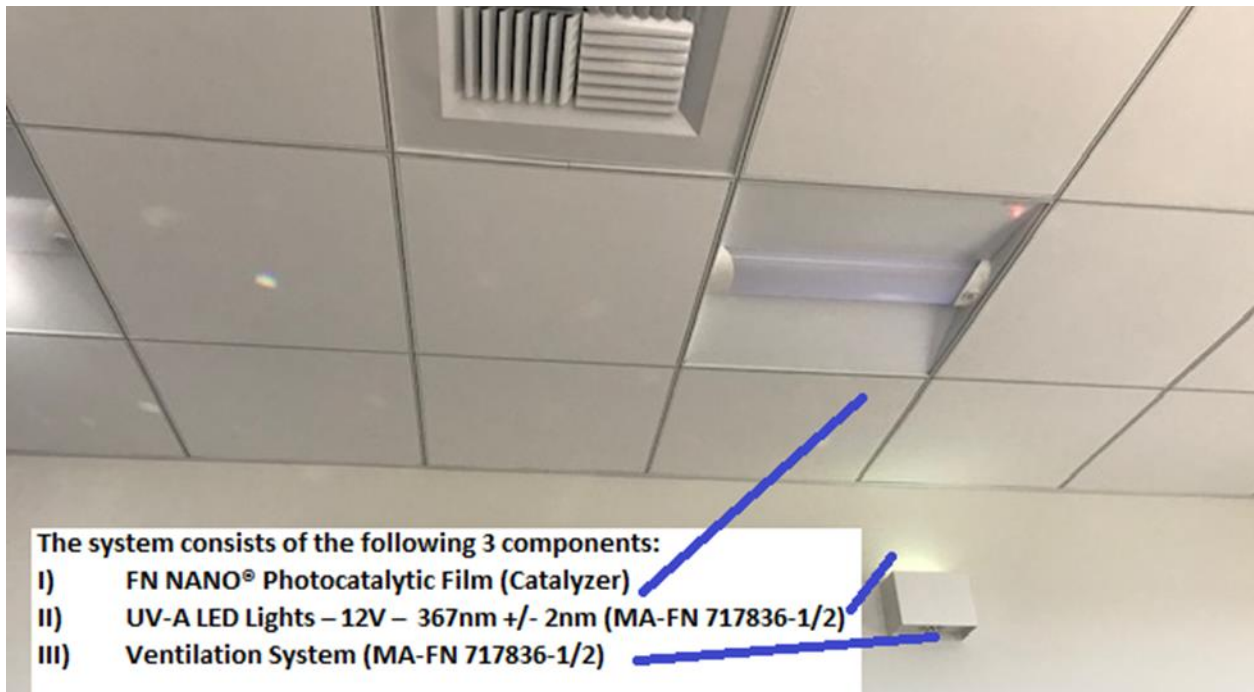




Material Safety Data Sheet

MACOMA / FN Nano

PHOTOCATALYTIC AIR DESINFECTION SYSTEM
"Converts Any Room into a Giant Air Purifier"



The system consists of the following 3 components:

- I) FN NANO® Photocatalytic Film (Catalyzer)
- II) UV-A LED Lights – 12V – 367nm +/- 2nm (MA-FN 717836-1/2)
- III) Ventilation System (MA-FN 717836-1/2)



I- CATALYZER – FN Nano Film

A) COMPOSITION, INFORMATION ON INGREDIENTS

Water suspension of titanium dioxide and inorganic binders.

FN Nano Film contains inorganic binders, such as calcium carbonate that permit the adhesion of the film to the underlying surface of 3 MPa - as determined by ISO EN 1504-2: 2004, OSHA and EC regulations No 1907/2006, respectively.

The photocatalysts in the film are titanium dioxide (TiO₂) nano crystals in a water suspension.

B) INGREDIENTS FORMULA:

Titanium dioxide TiO₂: CAS no. 13463-67-7, EINECS no. 236-675-5 (<10 wt%)

OSHA PEL:15 mg/m³ TDUST, ACGIH TLV:10 mg/m³ TDUST

Water, H₂O: CAS no. 7732-18-5, EINECS no. 231-791-2 (more than 80wt%).

Other inorganic matters: inorganic binder (<10 wt%, typically 3%)

C) IDENTIFICATION of HAZARDS: This product is not classified as hazardous and/or harmful under the US or EC regulations. It contains no substances classified as hazardous or harmful to health in concentrations that do not exceed the US and EC directives.

ORGNIC MATTER: None

DANGEROUS MATTER: None

FIRST AID MEASURES: No hazards that require special first aid measures are known.

Inhalation: If inhaled as aerosol, move to fresh atmosphere. Give symptomatic treatment if necessary.

Skin contact: Wash with water and soap.

Eye contact: Wash with water or neutral eyewash solution.

Ingestion: Do not induce vomiting. Give up to 200 ml water. Material is non-toxic and is not absorbed through the intestinal tract.



FIRE-FIGHTING MEASURES: The product is not flammable, non-explosive and is not a fire hazard. The product does not emit any fumes. Fire-fighters do not need to be notified of the presence of titanium dioxide suspensions.

ACCIDENTAL RELEASE MEASURES: The product is inert. Use any feasible mechanical means for cleaning (e.g. mop, vacuum cleaner, sweeping). If dried, avoid dusting. Prevent contamination of sewage and ditches entering natural waterways.

HANDLING AND STORAGE: Follow basic hygienic rules during manipulation. The product should be stored at temperatures from 5 to 25°C. **Must not freeze!**

EXPOSURE CONTROLS / PERSONAL PROTECTION:

Respiratory protection: An approved dust respirator must be used if applied with a sprayer and the dust concentration is likely to exceed the occupational exposure limit or if dustiness is over 10 mg/m³.

Skin protection: The product is non-irritating; however, as most fine powders, it can absorb moisture and natural oils from the surface of the skin during prolonged exposure. Prolonged exposure can be avoided by wearing suitable protective gloves and clothing.

Eye protection: The use of tightly fitting safety goggles is recommended if aerosol or dust concentrations are likely to exceed the occupational exposure limit of 10 mg/m³.

Hygiene measures: Keep basic rules of body hygiene.

PHYSICAL AND CHEMICAL PROPERTIES:

Physical state at 20°C	Water suspension: becomes porous white film when dry
Color:	White.
Odor:	Odorless.
pH (at 20°C):	6-7.
Melting point (°C):	N/A.
Boiling point (°C):	N/A.



Flash point:	N/A
Flammability:	Non-flammable.
Explosive properties:	Non-explosive.
Oxidative properties:	Non-oxidative.
Vapor tension:	N/A
Specific density (20°C):	<1200 kg/m ³ .
Water solubility:	Insoluble (<10g/l)
Fat solubility:	N/A.
Organic solvents:	0 %.
Nonvolatile content:	100-200g/l.

STABILITY AND REACTIVITY: Material is stable under normal conditions and inert to most chemical reagents; *it may release a small amount of CO₂ if mixed with strong acids.*

MATERIALS and CONDITIONS to AVOID: N/A.

DANGEROUS REACTIONS: N/A

HAZARDOUS DECOMPOSITIONS PRODUCTS: N/A

TOXICOLOGICAL INFORMATION:

No acute or chronic toxic effects in humans have been reported.

Acute toxicity TiO₂: Oral LD₅₀ (rat): >10 000 mg/kg. Dermal LD₅₀ (rabbit): >10 000 mg/kg. Inhalation LC₅₀/4 hours (rat): >6,8 mg/l.



ECOLOGICAL INFORMATION: The product is inert and insoluble in water. The mobility of solid particles in the environment is limited.

Test	Organism tested	Method	Test Result
Specifying acute lethal toxicity for fresh water fish	Rainbow fish Poecilia reticulata	SOP 1 / 2.3 Verifying test	It is not possible to specify LC50 with the given sequence of concentrations 0.1 – 250 ml / 1 l , no fish were killed when the concentration was 250ml / 1 l.
Test of growth inhibition of white mustard root	White mustard	SOP 4/2.3	IC50 = 442 ml / 1 l was specified with the given sequence of concentrations 0.1 – 500 ml / 1

DISPOSAL CONSIDERATIONS: There are no special disposal regulations, local or national for TiO₂ water suspensions. TiO₂ is an FDA approved food additive.

TRANSPORT INFORMATION: There are no specific requirements under national or international regulations for the transportation by road, rail, sea or air.

ADR/RID: Not regulated

ICAO/IATA: Not regulated

IMDG: Not regulated

REGULATORY INFORMATION

The US, UN and EC Directives on hazardous and dangerous substances, solvents and paints are not applicable.

S sentences: None

R sentences: None

FURTHER INFORMATION

The data information contained in this Safety Data Sheet: MSDS of material suppliers, Decree of the Government No. 258/2001 Coll., which specifies the method of assessment of hazards chemical substances and chemical preparations, method of their classification and marking, and issues the list of hazardous chemical substances



be classified to date, International Chemical Safety Cards database (WHO/IPCS/ILO) located at <http://www.cdc.gov/niosh/ipcs>

Databases ECB ESIS: EINECS

NFPA Ratings:

Health: 1
Flammability: 0
Reactivity: 0

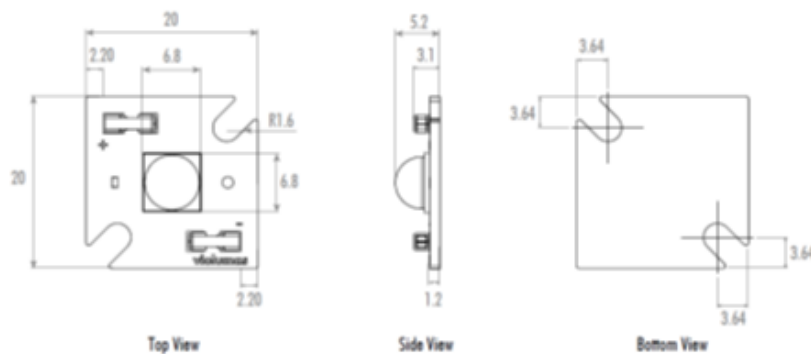


LIGHTS & VENTILATION

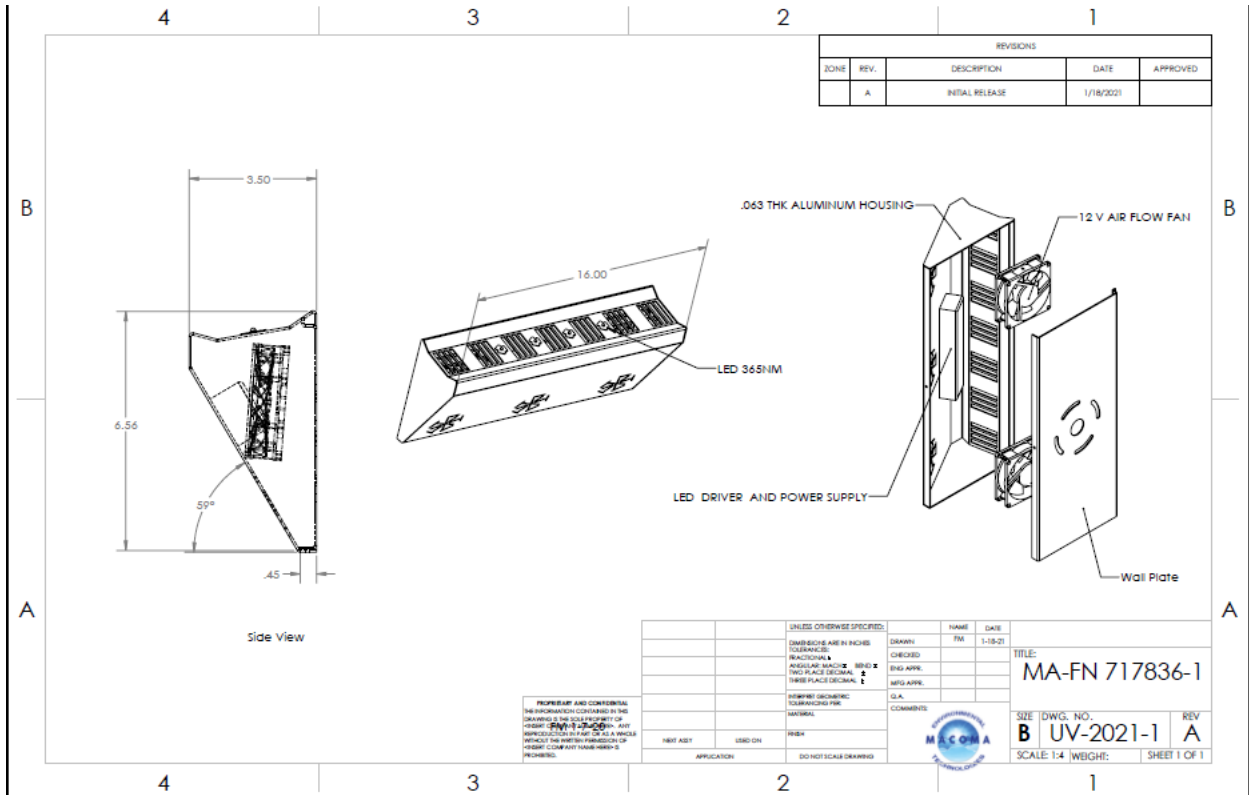
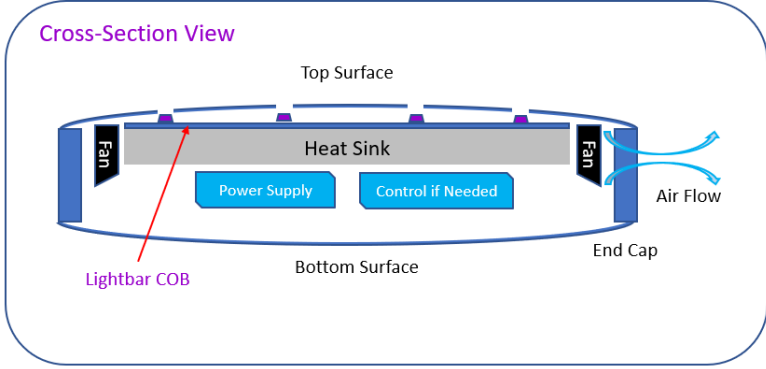
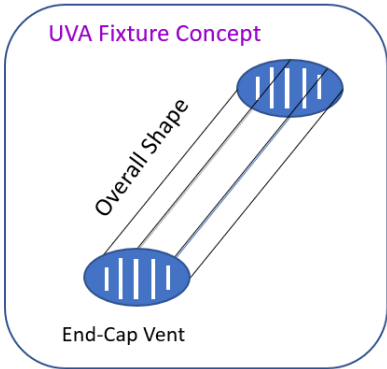
- II) UV-A LED Lights – 12V – 367nm +/- 2nm (MA-FN 717836-1)
 - III) Ventilation System (MA-FN 717836-1)
- II & III - Must be installed by a professional electrician.

VC2XC45L9 Series: UVA COB

Mechanical Dimensions



violumas
High Power UV LED Solutions





PHOTOCATALYTIC FILM MANUFACTURED BY:

FN Nano Inc., Reno, NV -
5303 Louie Lane, Reno, NV, US 89511
775-410-2408

PHOTOCATALYTIC AIR DISINFECTION SYSTEM

MANUFACTURED & DISTRIBUTED BY:

MACOMA, LLC., MACOMA ENVIRONMENTAL TECHNOLOGIES
3920 E. Patrick Lane. Las Vegas, Nevada, 89120
702-951-1401

www.MACOMA.US