



## Material Safety Data Sheet

# PCR

PHOTOCATALYTIC COOL ROOF

## CRRC - Cool Roof Rated Product

Rated Product ID 1350-0001 - Licensed Manufacturer 1350 - Classification Standard Product



## Cool Roof & Exterior Walls

REDUCES TEMPERATURES & GREENHOUSE GASES

Corp. Office / Show Room

3920 E. Patrick Lane \* 702-951-1401 \* Las Vegas, NV 89120 USA



## **MATERIAL SAFETY DATA SHEET**

Cool Roof Rated Product.

The Cool Roof Rating Council (CRRC), an ISO 17065 accredited organization, has reviewed the test results data provided by a CRRC-approved ISO 17025 testing laboratory and has determined this roofing product meets the requirements described in the ANSI/CRRC S100 Standard and the CRRC-1 Program Manual.

FN NANO®2 is a long-term protection for stone, concrete, ceramics and wood from degradation by atmospheric dirt and microbiological attack by fungi and algae, moss and lichen. Contributes to the reduction of the Urban Heat Island.

Per OSHA and EC regulations No 1907/2006, respectively.

FN®2, contains inorganic binders, the adhesion to the underlying surface of 3 MPa (as determined by ISO EN 1504-2: 2004

### **1. PRODUCT:** titanium dioxide (TiO<sub>2</sub>) and water suspension

- a. COMPANY - TRADE NAME: MACOMA™ FN NANO® PCR Photocatalytic Film
- b. APPLICATION: The product is used as a photocatalytic top film on any common type of wall, roof, or concrete surfaces. It is for exterior applications. The layer is activated by daylight.
- c. The titanium dioxide suspension protects the base surface from UV damage. This product is optimized for photocatalytic air cleaning.

**MANUFACTURER:** MACOMA / FN Nano Inc., Reno, NV

**DISTRIBUTOR:** MACOMA, LLC., MACOMA ENVIRONMENTAL TECHNOLOGIES  
3920 E. Patrick Ln. Las Vegas, Nevada, 89120,  
702-951-1401  
[www.MACOMA.US](http://www.MACOMA.US)

**2. 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.



### 3. COMPOSITION, INFORMATION ON INGREDIENTS

Water suspension of titanium dioxide and inorganic binders.

#### SUBSTANCE AND FORMULA:

Titanium dioxide TiO<sub>2</sub>: CAS no. 13463-67-7, EINECS no. 236-675-5 (<10 wt%)

OSHA PEL:15 mg/m<sup>3</sup> TDUST, ACGIH TLV:10 mg/m<sup>3</sup> TDUST

Water, H<sub>2</sub>O: CAS no. 7732-18-5, EINECS no. 231-791-2 (more than 80wt%).

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

**ORGNIC MATTER:** None

**DANGEROUS MATTER:** None

**4. FIRST AID MEASURES:** No hazards that require special first aid measures are known. Inhalation: If inhaled 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.

**5. 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.

**6. 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.

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

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

**Respiratory protection:** An approved dust respirator must be used if the dust concentration is likely to exceed the occupational exposure limit or when dustiness is over 10 mg/m<sup>3</sup>.

**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 approved tightly fitting safety goggles is recommended if aerosol or dust concentrations are likely to exceed the occupational exposure limit 10 mg/m<sup>3</sup>.

**Hygiene measures:** Keep basic rules of body hygiene.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

Physical state at 20°C	Water suspension: becomes white porous 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 <sup>3</sup> .
Water solubility:	Insoluble (<10g/l)
Fat solubility:	N/A.
Organic solvents:	0 %.
Nonvolatile content:	100-200g/l.



**10. STABILITY AND REACTIVITY:** Material is stable under normal conditions and inert to most chemical reagents.

**MATERIALS and CONDITIONS to AVOID:** N/A.

**DANGEROUS REACTIONS:** N/A

**HAZARDOUS DECOMPOSITIONS PRODUCTS:** N/A

**11. TOXICOLOGICAL INFORMATION:**

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

Acute toxicity TiO<sub>2</sub>: Oral LD<sub>50</sub> (rat): >10 000 mg/kg. Dermal LD<sub>50</sub> (rabbit): >10 000 mg/kg. Inhalation LC<sub>50</sub>/4 hours (rat): >6,8 mg/l.

**12. ECOLOGICAL INFORMATION:**

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

<b>Test Result</b>		<b>Initial</b>	<b>Weathered</b>
<b>Product Type:</b>	Coating	<b>Solar Reflectance</b> 0.79	0.68*
<b>Initial SRI:</b>	98	<b>Thermal Emittance</b> 0.88	0.89*
<b>3 Year SRI:</b>	83*		
<b>Slope Types:</b>	Low, Steep		
<b>Color:</b>	Off-White		

**13. DISPOSAL CONSIDERATIONS:** There are no special disposal regulations, local or national for TiO<sub>2</sub> water suspensions. TiO<sub>2</sub> is a food additive approved by the FDA.

**14. 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

**15. 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



## 16. 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 of 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



**Disclaimer:**

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The MSDS contains 6 pages.

Revisions:

Aug. 01, 2012 by Jan Prochazka, Ph.D.

Mar. 01, 2020 by Ezekiel Martin, Ph.D.