



# Material Safety Data Sheet

## Nano Aluminum colloid (Al-DW)

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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**Product Trade Name:** Nano Aluminum

**Product Code:** Al-DW-500

**Company Identification**

PNF Co.

**Phone:** +98 21 91009012

**Fax:** +98 21 88092806

**No 2 – 2th west alley – hormozan st – sharak e gharb –Tehran- Iran**

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### SECTION 2: COMPOSITION & INFORMATION ON INGREDIENTS

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Component	CAS #	Weight Percentage
Nano Aluminum+ Deionized water	Mixture	100%

Aluminum concentration: 1000-4000ppm

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### SECTION 3: PHYSICAL AND CHEMICAL PROPERTIES

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**Composition:** Aluminum nanoparticle colloid

**Concentration:** 1000-4000ppm

**Purity:** 99%

**Molecular Weight:** 26.98 g/mol

**Appearance:** Grey

**Particle size:** >70 nm

**Morphology:** spherical

**Polydispersity Index (PDI):** 0.50

**Specific surface area (SSA):** 5-10 m<sup>2</sup>/g

**Aluminum nanoparticles bulk density:** 0.08-0.20 g/m<sup>3</sup>

**Odor:** Odorless.

**Taste:** Not available.

**pH (1% soln/water):** 7

**Boiling Point:** Not available

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Not available

**Vapor Pressure:** Not available

**Vapor Density:** Not available

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Dispersion Properties:** completely dispersion in water.

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## SECTION 4: STABILITY AND REACTIVITY

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**Chemical Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents.

**Corrosivity:** Not available.

**Polymerization:** Will not occur.

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## SECTION 5: HAZARDS IDENTIFICATION

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**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**  
CARCINOGENIC EFFECTS: Not Available.

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MUTAGENIC EFFECTS: Not Available.  
TERATOGENIC EFFECTS: Not Available.  
DEVELOPMENTAL TOXICITY: Not Available.  
Repeated or prolonged exposure is not known to aggravate medical condition.

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## SECTION 6: FIRST AID MEASURES

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### **Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention

### **Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

### **Serious Skin Contact:**

Wash with a disinfectant. Seek medical attention.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

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## SECTION 7: FIRE & EXPLOSION DATA

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**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:** Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

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## **SECTION 8: ACCIDENTAL RELEASE MEASURES**

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**Small Spill:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

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## **SECTION 9: HANDLING AND STORAGE**

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### **Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

**Shelf life:** maximum 2 years

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## **SECTION 10: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**Engineering Controls:** Use in a well-ventilated area.

**Personal Protection:** Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not Available.

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## **SECTION 11: TOXICOLOGICAL INFORMATION**

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**Routes of Entry:** Inhalation. Ingestion. Absorbed through skin. Eye contact.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

May cause cancer based on animal data. However, at the time of this review, no studies were found on the possible carcinogenic activity of silver compounds in humans.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: May cause skin irritation. May be absorbed through skin. Eyes: May cause mechanical eye irritation. Inhalation: May cause respiratory tract irritation. Exposures above TLV may result in accumulation of silver in the body (argyria) Symptoms may include a permanent blue-gray pigmentation of the skin, mucous membranes, and eyes. Ingestion: May be harmful if swallowed. Large doses may result in silver poisoning, which may show symptoms of gastroenteritis (gastrointestinal tract irritation), spasms, vertigo, spasms, and skin discoloration. Prolonged or repeated inhalation, application, or ingestion of silver compounds may cause a permanent bluish discoloration of the skin and mucous membranes, and may also affect blood, and liver.

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## SECTION 12: ECOLOGICAL INFORMATION

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**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** Not available.

**Special Remarks on the Products of Biodegradation:** Not available.

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## SECTION 13: DISPOSAL CONSIDERATIONS

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**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

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## SECTION 14: TRANSPORT INFORMATION

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**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

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## SECTION 15: OTHER INFORMATION

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**References:** Not available.

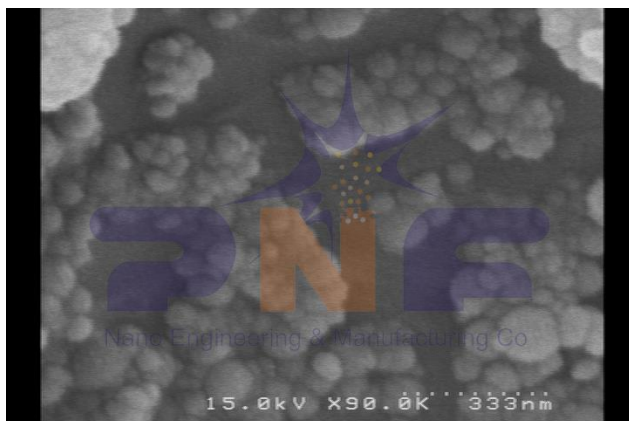
**Other Special Considerations:** Not available.

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