

# Pseudomonas fluorescens



*Pseudomonas fluorescens* is a rhizosphere bacteria which protects plant roots against parasitic fungi such as *Fusarium* or *Pythium* as well as certain phytophagous nematodes such as *Meloidogyne* spp. Fungi such as *Alternaria cajani* and *Curvularia lunata* grow on plant surfaces causing disease and death of plants. Plant treatment with *Pseudomonas fluorescens* can limit these fungi from growing and prospering. It is non-specific in its ability to protect plants and, once established, it works against several different pathogens while inducing systemic resistance in the host plant. Production of secondary metabolites plays an important role in plant disease suppression and PF produces substances like 2,4-diacetylphloroglucinol, which is responsible for the anti-phytopathogenic and the biocontrol properties of PF. PF aggressively colonises the roots of the crop and suppresses disease by inhibiting phytopathogens in the soil or on the roots by competition and/or antagonism. It has shown potential benefits in bio-remediation against several strains of plant pathogens.

Dosage :

5kg per ha. Preferably mixed with 2 tons of any organic matter such as orgo blended organic fertilizer/FYM.

Nursery bed treatment :

50 gm/sq.m.

Seed treatment :

Treat the seed @ 10gm/kg seed.

Packing :

500gm LDPE bag

1 kg LDPE bag

Application Guidelines :

Apply near the root zone :

preferably leaving a 7 day gap on either side before applying chemical fertilizer or pesticide.



### Results in Crop :



Potato  
Powerall

### Our Personal Experiment :





Comparison of powerall with Chemical :



## Certificate of Analysis

Power All

***(Pseudomonas fluorescens 1% w.p.)***

Batch No. : 020  
Date of analysis : 01/06/2014  
Mfg. Date : 01/06/2014  
Expiry Date : 01/12/2014

Sr. No.	Characteristic	Requirement	Results Obtained
1	Physical State	Powder	Complies
2	Colour	Off white	Complies
3	Count	$2 \times 10^6$ CFU/gm	Complies
4	Physical nature	Free flowing powder	Complies
5	Odour	No Odour	Complies
6	Wettability	Wettable	Complies

**Remark:** The above product complies as per specification.

**For Nico Orgo Manures**

**For Nico Orgo Manures**

**Quality Control Dept.**

**Partner**

Microbiologist

# Material Safety Data Sheet

## NICO ORGO MANURES

### 1. Chemical Products and Company Identification

Product Name : POWER ALL  
Produce Code : *Pseudomonas fluorescens* 1% W.P.  
Chemical Formula : Mixture  
Other Designations : Powdered Formulation Containing Agriculturally  
beneficial microorganisms.

Company:

**NICO ORGO MANURES**

Opp. Railway Station,

Dakor – 388 225

(Gujarat – India)

Phone : +91-2699-244403, 244611

Fax : +91-2699-244903

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### 2. Composition / Information on Ingredients

No Hazardous Ingredients.

Contains naturally-occurring, non-pathogenic, microorganisms in powdered formulation. This includes *Pseudomonas fluorescens* popularly used in agriculture for disease control. See Product label for method of application, dosage and recommendations. Not for food, feed or drug use.

Note: Confidential business information has been omitted.

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### 3. Hazards Identification

Emergency Overview : No known health hazards

Primary Entry Routes : Oral (swallowing), Inhalation

Acute Effects (Signs and Symptoms of Overexposure) :

Eyes : Liquid may cause mechanical irritation of eyes

Skin : No known hazard

Inhalation : Inhalation of large amounts may cause discomfort

Ingestion : No known hazard

Chronic Effects : No known hazard

Medical Conditions Aggravated by Exposure : None known

Target Organs : None

Carcinogenicity : None

HMIS : Health – 0, Flammability – 0, Reactivity – 0

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#### 4. First Aid Measures

Eyes : Flush with water. Get medical attention if  
irritation persists.

Skin : Wash with soap and water

Inhalation : Remove person to fresh air. Get medical attention if discomfort  
Persists

Ingestion : No treatment necessary

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#### 5. Fire Fighting Measures

Flash Point : None

Autoignition Temperature : Not Applicable

Explosive Limits : LEL: Not Applicable

UEL: Not Applicable

Extinguishing Media : Use media suitable for  
surrounding fire

Unusual Fire or Explosive Hazards : Not Known

Fire Fighting Instructions : No special requirement

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## 6. Accidental Release Measures

Large Spill / Leak Procedure : Contain spill and recover for use  
or disposal

Small Spills : Flush area with water

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## 7. Storage and handling

Storage Requirements : Store in original container in  
clean, cool and dry place. Use  
before expiration date printed on  
package

Handling Precautions : No special handling requirements.  
Follow normal hygienic and  
housekeeping standards for  
agricultural products

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## 8. Exposure Control / Personal Protection



Ventilation	: Special ventilation is not required
Protective Clothing / Equipment	: No special requirement
Respirator	: Not required
Contaminated Equipment	: Clean with soap and water
Comments	: Practice general personal hygiene after using this product. Wash hands with soap and water before eating, drinking or smoking.

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## 9. Physical and Chemical Properties

Physical State	: Powder
Colour	: White to Pale yellow
Odour	: Mild
Water Solubility	: Soluble
% Volatile volume	: Not determined
Specific Gravity	: 1
Vapour Pressure	: Not determined
Vapour Density	: Not determined
pH	: 6.5 – 7.0
Melting Point	: Not Determined
Boiling Point	: N.A.
Freezing Point	: N.A.

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## 10. Stability and Reactivity

Stability : Stable

Conditions to avoid : None

Hazardous Polymerization : Will not occur

Chemical Incompatibilities : Avoid contact with any chemical

Hazardous products of decomposition : None

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## 11. Toxicological Information

Eye Effects / Eye Irritation : Non-irritating

Acute Oral Effects : None

Acute Inhalation Effects : None

Acute Dermal Effects : None

Skin Irritation : Non-irritating

Skin Sensitization : Not a skin sensitizer

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## 12. Ecological Information

The product contains non-pathogenic bacterial strains that occur naturally in soil and is biodegradable.

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## 13. Disposal Consideration

Disposal: Small amounts of the product which cannot be used according to the label instructions may be disposed off in a landfill

RCRA Waste Status: This product is not regulated as a hazardous waste. State and local regulation may affect the disposal of this product. Consult your state, local or provincial environmental agency for disposal of waste other than by use according to instructions.

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#### 14. Transport Information

Transportation Data : This product is not regulated as a hazardous material for all  
modes of transportation

Hazard Class : Not Applicable

ID No. : Not Applicable

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#### 15. Regulatory Information

TSCA : All components of this product are  
listed on TSCA Inventory

SARA Section 313 : Contains no reportable components

OSHA Hazard Classification : Non Hazardous

Proposition 65 : Contains no components subject to  
Warning requirement

WHMIS / Controlled Products Regulations: This products has been classified in accordance with the  
hazard criteria of the CPR and this MSDS contains all of the information required by the CPR

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#### 16. Other Information

NFPA Ratings

Health : 0

Flammability : 0

Reactivity : 0

Specific Hazard : Not Applicable

Information presented on this Material Safety Data Sheet is believed to be accurate at the time of  
publication. No warranty, expressed or implied, is made with regard to this information. This  
information may not be adequate for every application, and the user must determine the suitability of  
this information due to the manner / conditions of use, storage or local regulations.

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