

# **OS/JG-200**

**Industrial Hydrocarbon  
Encapsulator  
&  
Food  
Preparation/Agricultural  
Applications**

**OS/JG-200:**

- OS/JG-200 BIOFERTILIZER & HYDROCARBON ENCAPSULATOR
- OS/JG-200 FP FOOD PREPARATION/AGRICULTURAL APPLICATIONS

SEVERAL APPLICATIONS HAVE BEEN TESTED WITH OS/JG-200 IN DIFFERENT AREAS WITH MUCH SUCCESS. MOST OF THESE TESTS HAVE BEEN ONGOING AND CONDUCTED IN BRAZIL.

**OS/JG-200 BIOFERTILIZER & HYDROCARBON ENCAPSULATOR**

- WASTE WATER TREATMENT
- CLEAN UP OF WATER WAYS POLLUTED BY OIL
- AIR POLLUTION CONTROL
- OXYGENATION OF WATER WAYS
- SEWAGE TREATMENT
- ODOR ELIMINATION

**OS/JG-200 FP-FOOD PREPARATION/AGRICULTURAL APPLICATIONS**

- TREATMENT AGAINST INSECT INFESTED VEGETATION, IE. BANANAS
- ELIMINATION OF AMMONIA GASES WITHIN CHICKEN COUPS
- HYDROPONICS
- ENHANCES THE GROWTH AND HEALTH OF VEGETATION
- PRESERVATION APPLICATIONS TO PROLONG THE SHELF LIFE OF MEAT, EGGS AND FRUITS.

# MATERIAL SAFETY DATA SHEET

## OS/JG-200™

### SECTION I - IDENTIFICATION

**Manufacturer:** JG Industries, Inc.  
**Address:** 270 Route 46, Rockaway, N.J. 07866  
**Phone:** (973) 627-0722 **Fax:** (973) 627-2982  
**Date Prepared:** January 1, 2000 **Formulation #:** JG200  
**Trade Name:** OS/JG-200  
**Product:** Industrial encapsulator of hydrocarbons, degreasing agent and cleaner.

### SECTION II - INGREDIENTS AND HAZARD CLASSIFICATION

<u>Ingredients (CAS)</u>	<u>Percent</u>	<u>OSHA PEL/TLV</u>
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Components are classified trade secret. No components are believed to be hazardous, or listed in the NIOSH Recommendations for Occupational Safety and Health Standards, 1988, or are listed as hazardous by SARA, CERCLA, or RCRA. No OSHA PEL's are established for any of the ingredients.

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

<u>Boiling Point:</u>	212°F.	<u>Vapor Pressure (mm Hg):</u>	1.0 @ 20°C
<u>Solubility in water:</u>	100%	<u>Specific Gravity:</u>	1.02 @ 60°F
<u>pH:</u>	7.5 (concentrate)	<u>Appearance and Odor:</u>	Straw liquid color & mild citrus smell. (Note: No d-limonenes)

### SECTION IV - FIRE AND EXPLOSION DATA

<u>Flash Point:</u>	Not applicable.	<u>Flammable Limits:</u>	Not applicable.
<u>LEL:</u>	Not applicable.	<u>UEL:</u>	Not applicable.
<u>Extinguishing Media:</u>	Not applicable.		
<u>Special Fire Fighting Procedures:</u>	Not applicable.		
<u>Unusual Fire and Explosion Hazards:</u>	None.		

### SECTION V - REACTIVITY DATA

<u>Stability:</u>	Stable.	<u>Incompatibility:</u>	None.
<u>Hazardous Decomposition Products:</u>	Carbon monoxide and carbon dioxide.		
<u>Hazardous Polymerization:</u>	Will not occur.		

### SECTION VI - HEALTH HAZARD DATA

<u>Exposure Limits</u>			
<u>OSHA PEL:</u>	Not established.	<u>ACGIH TEL:</u>	Not established.
<u>Routes of Entry</u>			
<u>Inhalation:</u>	Yes	<u>Skin:</u>	Yes
<u>Ingestion:</u>	Yes		

#### Signs and Symptoms of Exposure

<u>Eyes:</u>	Irritation may occur if sprayed directly into eyes.
<u>Skin:</u>	Liquid is medium base. Prolonged contact may cause dryness of the skin.
<u>Inhalation:</u>	Negligible.
<u>Ingestion:</u>	May cause nausea and diarrhea.

#### First Aid

<u>Eyes:</u>	Flush eyes with water for 1 minute. Seek medical aid if irritation persists.
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**FIREFREEZE WORLDWIDE INCORPORATED**  
270 Rt. 46, Rockaway, N.J.  
Tel: (201) 627-0722 Fax: (201) 627-2982

## **OS-JG200™** **...why use it!**

- Environmentally Friendly
- Non-Toxic
- Non-Corrosive
- Non-Flammable
- Biodegradable
- Used Friendly
- Does Not Stain
- Non-Slip
- 100% Water Soluble

Manufactured by: **JG Industries, Inc.**  
270 Route 46 East  
Rockaway, N.J. 07866  
(973) 627-0722 Fax: (973) 627-2982

## **Introducing...** **OS-JG200™**

**A REVOLUTIONARY,  
Product Used to  
Degrease & Clean  
Hydrocarbons and  
Separate Oil!**

**For use within Industrial &  
Commercial Applications.**



Manufactured by:  
**JG Industries, Inc., Rockaway, N.J.**



## What is OS-JG200™?



OS-JG200™ was developed as an environmentally friendly hydrocarbon cleaner for industries such as: petrochemical, oil refineries, and other industries which use heavy duty oil, grease and machinery on a daily basis.

OS-JG200™ is considered to be an effective and efficient degreasing and cleaning agent for diversified industrial applications. It is used to degrease and LIFT heavy oils and grease.

OS-JG200™ is an environmentally friendly and user friendly alternative to toxic cleaning and degreasing agents on the market today.

## How does OS-JG200™ Work?



OS-JG200™ works by encapsulating and biodegrading hydrocarbons. This encapsulation process works to lift and separate oil in specific applications. As a result, more oil is recouped, less waste is released into our environment, and less money is spent on environmental/hazardous clean up.

OS-JG200™ also has been proven to REDUCE FRICTION in oil pipelines. By adding OS-JG200™ product into the pipeline, oil is allowed to flow more freely and quickly, thereby increasing production capacity. OS-JG200™ can also be used to clean and maintain pipelines, tanks and other industrial equipment.

## Common Application/ Dilution Ratios for OS-JG200™:

Application: Cleaning of tanks and vessels.

Dilution: Use one part OS-JG200™ to 5 parts water.

Application: Friction Reduction in Pipelines.

Dilution: Use one part OS-JG200™ to 2 parts water. Product is inducted at the source of oil introduction into the pipeline.

Application: Settling Tanks or Ponds

Dilution: Use OS-JG200™ in concentrate. (This ratio is dependent on the amount of water in the tank or pond. I.e. use one part concentrate to 1,000 gallons tank/pond water).

For other specific application and dilution rate information and/or questions, please contact JG Industries, Inc. directly at (973) 627-0722.

**TECHNICAL DEPARTMENT**  
**RESEARCH & DEVELOPMENT**

FIELD: INDUSTRIAL

PRODUCT # 4.1

PRODUCT NAME (S) >>>>>	OS/JG-200 (Oil & Grease)	ODOR SEAL
<b>1 USED IN:</b>	Oil refineries. Off-shore platforms. Tanks for oil storage. Industrial sew treatment plants.	
<b>2 QUALITIES:</b>	Industrial heavy lifting of oil & greases. Eliminates suspended solids in emulsions. Environment cleaning. Industrial degreaser.	
<b>3 CHARACTERISTICS</b>		
<b>pH:</b>	7.5 in concentrate form	
<b>Flash Point:</b>	Negligible	
<b>Boiling Point:</b>	100°C	
<b>Odor:</b>	Mild citrus smell	
<b>Water Solubility:</b>	Complete	
<b>Shelf Life:</b>	Indefinite when stored in closed containers between 0°C and 50°C	
<b>Corrosion:</b>	Non-corrosive	
<b>Flammable:</b>	Non-flammable	
<b>Biodegradability:</b>	100%	
<b>4 INSTRUCTIONS FOR USE:</b>		

FEB 01, 1997

**TECHNICAL DEPARTMENT**  
**RESEARCH & DEVELOPMENT**

**FIELD: INDUSTRIAL**

**PRODUCT # 4.2**

PRODUCT NAME (S) >>>>>	OS/JG-200 (BioFertilizer)	ODOR SEAL
<b>1 USED IN:</b>	Swimming Pools Sews Sew Treatment Plants Public Toilets Mobile Toilets Fat Tanks Waste Storage Zoo, kennels, stables, farms	
<b>2 QUALITIES:</b>	Polluted water cleaning Eliminates algae Encapsulates odors Degreases fat tanks	
<b>3 CHARACTERISTICS</b>		
pH:	7.5 in concentrate form	
Flash Point:	Negligible	
Boiling Point:	100°C	
Odor:	Mild citrus smell	
Water Solubility:	Complete	
Shelf Life:	Indefinite when stored in closed containers between 0°C and 50°C	
Corrosion:	Non-corrosive	
Flammable:	Non-flammable	
Biodegradability:	100%	
<b>4 INSTRUCTIONS FOR USE:</b>		
	<b>Dilution</b>	
Algae:	1:10,000	
Swimming Pools:	1:1,000	
Sews:	8 liters : 1 ton sludge	
Waste Storage:	1:10	
Kennels, stables:	1:10	

FEB 01, 1997

To: Ruy Caldas  
Fr. Alfred L. Trujillo  
Date: 03-18-98

Sub: As requested, here is the information pertaining to some of the projects CNPq has sponsored as well as other application of FFW Inc. products. Including a short update as to the STATE OF THE ART of each.

Dear Ruy,

The following is an update of the projects and or uses of the FFW Inc. products that I have knowledge of.

1. The use of Cold Fire in the formulation of a non toxic and non flammable foam. One of the institutes CNPQ had sponsored developed a polymer that is non toxic, as well as having other characteristics. They were trying to find a non toxic fire retardant. Upon one of my visits I mentioned that I thought I could get the exact product they needed. I sent them both Cold Fire and Cold Fire Retardant, which they tested. The Cold Fire worked very well and the Retardant did not because of the high ammonium content. Soft foam was made that was able to withstand temperatures of over 1000 degrees Celsius with very little effect. But the only foam they were able to make is the soft one; the other more rigid foams could not be made because of the high volume of water in the Cold Fire. This is why they need a concentrate of Cold Fire. There is already a company in the United States and another in Brazil who are highly motivated to use that foam.
2. The use of OS in WasteWater treatment and odor control. Clean Solutions a company that provides services and technologies in the area of wastewater treatment, has successfully incorporated OS in some of their applications.

## PROJECTS

Ceval - A soybean oil processing facility that has had a very serious problem with their waste water as well as other areas. Clean Solutions was asked by the Distributors of OS in that area to try to solve those problems. Their problems were as follows:

- a. Excess oil in the effluent
- b. Badly designed flotation unit
- c. Undersized waste water retention ponds, with strong offensive odor

OS was used to promote better oil separation in the decanting tanks. The quantity of oil recovered was doubled. In the flotation unit Cold Fire was tried because of its high surfactant potential but was not economical. However in using OS in the retention ponds over a period of 6 months, there was a change in the water clarity, however there was a real change in the BOD and BCD in the quantity of greases in the water. At this time Clean solution came into the picture and redesigned the treatment of the wastewater and the flotation system. They were the ones that tried the Cold fire as a surfactant. The OS was used as a water pretreatment and a bacteria was isolated from the wastewater ponds and grown in large quantities and added to the pond. The first treatment was a shock treatment using bacteria followed by weekly additions. OS was dripped into the wastewater at the input side before it went into the decanting tanks. Within 30 days there was a reduction of odor and the water and aquatic life was observed in the system. After an additional 30 days the BOD and BCD counts as well as the grease in the water were way below the level accepted by the state. An additional 30 days reduced them the almost non detectable levels. By the end of this week the ponds will be receiving with aquatic plants and fish.

Landfill in Curitiba - The landfill in Curitiba has a major problem in meeting its environmental obligations. A project was developed by FFW Inc. do Brasil where the management of the landfill was promised that OS could resolve all its problems including lowering pH levels. OS was applied for 60 days with very visible





SGS U.S. Testing Company Inc.

291 Fairfield Avenue  
Fairfield, NJ 07004-3833  
Tel: 973-575-5252  
Fax: 973-244-1694

Report Number: 128448R

Date: 08/18/99

Page: 1 of 2

Revised: 08/27/99

CLIENT: Firefreeze Worldwide Inc.  
Attn: Stephanie E. Giessler  
270 Route 46 East  
Rockaway, NJ 07866

SUBJECT: One (1) sample received on 08/03/99 and identified by the client as:  
JG-200

AUTHORIZATION: Client's check #2639

PURPOSE: Acid Neutralization Evaluation vs. Sulfuric and Hydrochloric Acids

TEST DATES: 08/16/99 - 08/17/99

PROCEDURE: A known concentration and volume of acid was titrated with the product (JG-200) to pH 7 and the ratio of product added to acid neutralized was calculated.

Oscar Innis  
Laboratory Supervisor

SIGNED FOR THE COMPANY BY:

Timothy P. Kroder  
Manager, Analytical Chemistry

/sm

Member of the SGS Group

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SGS U.S. TESTING COMPANY INC. REPORTS ARE FOR THE EXCLUSIVE USE OF THE CLIENT TO WHOM THEY ARE ADDRESSED. ANYONE RELYING ON SUCH REPORTS SHOULD UNDER-  
STAND ALL OF THE DETAILS OF THE ENGAGEMENT. REPORTS REFLECT RESULTS ONLY OF THE STANDARDS OR PROCEDURES IDENTIFIED TO THE TESTS CONDUCTED AND ARE LIMITED  
TO THE SAMPLES TESTED. TEST RESULTS MAY NOT BE INDICATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN. SGS U.S. TESTING COMPANY INC. HAS NOT

CLIENT: Firefreeze Worldwide Inc.

Report Number: 128448R

Date: 8/18/99

Page: 2 of 2

Revised: 08/27/99

**RESULTS:**

Concentration of Acid	Type of Acid	Neutralization Ratio (Volume/Volume)	
		Parts JG-200	Parts Acid
0.1 N	Hydrochloric Acid	1	7.1
0.1 N	Sulfuric Acid	1	7.2
1.0 N	Hydrochloric Acid	1.2	1
1.0 N	Sulfuric Acid	1.1	1
Concentrated (apprx. 12 N)	Hydrochloric Acid	14.4*	1*
Concentrated (apprx. 36 N)	Sulfuric Acid	39.6*	1*

\* Results obtained by calculation.

Concentration of acid is expressed as N, Normality, the hydrogen ion concentration. Concentrated acids have differing strengths, or normality.

Example of the above table:

Example 1: a 0.1 N spill of hydrochloric acid would require 1 part of JG-200 to 7.1 parts of spilled acid to neutralize.

Example 2: a 0.1 N spill of sulfuric acid would require 1 part of JG-200 to 7.2 parts of spilled acid to neutralize.

Example 3: 1.0 N spill of hydrochloric acid would require 1.2 parts of JG-200 to 1 part of spilled acid to neutralize.

Example 4: 1.0 N spill of sulfuric acid would require 1.1 part of JG-200 to 1 part of spilled acid to neutralize.

Example 5: a 1 gallon spill (~12 N) of concentrated hydrochloric acid would require approximately 14.4 gallons of concentrated JG-200 to neutralize the acid.

Example 6: a 1 gallon spill (~36 N) of concentrated sulfuric acid would require approximately 39.6 gallons of concentrated JG-200 to neutralize the acid.

\*\*\*\*\*

End of Report

REPORT OF TEST

Anmeldestelle Wasch-  
und Reinigungsmittel  
(nach § 9 WRMG)



Umwelt  
Bundes  
Amt

Umweltbundesamt Postfach 33 00 22 14191 Berlin

Einschreiben  
JG Industries  
270 Route 46 East

USA-Rockaway, NJ 07866

Datum:

Bearbeiter/in: Berlin, den 05.06.1998  
Moczko

Tel.-Durchwahl: 030/8903-3158

Geschäftszeichen: IV 1.5-20113-1/3901

(Bitte stets angeben!)

Betr.: Mitteilungen gem. § 9 Wasch- und Reinigungsmittelgesetz (WRMG)

Bezug: Ihr Schreiben vom 11.03.1998

Anl.: 2 Grundinformationsmitteilungen (nicht meldepflichtig) nebst  
Produktinformationen

Sehr geehrte Damen und Herren,

wir bestätigen hiermit den Eingang Ihrer Mitteilung(en) mit der/den  
Anmeldenummer(n)  
39010001 (Odor Seal, Odor eliminating, cleaning & degreasing agent)

Ihre Mitteilungen entsprechen den nach § 9 Abs. 2 (Nr. 1 bis 6) Wasch- und  
Reinigungsmittelgesetz geforderten Regelmitteilungen (Grundmitteilungen), die in  
der Verfahrensregelung vom 25.02.1989 (Punkt 4.2.1) im einzelnen aufgeführt sind.

Bitte beachten Sie, daß Änderungen der nach § 9 Abs. 2 mitgeteilten Angaben der  
Mitteilungspflicht unterliegen (§ 9 Abs. 3 Satz 1). Dies gilt ebenso für den Fall, daß Sie  
die Herstellung / Einführung / Verbringung von Wasch- und Reinigungsmitteln im  
Geltungsbereich dieses Gesetzes einstellen sollten.

Mit freundlichen Grüßen

Im Auftrag

*M. Moczko*  
M. Moczko

Subject: OSJG-200/FFAR

Date: Thu, 13 Jul 2000 17:33:42 +0200

From: "Lengton, W. (CT)" <w.lengton@ct.utwente.nl>

To: info@firefreeze.com

Dear Mr. J.O. Giessler,

Machiel Olde Dubbelink asked me to tell you something about the projects we do with OSJG-200 and FFAR.

I use OSJG-200 in water systems and in the agriculture.

FFAR is used in three main groups,

- air pollution
- water systems
- ground pollution

In Europe we have a lot of air pollution eg. in the chemical industry. There we use it by removing:

- organic solvents
- oils and fats
- sulfur components, hydrogensulfide, thiofenes,

diolen etc.

- basic components eg. amines and ammonia
- acid components eg. organic acids,

formaldehyde etc.

Customer plants are: paper plants, carpet plants, asphalt plants, chemical plants, wastewater treatment plants, compost plants, animal food plants, enamel plants etc.

In restaurants and in the food industry, we remove cooking odors, amines, etc.

Water systems: In ponds and ditches we use OSJG-200 for a better water quality.

Ground: starting with,

- removing organic solvents deep in the ground eg. perchloorethylene.
- old gas plants areas, removing of organic components and cyanides.

Thank you very much for your interest,

sincerely,

wim lengton

7/13/00 1:30 PM





I, the undersigned, Leon Hurlburt Lehman, Official Public Translator and Commercial Interpreter of the Portuguese and English languages, duly appointed, sworn and registered under No. 46, at the State of Minas Gerais Commercial Registry, Federative Republic of Brazil, on October 21st, 1977, pursuant to Federal Decree No. 13,609, of October 21st, 1943, and registered in the General Taxpayer Identification File (CPF) under No. 071692308-82, have translated a text from Portuguese into English as follows:

Translation No. 14434 Book CLXIV Pages 030-034

BR - PETROBRÁS

REGAP 33 1309 /97

Betim, November 26, 1997.

TO: FIREFREEZE WORLDWIDE DO BRASIL LTDA.

Rua Domingos Vieira 300, Conjunto 504

Bairro Santa Efigênia

BELO HORIZONTE, MINAS GERAIS

CEP. 30150-240

Dear Sirs,

Your Company's product, Odor Seal™ OS/JG 200 has been tested at the Hydric Effluent Treatment Station - "ETEH" at the Gabriel Passos Refinery for a four month period.

The main objectives of this test were:



1. Equating the ammonia content at the outlet of the north aeration pond to the standard established by the Environmental Legislation;
2. Reduction of 85% of the chemical demand for oxygen, comparing the outlet of the north aeration pond with that of the outlet to the PPI water and oil separator;
3. Cleaning the aeration ponds.

In addition to this, the following aspects were evaluated: odors at the ETEH, processing of recuperated oil, and eradication of algae of the aerogenic *Microcystis* species.

We list below our evaluation of the data obtained in the test:

- a. The results for oils and greases at the PPI water and oil separator outlet were compared for two distinct periods:
  - \* Before and after the test, when the system was not in good operational conditions, for the API water and oil separator was out of commission, with a reduction of 24% having occurred;
  - \* August 1994 to July 1995, when the system was in good operational conditions, and there was an increase of 3%.
- b. The product displayed good efficiency in breaking down the emulsion in processing recuperated oil in the API water and oil separators;



- c. The product displayed good efficiency in breaking down the emulsion in processing oil recuperated in the TQs of the residue, however after some time it began to emulsify again, indicating a need for constant drainings during the process;
- d. There was no reduction in the ammonia and DQO contents in the REGAP hydric effluent, there having been an actual increase in the DQO;
- e. During utilization of the product, a significant reduction in odors, characteristic of hydric effluent treatment stations, occurred in the field;
- f. During application of the product it was found that the surface of the water in the aeration ponds became cleaner. However, it was found that there was no reduction of inert sludge at the bottom of the north pond, when mechanical cleaning was performed (after the test), which indicates that this product does not substitute the manual process.

The study carried out by the Federal University of Minas Gerais - "UFMG", Development and Research Foundation - "FUNDEP" to evaluate the toxicity and capacity for eradicating algae of the aerogenic *Microcystis* species, found that:

- a. The product, in concentrations equal to, or smaller than, 1:1000 v/v, possibly would not cause any acute toxic effect on *Daphnia laevis*. However, these organisms are sensitive to





*LL*

high concentrations of the product, of around 1:100 v/v.  
Doses of 1:10,000 v/v were used in the test.

b. In regard to the control of the aerogenic Microcystis population, the product only becomes efficient in very high concentrations, of 1:10 and 1:100 v/v; such concentrations cannot be utilized due to the toxicity of the product, as per the previous item. In low concentrations (1:10,000) as you recommended, this product cannot hinder the growth of aerogenic Microcystis; one can go so far as to say that under certain conditions it may even stimulate the growth of this type of algae. Therefore, it was not demonstrated that this product was appropriate for controlling blue algae in natural environments.

The results obtained in the tests demonstrated that the main objectives were not reached, that is, the reduction of DQO, and of the ammonia content in the hydric effluent. Besides, positive results were not obtained in regard to eradication of the aerogenic Microcystis algae species in the Ibirité Pond, and also, the cost of the product is high. Therefore we have not recommended the utilization of this product for treatment of the REGAP hydric effluent.

We consider this test concluded. Consequently, we see no need for complementary studies as you suggested.

Regards,



PROF. LEON LEHMAN  
TRADUTOR PÚBLICO E INTERPRETE COMERCIAL (TRADUTOR JURAMENTADO)  
OFFICIAL PUBLIC TRANSLATOR AND COMMERCIAL INTERPRETER  
CPF: 071692306-02 - INPS: 108.897.37141



[Illegible Signature],

Elias Menezes Oliveira,

Gabriel Passos Refinery Superintendent.

————— END OF THE TRANSLATION —————

The foregoing is a complete, true and faithful translation of said document, in witness whereof, I have set my hand and seal hereunto, in the city of Belo Horizonte, on this 28th day of November, 1997.

Leon Hurlburt Lehman

Sworn Translator



you any additional clarification by means of phones  
(061) 226-9771, 226-6182 and fax (061) 224-3995 and 218-2316.

Best Regards,

[Illegible Signature],

Antônio Pessoa Nunes,

Substitute Secretary, SDA.

----- END OF THE TRANSLATION -----

The foregoing is a complete, true and faithful translation of  
said letter, in witness whereof, I have set my hand and seal  
hereunto, in the city of Belo Horizonte, on this 12th day of  
November, 1996.

Leon Hurlburt Lehman

Sworn Translator



LAP - DIQUE DE SAÍDA  
21-08-96



LAP - DIQUE DE SAÍDA  
10-09-96



SGS U.S. Testing Company Inc.

291 Fairfield Avenue • Fairfield, NJ 07004-3833 • Tel: 201-575-5252 • Fax: 201-244-1823

Report Number: 203520

Date: 05/08/97

Page: 1 of 6

# REPORT OF TEST

Antimicrobial Effectiveness

Of

Odor Seal JG-200

Conducted for:

Firefreeze Worldwide, Inc.

270 Route 46

Rockaway, NJ 07866

Prepared by:

Xiao Ming Wang, M.S.  
Microbiologist

SIGNED FOR THE COMPANY BY:

D. Keith Goins, Ph.D.  
Manager, Microbiology

Member of the SGS Group

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SGS U.S. Testing Company Inc.

**Client:** Firefreeze Worldwide, Inc.**Report Number:** 203520**Date:** 05/08/97**Page:** 2 of 6

**Sample:** The client submitted and identified the sample as: Odor Seal JG-200.

**Sample Description:** Clear, mobile, water-soluble liquid.

**Project:** Antimicrobial Effectiveness

**Test Dates:** 04/16/97 - 04/25/97

**Introduction:**

Testing was conducted to evaluate the antimicrobial effectiveness of Odor Seal JG-200. The project was divided into two phases. The first phase involved determining the antimicrobial activity of the sample by determining a minimum inhibitory concentration. The second phase involved evaluated to determine if it was effective in reducing or killing *Salmonella choleraesuis* which had been inoculated onto peppercorn.

**Procedures:**

**Test Organisms:** *Staphylococcus aureus* ATCC 6538  
*Salmonella choleraesuis* ATCC 10708

**A. Antimicrobial Activity of Odor Seal JG-200**

Antimicrobial activity was evaluated by determining a minimum inhibitory concentration (MIC). The procedure was as follows:

1. The sample was serially diluted in nutrient broth at concentrations ranging from 0.10% to 50%.
2. All dilutions were inoculated with 18-14 hour cultures of each test organism and incubated at 35°C for 48 hours.
3. At 48 hours, the dilutions were evaluated for microbial growth. The MIC was determined as the lowest concentration in which no visible growth of the test organism was detected.
4. All testing was conducted in duplicate.



SGS U.S. Testing Company Inc.

Client:

Firefreeze Worldwide, Inc.

Report Number: 203520

Date: 05/08/97

Page: 3 of 6

**B. Effectiveness Test**

An effectiveness test was conducted to evaluate Odor Seal JG-200 ability to reduce or eliminate *Salmonella choleraesuis* from peppercorn which was inoculated with the test organism. The effectiveness test procedure was as follows:

1. Whole black paper (Tone's Des Moines IA 50301 USA) and glass beads were autoclaved at 121°C 15 psi for 20 minutes to eliminate background microbial count which would interfere with testing.
2. The peppercorn was dried at 55°C for 10 hours
3. 50.0 g of peppercorn was aseptically weighed, grouped and treated as shown in Table 1.
4. Samples treated with Odor Seal JG-200 were inoculated with 0.5 mL ( or a 1% vol/wt) of the product to simulate a sprayed condition.
5. Once treated, plate counts were done at 0, 4 and 24 hours. Peppercorns and glass beads were sonicated for 5 minutes in nutrient broth before plating.
6. Microbial population reduction of the test organism was determined at each time interval.
7. Glass control beads were used as a reference to determine normal microbial population die off.
7. All testing was done in duplicate.

**Table 1. Treatment Procedure Summary for Peppercorns**

	<b>A</b> <b>Control</b>	<b>B</b>	<b>C</b>	<b>D</b> <b>Glass Beads</b> <b>Reference</b>
<b>Step a)</b>	Inoculate with 100 µL overnight <i>S. choleraesuis</i>	Inoculated with 100 µL overnight <i>S. choleraesuis</i>	Treated with 0.5 mL sample	Inoculated with 100 µL overnight <i>S. choleraesuis</i>
<b>Step b)</b>	N/A	Treated with 0.5 mL sample	Inoculated with 100 µL overnight <i>S. choleraesuis</i>	N/A
<b>Step c)</b>	Plate count at 0, 4 & 24 hours.	Plate count at 0, 4 & 24 hours.	Plate count at 0, 4 & 24 hours.	Plate count at 0, 4 & 24 hours.



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Client:

Firefreeze Worldwide, Inc.

Report Number: 203520

Date: 05/08/97

Page: 4 of 6

Results:Table 1: Minimum Inhibitory Concentration of Odor Seal JG-200

Test Organism	<i>S. aureus</i>		<i>S. choleraesuis</i>	
	<u>Replicate</u>		<u>Replicate</u>	
Odor Seal JG-200 Concentration (v/v)	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>
50%	+	+	+	+
25%	+	+	+	+
12.5%	+	+	+	+
6.25%	+	+	+	+
3.12%	+	+	+	+
1.66%	+	+	+	+
0.83%	+	+	+	+
0.42%	+	+	+	+
0.21%	+	+	+	+
0.10%	+	+	+	+

(+) = Growth

(-) = No Growth

MIC= Lowest concentration of test sample in which no visible growth of the test organism is detected.

REPORT OF TEST



SGS U.S. Testing Company Inc.

Client:

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Report Number: 203520

Date: 05/08/97

Page: 5 of 6

Results:

Table 2: Screening for Preservative Properties  
on Peppercorns Challenged with *S. choleraesuis*  
Replicate Count\* (cfu/mL)

	<u>A</u>		<u>B</u>		<u>Average</u>			
Initial Inoculum	2.6 x 10 <sup>6</sup>		1.4 x 10 <sup>6</sup>		2.0 x 10 <sup>6</sup>			
<u>Contact Time/Hours</u>	<u>Control Group A</u>		<u>Group B</u>		<u>Group C</u>		<u>Reference Group D</u>	
	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>
0	8.0x10 <sup>5</sup>	6.0x10 <sup>5</sup>	5.5x10 <sup>5</sup>	2.0x10 <sup>5</sup>	1.0x10 <sup>5</sup>	1.5x10 <sup>5</sup>	4.4x10 <sup>6</sup>	4.8x10 <sup>6</sup>
4	2.5x10 <sup>4</sup>	3.5x10 <sup>4</sup>	4.0x10 <sup>3</sup>	1.1x10 <sup>4</sup>	7.2x10 <sup>3</sup>	6.2x10 <sup>3</sup>	1.8x10 <sup>5</sup>	1.7x10 <sup>5</sup>
24	6.5x10 <sup>3</sup>	9.5x10 <sup>3</sup>	<10	<10	<10	<10	<10	<10
Population Change	-98.86%		-99.99%		-99.99%		-99.99%	

\*Plate counts were performed by sonicating the paper/glass beads in nutrient broth for 5 minutes.





SGS U.S. Testing Company Inc.

Client:

Firefreeze Worldwide, Inc.

**Report Number:** 203520

**Date:** 05/08/97

**Page:** 6 of 6

**Discussion/Conclusion:**

**A. Antimicrobial Activity of Odor Seal JG-200**

Odor Seal JG-200 did not exhibit antibacterial activity against the test organisms as determined by minimum inhibitory concentration testing.

**B. Effectiveness Test**

Presumptive evidence for preservative properties was obtained for the product when whole peppercorns were treated with Odor Seal. When inoculated with Odor Seal JG-200, peppercorns contaminated with *Salmonella choleraesuis* were found to be free of the test organism at 24 hours as opposed to untreated peppercorn identically tested. Peppercorn treated with Odor Seal at 1%, v/w whether treated before or after inoculation with the test organism showed similar preservative activity.

Germicidal activity cannot be presumed from the results since treated samples had the same die-off rates as glass bead reference. However, the data show an association with preservative properties, because die-off in untreated peppercorns was far lower.

TECHNICAL DEPARTMENT  
RESEARCH & DEVELOPMENT

FIELD: AGRICULTURE

PRODUCT # 3.1

PRODUCT NAME (S) >>>>>	OS/JG-200 (BioFertilizer)	ODOR SEAL
1 USED IN:	DIVERSIFIED PLANTATIONS	
2 QUALITIES:	Eradicates micro organisms harzardous to plants either in Plant stems Plant seeds Fruit pulps Eradicates "Cinipellis Perniciosa"	
3 CHARACTERISTICS	<p>pH: 7.5 in concentrate form Flash Point: Negligible Boiling Point: 100°C Odor: Mild citrus smell Water Solubility: Complete Shelf Life: Indefinite when stored in closed containers between 0°C and 50°C Corrosion: Non-corrosive Flammable: Non-flammable Biodegradability: 100%</p>	
4 INSTRUCTIONS FOR USE:	Dilute 5% in water.	

FEB 01, 1997

TECHNICAL DEPARTMENT  
RESEARCH & DEVELOPMENT

FIELD: AGRICULTURE

PRODUCT # 3,2

PRODUCT NAME (S) >>>>>	OS/JG-200 (Food Prep)	ODOR SEAL
1 USED IN:	FOOD PREPARATION	
2 QUALITIES:	Eliminates micro organisms harzardous to food. Eliminates Salmonella, Coliforms, and others. Increases fruits sizes. Prolongs shelf life of meat, eggs and fruits without refrigeration.	
3 CHARACTERISTICS	<p>pH: 7.5 in concentrate form Flash Point: Negligible Boiling Point: 100°C Odor: Mild citrus smell Water Solubility: Complete Shelf Life: Indefinite when stored in closed containers between 0°C and 50°C Corrosion: Non-corrosive Flammable: Non-flammable Biodegradability: 100%</p>	
4 INSTRUCTIONS FOR USE:	Do not dilute. To be used in concentrate form.	

FEB 01, 1997

**Example 2:** a healthy banana plant should produce 13 leaves in order to produce the largest and best bananas. Due to fungi and insect infestation as well as the use of toxic pesticides, the banana plant only produces on average 9 leaves, which are also significantly smaller in size. Having 13 leaves is extremely important as it acts as a protective canopy for the banana plant. The size of the leaves will determine the size of the bananas. When you have a larger protective canopy, you will also produce healthier and more abundant bananas.

**Example 3:** The pesticides, insecticides and fertilizers used to date have also decreased the plants' ability to absorb vital nutrients it needs from the soil.

#### **Application of OS/JG-200FP**

OS/JG-200FP is sprayed onto the stalk of the plant, the leaves, fruit, and the ground around the tree. Workers can use a farm style backpack sprayer to apply the product with ease.

**Dosage:** The recommended dosage for treatment of disease and fungi is a 1% dilution rate to be applied every 15 days. Application should be repeated if heavy rain occurs.

To date *aerial fumigation* has been used to apply insecticides, fertilizers, pesticides needed to control fungi and insect infestation; however, this effort has been unsuccessful as aerial application does not penetrate the canopy of the trees, thereby not reaching the bottom of the banana leaves. It has been recognized that manual application, using a backpack type sprayer is needed to apply the product. This application would also be successful in generating more jobs for the local community.

#### **Advantages of OS/JG-200FP**

- Increases the immune system of the plant.
- Naturally reduces the smell of the fruit to repel insects; thereby controlling infestation.
- OS/JG-200FP breaks down the hydrocarbons and toxins in the soil of the formerly used pesticides, insecticides, fertilizers as well as acid rain. By breaking down the hydrocarbons, OS/JG-200FP allows the plant to absorb the nutrients in the soil more quickly and efficiently; thereby, producing a healthier, fruit bearing plant.
- Repels the *Cochinilla*.
- Works to eliminate the *Sigatoca* Fungus



- Increases the amount of leaves from 9 to 13; thereby increasing the size of the bananas.
- Increases the size of the leaves to produce a better protective canopy, one, which increases the health and size of the bananas. Larger leaves are a sign of a healthy plant.
- All of the above benefits lead to increased surplus.
- **OS/JG-200FP** has also shown preservation qualities, in which the shelf life of the bananas has been extended by three (3) week's time using the product. This is a significant advantage due to the fact that under previous circumstances the fruit was arriving spoiled by the time it reached the port for sale and export.

**OS/JG-200FP** has been recognized as an effective and safe alternative to the insecticides, pesticides, and fertilizers etc. used today. **OS/JG-200FP** works as an insecticide, pesticide and fertilizer; however, without the toxic hazard to workers, the well being of the plants, and the environment as a whole. It is a safe alternative. And because the product is plant based, it is more difficult for fungi and insects to build immunity to the product.

\*The *Cochinilla* and *Sigatoca* also affect the Plantains plantations in Ecuador. **OS/JG-200FP** has also been successful in treating these plantations.

See pictures attached for further reference on **OS/JG-200FP's** use on bananas and plantains.

## PLANTAIN TREES PRIOR TO USE OF OS/JG-200FP

Notice: yellow/brown discoloration of leaves—sign of Sigatoca infestation, deformed/crippled leaves; only a few leaves accompany the tree,





## PLANTAIN TREES PRIOR TO USE OF OS/JG-200FP

**Notice:** yellow/brown discoloration of leaves—sign of Sigatoca infestation, deformed/crippled leaves; only a few leaves accompany the tree.



## PLANTAIN TREES PRIOR TO USE OF OS/JG-200FP

Notice: yellow/brown discoloration of leaves—sign of Sigatoka infestation, deformed/crippled leaves; only a few leaves accompany the tree.





**PLANTAIN TREES BEING APPLIED WITH OS/JG-200FP**  
*(1 application every 15 days at 1%)*

A back pack sprayer is used to mist the product onto the trees.



**PLANTAIN TREES AFTER 2 APPLICATIONS OF OS/JG-200FP**  
*(1 application every 15 days at 1%)*

**Notice:** leaves are green, healthy and more abundant in just 30 days. Stalk looks more vibrant and is stronger. The Sigatoka fungus and infestation of the Cochinilla has been controlled, if not eliminated.





**PLANTAIN TREES AFTER 2 APPLICATIONS OF OS/JG-200FP**  
*(1 application every 15 days at 1%)*

**Notice:** leaves are green, healthy and more abundant in just 30 days. Stalk looks more vibrant and is stronger. The Sigatoka fungus and infestation of the Cochinilla has been controlled, if not eliminated.



VIEW OF THE INSIDE OF A BANANA TREE TRUNK BEFORE USING  
OS/JG-200FP (TOP) AND AFTER (BOTTOM)

Before: Notice the extreme rooting of the trunk and root.

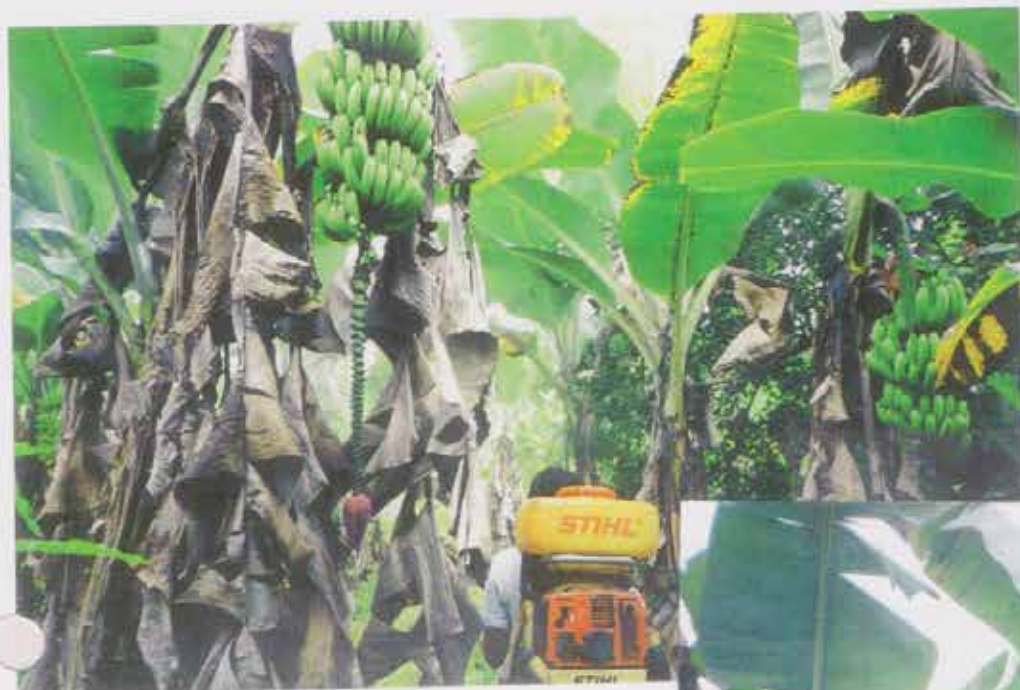
After: Notice a healthy stalk and root with all fibers intact.





## BANANA TREES PRIOR TO USE OF OS/JG-200FP

Notice: Yellow/brown discoloration of the leaves, this is a sign of Sigatoka infestation, deformed/crippled leaves, as well as only a few leaves accompany the trees. Both photos show the spraying of the 1<sup>st</sup> application of OS/JG-200FP via a back pack sprayer.



## BANANA TREES PRIOR TO USE OF OS/JG-200FP

Notice: Yellow/brown discoloration of the leaves, this is a sign of Sigatoka infestation, deformed/crippled leaves, as well as only a few leaves accompany the trees.





## BANANA TREES AFTER 2<sup>ND</sup> APPLICATION OF OS/JG-200FP

**Notice:** leaves are green, healthy, and more abundant in just 30 days. Leaves have grown to be larger in size producing a larger canopy. There is no sign of the Sigatoka fungus and the Cochinilla insect has been controlled. Trees are producing larger, healthier looking fruit due to increase in leaf size.



## BANANA TREES AFTER 2<sup>ND</sup> APPLICATION OF OS/JG-200FP

**Notice:** leaves are green, healthy, and more abundant in just 30 days. Leaves have grown to be larger in size producing a larger canopy. There is no sign of the Sigatoka fungus and the Cochinilla insect has been controlled. Trees are producing larger, healthier looking fruit due to increase in leaf size.





## OS/JG-200™ Industrial Encapsulator of Hydrocarbons

OS/JG-200™ is a industrial degreasing agent and cleaner, specially formulated to separate, encapsulate and rapidly biodegrade hydrocarbons in the environment. OS/JG-200™ is an excellent cleaning and degreasing agent. OS/JG-200™ is water soluble and rapidly biodegradable.

Capabilities	
<b>Cleaning Power:</b>	Encapsulates hydrocarbons. Cleans, degreases and separates oil based on application. Helps to clarify and oxygenate polluted bodies of water.
<b>Applications:</b>	Use in refineries, oil separators, holding tanks, sludge ponds to separate sludge and oil as well as help biodegrade sludge and oil. Product works to recoup oil resulting in less waste. May also be used in polluted waterways and sewage treatment plants to separate oil, clean hydrocarbons, clarify and oxygenate water.
<b>Oil Emulsification:</b>	Slight. Oil molecules do not form a tight emulsion with the cleaning solution.
<b>Dispersant Capability:</b>	Low. Cleaned oil does not stay entrained in water.
<b>Residue:</b>	No residue after rinsing.

Characteristics	
<b>pH:</b>	7.5 in concentrate form.
<b>Flash Point:</b>	Negligible.
<b>Boiling Point:</b>	Greater than 212°F.
<b>Odor:</b>	Mild citrus smell. Does not contain d-limonenes.
<b>Water Solubility:</b>	Complete.
<b>Shelf Life:</b>	Indefinite when stored in closed containers between 32°F and 120°F.

Environmental and Safety Considerations	
<b>Biodegradability:</b>	100%.
<b>Hazardous Components:</b>	No components are listed in the NIOSH Recommendations for Occupational Health Standards, 1988, or are defined as hazardous by SARA, CERLA, or RCRA. No OSHA PEL's are established for ingredients.
<b>Handling:</b>	Cleaner is alkaline. In concentrated form the cleaner will remove oil from the skin and may irritate the eyes if sprayed directly into them. Eye protection, gloves, and impervious clothing should be worn when there is danger of splashing, prolonged vapor or skin contact.
<b>Disposal:</b>	Cleaner itself may be disposed through municipal systems. Oil cleaned from surfaces must be disposed following local regulations.

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270 Rt. 46, Rockaway, N.J.  
Tel: (201) 677-0777 Fax: (201) 677-7987

**Skin:** Wash affected area with water.  
**Inhalation:** Negligible.  
**Ingestion:** Drink water. Obtain medical attention if necessary.

**Carcinogenicity**

NTP? No IARC? No OSHA Regulated? No

**SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

**Spill or Leak Procedures**

Rinse affected area with water.

**Waste Disposal Method**

Dispose as non-hazardous waste in accordance with local regulations.

**Storage and Handling Precautions**

Store between 32°F and 120°F in closed container to prevent evaporation. Freezing will not damage material as long as container remains intact.

**Other Precautions**

Product is a strong and effective cleaner and encapsulator of hydrocarbons. Although components have no hazard levels, the product may remove oils from the skin causing slight dryness. Avoid prolonged skin contact.

**SECTION VIII - CONTROL MEASURES**

**Respiratory Protection**

In confined spaces, use respirator appropriate to source being treated; otherwise none.

**Ventilation**

Under ordinary conditions of use for its intended purpose, no special ventilation is required.

**Protective Gloves**

Wear when using in bulk applications or when there is reasonable probability of contact.

**Eye Protection**

Wear if needed to prevent reasonable probability of eye contact.

**Work/Hygiene Practices**

Do not ingest, do not splash into eyes, and do not inhale for prolonged periods. Wash skin and clothing after using if there is reasonable probability of contact with the product, as with all chemicals.

**SECTION IX - HAZARD CLASSIFICATION**

**IMO Hazard Class and Number:** Non-hazardous.

**UN Number:** Not applicable.

**US DOT Hazard Class:** Not regulated by DOT

**US DOT Identification Number:** Not applicable.

**SECTION X - ENVIRONMENTAL DATA**

**Biodegradability:** Product is 100% biodegradable in an active environment within 21 days.

**Toxicity:** Testing is a 96 hour static non-renewal test, using mysidopsis babia, showed less than 5% mortality at a concentration of 338 ppm. Estimated LC50 > 2,500 ppm.

The information presented in this MSDS is believed to be factual. However, nothing contained in this information is to be taken as a warranty of any kind by JG Industries, Inc.. The user should review any recommendations, in the specific context of the intended use, to determine whether they are appropriate.

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Tel. (701) 627-0777 Fax. (701) 627-7087



LAP - DIQUE DE SAÍDA  
19-09-96



LAP - DIQUE DE SAÍDA  
07-10-96





BAN - VISTA GERAL  
10-09-96



BAN - DETALHE DA MARGEM  
07-10-96





BAS - DUTO DE ENTRADA  
21-08-96



BAS - DUTO DE ENTRADA  
10-09-96



BAS - VISTA GERAL / SEPTO DE ENTRADA  
21-08-96



BAS - SEPTO DE ENTRADA  
10-09-96



← CAIXA PPI  
VISTA GERAL / GALERIAS  
20-08-96



CAIXA PPI  
VISTA GALERIA / SUB-POÇO →  
10-09-96





CAIXA API - VISTA DA ENTRADA DA CAIXA  
19-09-96



CAIXA API - VISTA DA ENTRADA DAS CÉLULAS / SAO  
07-10-96





CAIXA API - ENTRADA DA CAIXA / ROLO COLETOR  
20-08-96



CAIXA API - ENTRADA DAS CÉLULAS / SAO  
10-09-96

# OS/JG-200™FP

## BioFertilizer & Encapsulator of Hydrocarbons



OS/JG-200™FP, (FP stands for "Food Prep") is a derivative of Odor Seal®, an industrial odor eliminating and degreasing agent. OS/JG-200™FP is a unique formulation specifically designed for agricultural applications. This unique formulation, after continuous testing and usage in the field, has been found to: reduce insect infestation and rid disease (i.e. fungi).



OS/JG-200™FP seems to work as a "protectant", helping to protect the source from disease, thereby enhancing its strength and increasing its growth.

### Application:

OS/JG-200™FP is sprayed onto the source, i.e. vegetation, at a specified dilution rate, depending on the application.



OS/JG-200™FP has also been shown to "preserve" food. In preliminary test applications, it has been observed that the shelf life of certain foods dipped in OS/JG200™FP are extended without refrigeration. This unique quality has led JG Industries to further evaluate this product as a possible "preservative". JG Industries believes there is a need for such an application. One which would extend the life of vegetation, for example, when transporting/exporting such items.



OS/JG-200™FP is presently in a R&D phase. JG Industries, Inc. welcomes the opportunity to test its product with companies specifically interested in such agricultural applications. Specifics on dilution rates will be outlined for each test application to guarantee best results.

**OS/JG-200™FP is Environmentally Friendly, Non-Toxic, Non-Corrosive, Biodegradable and Easy to Use.**

Manufactured by:  
JG INDUSTRIES, INC.  
270 Route 46 East, Rockaway, N.J. 07866  
Tel: (973) 627-0722 Fax: (973) 627-2982



## OS/JG-200™FP

### Biofertilizer & Encapsulator of Hydrocarbons

A derivative of Odor Seal, OS/JG-200™FP is unique formula that has, after continuous and extensive use in the field, been found to enhance the immune system of plants and vegetations by allowing nutrients in the soil to be absorbed more efficiently. By supplying the plant or vegetation with more nutrients, enhanced growth and strength are generated. OS/JG-200FP works to strengthen the immune system of the environment. When used on vegetation, OS/JF-200FP works to ward off insects and rid disease.

Capabilities	
<b>Cleaning Power:</b>	Enhance the growth of vegetation and animal production by allowing more effective use of nutrients. Works naturally with the environment to ward off and rid disease. Encapsulates hydrocarbons.
<b>Applications:</b>	The product is used for both agricultural and farming applications. The product is sprayed on vegetation and on animals to ward off insects and rid disease. Product is also used as a natural fertilizer and insecticide. OS/JG-200FP works to deliver nutrients more efficiently to the plant or animal.
<b>Oil Emulsification:</b>	Slight. Oil molecules do not form a tight emulsion with the cleaning solution.
<b>Dispersant Capability:</b>	Low. Cleaned oil does not stay entrained in water.
<b>Residue:</b>	No residue after rinsing.

Characteristics	
<b>pH:</b>	7.5 in concentrate form.
<b>Flash Point:</b>	Negligible.
<b>Boiling Point:</b>	Greater than 212°F.
<b>Odor:</b>	Mild fresh scent smell. Does not contain d-limonenes.
<b>Water Solubility:</b>	Complete.
<b>Shelf Life:</b>	Indefinite when stored in closed containers between 32°F and 120°F.

Environmental and Safety Considerations	
<b>Biodegradability:</b>	100%.
<b>Hazardous Components:</b>	No components are listed in the NIOSH Recommendations for Occupational Health Standards, 1988, or are defined as hazardous by SARA, CERLA, or RCRA. No OSHA PEL's are established for ingredients.
<b>Handling:</b>	Cleaner is alkaline. In concentrated form the cleaner will remove oil from the skin and may irritate the eyes if sprayed directly into them.
<b>Disposal:</b>	Cleaner itself may be disposed through municipal systems. Oil cleaned from surfaces must be disposed following local regulations.

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## OS/JG-200™F Biofertilizer & Encapsulator

A derivative of Odor Seal, OS/JG-200™F is unique for extensive use in the field, been found to enhance the immune system allowing nutrients in the soil to be absorbed more efficiently with more nutrients, enhanced growth and strength are generated, strengthen the immune system of the environment. When used it works to ward off insects and rid disease.

Capabilities	
<b>Cleaning Power:</b>	Enhance the growth of vegetation and effective use of nutrients. Works natural rid disease. Encapsulates hydrocarbon
<b>Applications:</b>	The product is used for both agricultural product is sprayed on vegetation and on animal disease. Product is also used as a natural fertilizer. <b>OS/JG-200F</b> works to deliver nutrients
<b>Oil Emulsification:</b>	Slight. Oil molecules do not form a tight
<b>Dispersant Capability:</b>	Low. Cleaned oil does not stay entrained
<b>Residue:</b>	No residue after rinsing.

Characteristics	
<b>pH:</b>	7.5 in concentrate form.
<b>Flash Point:</b>	Negligible.
<b>Boiling Point:</b>	Greater than 212°F.
<b>Odor:</b>	Mild fresh scent smell. Does not contain
<b>Water Solubility:</b>	Complete.
<b>Shelf Life:</b>	Indefinite when stored in closed container

Environmental and Safety Considerations	
<b>Biodegradability:</b>	100%.
<b>Hazardous Components:</b>	No components are listed in the NIOSH Health Standards, 1988, or are defined RCRA. No OSHA PEL's are established
<b>Handling:</b>	Cleaner is alkaline. In concentrated form for skin and may irritate the eyes if sprayed
<b>Disposal:</b>	Cleaner itself may be disposed through surfaces must be disposed following local

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SGS U.S. Testing Company Inc.

Client: Firefreeze Worldwide, Inc.

Sample: The client submitted and is JG-200.

Sample Description: Clear, mobile, water-soluble

Project: Antimicrobial Effectiveness

Test Dates: 04/16/97 - 04/25/97

Introduction:

Testing was conducted to evaluate the antimicrobial effectiveness of the sample. The project was divided into two phases. The first phase involved determining the minimum inhibitory concentration (MIC) of the sample by determining a minimum inhibitor concentration (MIC) involved evaluated to determine if it was effective in reducing the growth of which had been inoculated onto peppercorn.

Procedures:

**Test Organisms:** *Staphylococcus aureus* ATCC 29218  
*Salmonella choleraesuis* ATCC 14028

**A. Antimicrobial Activity of Odor Seal JG-200**

Antimicrobial activity was evaluated by determining the minimum inhibitory concentration (MIC). The procedure was as follows:

1. The sample was serially diluted in nutrient broth from 0.10% to 50%.
2. All dilutions were inoculated with 18-14 hours and incubated at 35°C for 48 hours.
3. At 48 hours, the dilutions were evaluated and determined as the lowest concentration in which no organism was detected.
4. All testing was conducted in duplicate.

# MATERIAL SAFETY DATA SHEET

## OS/JG-200™FP

### SECTION I - IDENTIFICATION

**Manufacturer:** JG Industries, Inc.  
**Address:** 270 Route 46, Rockaway, N.J. 07866  
**Phone:** (973) 627-0722 **Fax:** (973) 627-2982  
**Date Prepared:** January 1, 1999 **Formulation #:** JG200-FP  
**Trade Name:** OS/JG-200FP (Agro-Medic)  
**Product:** Biofertilizer and industrial encapsulator of hydrocarbons. The FP formulation of JG-200 is a special formulation for use in food preparation and agricultural applications.

### SECTION II - INGREDIENTS AND HAZARD CLASSIFICATION

<u>Ingredients (CAS)</u>	<u>Percent</u>	<u>OSHA PEL/TLV</u>
--------------------------	----------------	---------------------

Components are classified trade secret. No components are believed to be hazardous, or listed in the NIOSH Recommendations for Occupational Safety and Health Standards, 1988, or are listed as hazardous by SARA, CERCLA, or RCRA. No OSHA PEL's are established for any of the ingredients.

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

<b>Boiling Point:</b>	212°F	<b>Vapor Pressure (mm Hg):</b>	1.0 @ 20°C
<b>Solubility in water:</b>	100%	<b>Specific Gravity:</b>	1.02 @ 60°F
<b>pH:</b>	7.5 (concentrate)	<b>Appearance and Odor:</b>	Straw liquid color & mild fresh scent. (Note: No d-limonenes.)

### SECTION IV - FIRE AND EXPLOSION DATA

<b>Flash Point:</b>	Not applicable.	<b>Flammable Limits:</b>	Not applicable.
<b>LEL:</b>	Not applicable.	<b>UEL:</b>	Not applicable.
<b>Extinguishing Media:</b>	Not applicable.		
<b>Special Fire Fighting Procedures:</b>	Not applicable.		
<b>Unusual Fire and Explosion Hazards:</b>	None.		

### SECTION V - REACTIVITY DATA

<b>Stability:</b>	Stable.	<b>Incompatibility:</b>	None.
<b>Hazardous Decomposition Products:</b>	Carbon monoxide and carbon dioxide.		
<b>Hazardous Polymerization:</b>	Will not occur.		

### SECTION VI - HEALTH HAZARD DATA

<b>Exposure Limits</b>			
<b>OSHA PEL:</b>	Not established.	<b>ACGIH TEL:</b>	Not established.
<b>Routes of Entry</b>			
<b>Inhalation:</b>	Yes	<b>Skin:</b>	Yes
		<b>Ingestion:</b>	Yes

#### Signs and Symptoms of Exposure

<b>Eyes:</b>	Slight irritation may occur if sprayed directly into eyes.
<b>Skin:</b>	Liquid is medium base. Prolonged contact may cause some dryness of the skin, like soap would.
<b>Inhalation:</b>	Negligible.
<b>Ingestion:</b>	Do not ingest. May cause nausea and diarrhea.

#### First Aid

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Tel: (701) 627-0722 Fax: (701) 627-2982



**Eyes:** Flush eyes with water for 1 minute. Seek medical aid if irritation persists.  
**Skin:** Wash affected area with water.  
**Inhalation:** Negligible.  
**Ingestion:** Drink water. Obtain medical attention if necessary.

**Carcinogenicity**

NTP? No IARC? No OSHA Regulated? No

**SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

**Spill or Leak Procedures**

Rinse affected area with water.

**Waste Disposal Method**

Dispose as non-hazardous waste in accordance with local regulations.

**Storage and Handling Precautions**

Store between 32°F and 120°F in closed container to prevent evaporation. Freezing will not damage material as long as container remains intact.

**Other Precautions**

Product is a strong and effective cleaner and encapsulator of hydrocarbons. Although components have no hazard levels, the product may remove oils from the skin causing slight dryness.

**SECTION VIII - CONTROL MEASURES**

**Respiratory Protection**

In confined spaces, use respirator appropriate to source being treated; otherwise none.

**Ventilation**

Under ordinary conditions of use for its intended purpose, no special ventilation is required.

**Protective Gloves**

Wear when there is reasonable probability of prolonged contact.

**Eye Protection**

Wear if needed to prevent reasonable probability of eye contact.

**Work/Hygienic Practices**

Do not ingest, do not splash into eyes, and do not inhale for prolonged periods. Wash skin and clothing after using if there is reasonable probability of contact with the product, as with all chemicals.

**SECTION IX - HAZARD CLASSIFICATION**

**IMO Hazard Class and Number:** Non-hazardous. **UN Number:** Not applicable.

**US DOT Hazard Class:** Not regulated by DOT **US DOT Identification Number:** Not applicable.

**SECTION X - ENVIRONMENTAL DATA**

**Biodegradability:** Product is 100% biodegradable in an active environment within 21 days.

**Toxicity:** Testing is a 96 hour static non-renewal test, using mysidopsis babia, showed less than 5% mortality at a concentration of 338 ppm. Estimated LC50 > 2,500 ppm.

The information presented in this MSDS is believed to be factual. However, nothing contained in this information is to be taken as a warranty of any kind by JG Industries, Inc.. The user should review any recommendations, in the specific context of the intended use, to determine whether they are appropriate.

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## **Protocol for the use of OS/JG-200FP on Rice Patties**

### **Preparation for a Healthier Yield as well as Increased Surplus**

**OS/JG-200FP** works to break the molecular chain of paraffin in the water and soil. **OS/JG-200FP** will at the same time biodegrade the hydrocarbons found in toxic pesticides, fertilizers and insecticides which are being used to treat the rice patties. Both processes allow the root system of the plant to absorb the nutrients in the soil and water needed; thereby enhancing the health of the patties and increasing their yield.

**OS/JG-200FP** works as a natural, environmentally friendly pesticide, fertilizer and insecticide in one. The product works to increase the immune system of the plant.

### **Initial Preparation of OS/JG-200FP for use on Rice Patty Field**

Before planting rice, mix 200 liters of **OS/JG-200FP** to 1,000 sq. meters of field. This can be achieved by dumping 20 liters of **OS/JG-200FP** at 10 different locations within the field. See a schematic design next page.

**OS/JG-200FP** will almost instantly mix with the soil and water. The normal process of planting rice plugs will effectively disperse the product throughout the field. No equipment is required.

### **Results:**

- The growth cycle of the patties is shortened.
- Rice patties will grow to be more plentiful and healthier.
- There will be a decrease in mortality due to less disease and insect infestation.

**All of the above shall lead to a healthier, stronger, more abundant yield.**



Official  
Fire Fighting  
Agent of:

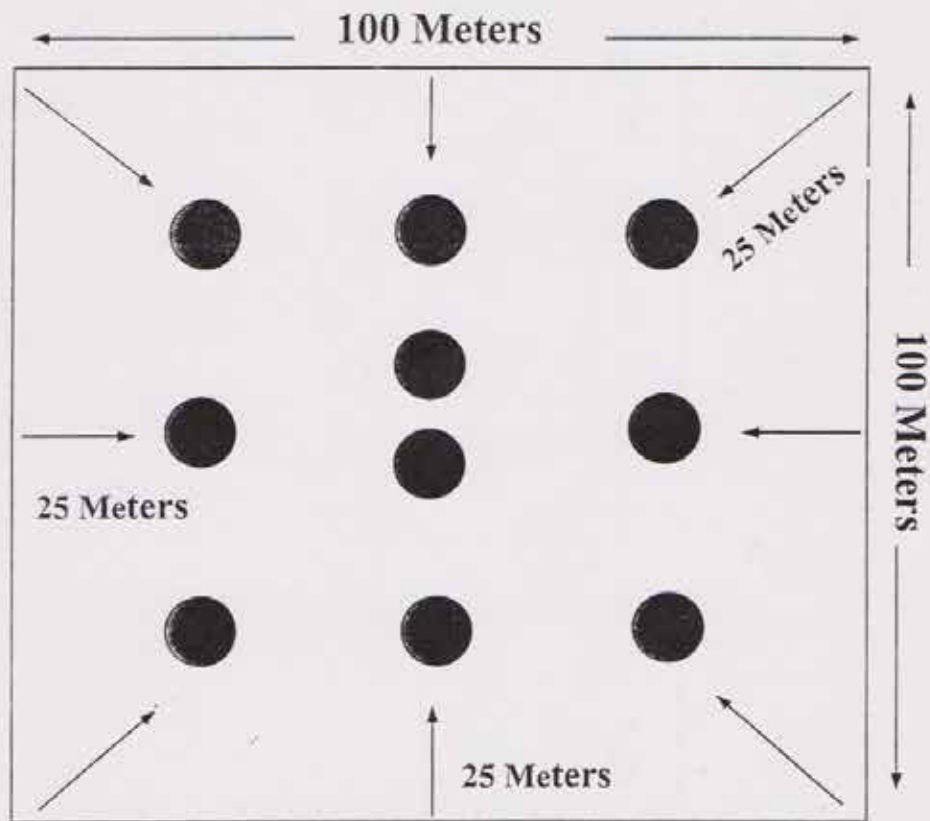


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**Schematic Design:**

**20 Liters of OS/JG-200FP should be dumped at 10 locations within rice patty**



**Product mixes instantaneously with the water and soil .  
The process of planting rice patty plugs effectively  
disperses product throughout out the field.**





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Rua Paulo Afonso, 501 - Fone: (031)342-1306 - CEP 30350-080 - Belo Horizonte - MG



I, the undersigned, Leon Hurlburt Lehman, Official Public Translator and Commercial Interpreter of the Portuguese and English languages, duly appointed, sworn and registered under No. 46, at the State of Minas Gerais Commercial Registry, Federative Republic of Brazil, on October 21st, 1977, pursuant to Federal Decree No. 13.609, of October 21st, 1943, and registered in the General Taxpayer Identification File (CPF) under No. 071692306-82, have translated a text from Portuguese into English as follows:

Translation No. 13546 Book C. 411 Pages 198 - 200

[Great Seal of the Federative Republic of Brazil]

FEDERAL CIVIL SERVICE

Ministry of Agriculture and of Supply

Farming and Ranching Protection Department

SECRETARY'S OFFICE

OF.GAB/SDA No. 888/96

Brasília, November 04, 1996.

FIREFREEZE WORLDWIDE DO BRASIL LTDA

Rua Pernambuco, 1077 5o. andar

30130-151, Belo Horizonte, Minas Gerais [Brasil]

c/o Mr. DOWER DRUMMOND

Dear Sir,

The Ministry of Agriculture and Supply ("MA"/Brazil)  
Farming and Ranching Protection Department ("SDA"),  
through the Federal Bureau of Agriculture and Supply - "DFA",



*Handwritten signature*

in the State of Pará, Brazil, carried out tests at the Apoio Vegetal Laboratory - "LAV/DFA/PA" on the product ODOR REAL, FOOD PREP (OS/JG-200) manufactured by your firm. The laboratory results observed were positive in regard to fighting and eliminating noxious microorganisms (salmonella, coliform molds and ferments) in the black pepper.

This being so, some Brazilian producers and exporters of black pepper have signified their intention of buying and using such product to control these microorganisms noxious to agricultural products.

Nevertheless, the toxic action of this product is unknown to us, and neither do we have evidence regarding its natural formulation. This is the reason why it is necessary that your firm send us a guarantee issued by the United States of America Food and Drug Administration - FDA recognizing its atoxic [properties] and natural formulation of the product, so that we may initiate the registration procedures so as to use this product for conditioning food for marketing and export.

We thank you for your contribution to the search for solutions to the problems in the farm produce field, and in improving their quality through the use of natural products, to aid man in his environment.

In view of what has been explained, we hope to hear from you concerning this matter, and also will be glad to give