

# NOSB NATIONAL LIST FILE CHECKLIST

## CROPS

**MATERIAL NAME:** Fish Products

**CATEGORY:** Synthetic

**Complete?:** \_\_\_\_\_

✓ NOSB Database Form

✓ References

✓ MSDS (or equivalent)

\_\_\_\_\_ Date file mailed out: 1/17/95

\_\_\_\_\_ TAP Reviews from: \_\_\_\_\_

James Johnson

Bruce Spencer

Paul Sachs

\_\_\_\_\_ Supplemental Information:

**MISSING INFORMATION:** \_\_\_\_\_

# NOSB/NATIONAL LIST COMMENT FORM/BALLOT

Use this page to write down comments and questions regarding the data presented in the file of this National List material. Also record your planned opinion/vote to save time at the meeting on the National List.

Name of Material Fish Products

Type of Use:  Crops;  Livestock;  Processing

TAP Review by:

1. James Johnson
2. Bruce Spencer
3. Paul Sachs

Comments/Questions:

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My Opinion/Vote is:

Signature \_\_\_\_\_ Date \_\_\_\_\_

# USDA/TAP REVIEWER COMMENT FORM

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Attach additional sheets if you wish.

This file is due back to us within 30 days of: due: MAR 01 1995

Name of Material: Fish Products

Reviewer Name: Paul Sachs

**Is this substance Natural or Synthetic? Explain (if appropriate)**

*Fish emulsion or hydrolysate should be considered natural. The manufacturing process involves heating and screening. Hydrolysates have natural enzymes added to help break down proteins. (over--->#1*

**Please comment on the accuracy of the information in the file:**

*I did not find any inaccuracies.*

**This material should be added to the National List as:**

Synthetic Allowed  Prohibited Natural

**or,  This material does not belong on the National List because:**

*If one considers this product synthetic, then it should be added to the National List as Synthetic Allowed. However, in my opinion, Fish products should be considered natural and their use on organic farms should be encouraged.*

**Are there any restrictions or limitations that should be placed on this material by use or application on the National List?**

*All materials should be used in accordance with the label.*

**Any additional comments or references?**

Signature

Paul O. Sachs

Date

2/1/95

**ORGANIC FOOD PRODUCTION ACT/NATIONAL LIST SECTIONS**

#1. Either phosphoric or sulphuric acid is added to stabilize the product i.e. to prevent the establishment of bacterial organisms from fermenting the product. The addition of acid to these products may, in the opinion of some, change the status of the products to synthetic, especially because phosphoric acid will increase the fertilizer value. However, phosphoric acid is a more innocuous and safer stabilizing agent. It is also more expensive. Manufacturers who choose to use phosphoric acid instead of sulfuric acid should not be penalized by having their product prohibited.

# USDA/TAP REVIEWER COMMENT FORM

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Attach additional sheets if you wish.

This file is due back to us within 30 days of: Due: MAR 01 1995

Name of Material: Fish Products

Reviewer Name: James Johnson

**Is this substance Natural or Synthetic? Explain (if appropriate)**

Synthetic - because of the additions of sulfuric or phosphoric acids. If citric acid is naturally derived from citrus products, "natural-approved" status.

**Please comment on the accuracy of the information in the file:**

complete except "manufacture" & status section

**This material should be added to the National List as:**

Synthetic Allowed (see exception)  Prohibited Natural

or,  This material does not belong on the National List because:

**Are there any restrictions or limitations that should be placed on this material by use or application on the National List?**

Putricability factor should be indicated on product, (e. pti adjusted) so that end user will not cause a stink with neighbors. This may be more of a quality issue than a regulatory one.

**Any additional comments or references?**

see Materials Database

Signature James A. Johnson Date 3/8/95

**ORGANIC FOOD PRODUCTION ACT/NATIONAL LIST SECTIONS**

# USDA/TAP REVIEWER COMMENT FORM

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Attach additional sheets if you wish.

This file is due back to us within 30 days of: Due: MAR 01 1995

Name of Material: Fish Products

Reviewer Name: Bruce Spencer

Is this substance Natural or Synthetic? Explain (if appropriate)

Natural

Please comment on the accuracy of the information in the file:

Also fish powder  
accurate + complete

This material should be added to the National List as:

Synthetic Allowed                       Prohibited Natural

or,  This material does not belong on the National List because:

-X natural Allowed

Are there any restrictions or limitations that should be placed on this material by use or application on the National List?

Natural fish ~~only~~ not fortified with Nitrogen

Any additional comments or references?

Signature Bruce Spencer                      Date 3-6-95

ORGANIC FOOD PRODUCTION ACT/NATIONAL LIST SECTIONS

## MAINE FISH HYDROLYSATE FERTILIZER STUDY

Under Federal Grant to The Portland Fish Exchange and  
The New England Fisheries Development Association

Michael D. Moser, Project Coordinator  
93 Fessenden Street, Portland, ME 04103  
207-773-7162

November 24, 1992

Mr. Eugene Kahn, NOSB Crops Committee  
USDA/AMS/TMD  
Room 2510-South  
P.O. Box 96456  
Washington, D.C. 20090-6456

Re: National Organic Standards Board, Materials Committee, Proposed Rules

Dear Mr. Kahn:

These comments are made from the perspective of a series of National Marine Fisheries Service grants aimed at determining the potential of fish protein hydrolysates as fertilizers, and as animal and aquaculture feed components. The above-captioned grant, the last of this multi-year series, examines the feasibility of producing fish protein hydrolysate fertilizers on a commercial scale for organic crop growers, as well as for ornamental landscape and natural lawn care markets in Maine. These comments pertain to hydrolysate fertilizers as a generic product, as distinct from the proprietary products already produced commercially for regional and national fertilizer markets by two New England concerns.

Comments on proposed NOSB rules, dated September 18, 1992 are given below; each comment is followed by an explanation.

**DEFINITIONS NEEDED:** The terms "Fish Protein Hydrolysates" and "Fish Solubles" should be defined in the rules and treated throughout as separate products. Since the stabilization needs of these two fertilizers differ, uniform stabilization standards intended to apply to all marine-derived fertilizers are not appropriate. Incidentally, the term "fish emulsions" should either be identified in the rules as a common name or colloquial term, or dropped from the rules altogether as an imprecise term.

Fish protein hydrolysates (referred to hereafter as: "hydrolysates") and fish solubles (referred to hereafter as: "solubles") are manufactured by distinctly different processes, are distinctly different products, and have distinctly different stabilization needs.

Hydrolysates are made from fresh, food-grade whole fish or fish cuttings. Protein liquefaction is performed either by enzymes naturally present in the fish used, or by enzymes added to produce a specific amino acid profile. Hydrolysates are stabilized either by acidification or drying. The two hydrolysate fertilizers produced commercially in New England are stabilized with phosphoric acid. Because these hydrolysates have not been cooked or pressed, they contain both soluble and insoluble proteins, and therefore differ from solubles in their stabilization needs.

In contrast to hydrolysates, solubles are made from fish or cuttings of varying freshness. Solubles are concentrates of the "stickwater" phase of fish meal production, after insoluble proteins have been incorporated into the meal product. Because solubles are essentially a waste product of the meal manufacturing process, and may be close to putrefaction, they are stabilized with sulfuric acid, and sold as a commodity of indiscriminate quality for further processing into fertilizer. Inasmuch as solubles do not contain lipids, they are misnamed as emulsions.

**STABILIZATION VS. FORTIFICATION:** Categorical "by weight" stabilization limits, such as "1% by weight of P<sub>2</sub>O<sub>5</sub>" are inappropriate. The standard for the rule should be that no more phosphoric acid is used than is necessary to prevent spoilage in the hydrolysate fertilizer prior to customer use. If a minimum allowable pH is set by the rule to satisfy this standard, then that pH should provide for fertilizer pH levels slightly lower than spoilage in order to allow for the varying bone content of different hydrolysate fertilizer products. These bone components exert a pH elevating effect. A minimum allowable pH of 3.5 would therefore be a more appropriate standard.

Production experience with phosphoric acid-stabilized hydrolysates indicates that spoilage occurs at pH 3.8. Since phosphoric acid is comparatively expensive, and since over-acidification can burn crops and limit markets, commercial hydrolysate producers are highly motivated not to over-stabilize their products. Natural fish ingredients account for approximately 2.5% by weight of the phosphorus in a 2-4-2 hydrolysate fertilizer; only 1.5% results from the phosphoric acid input itself. These phosphorus levels are those necessary to stabilize - but not to fortify - the product.

Phosphoric acid is ideal for stabilizing fish protein hydrolysate fertilizers. Phytotoxic effects on cranberry crops have been associated with the use of organic acids such as formic in previous grant-funded testing of hydrolysate fertilizers. Other inorganic acids such as sulfuric are too harsh to be used with fertilizers. Since hydrolysate fertilizers are a protein-based source of micronutrients, phosphorus is released slowly, over time. Phosphorus is attracted to the soil, rather than repelled by it. This minimizes adverse environmental impacts from the artificial phosphorus inputs. Work performed under this current grant will quantify the time-release characteristics of hydrolysate fertilizers.

**POTASSIUM SULFATE:** This comment simply establishes as a matter of fact that one of New England's two commercial hydrolysate producers adds mined potassium sulfate



to achieve a 2-4-2 analysis.

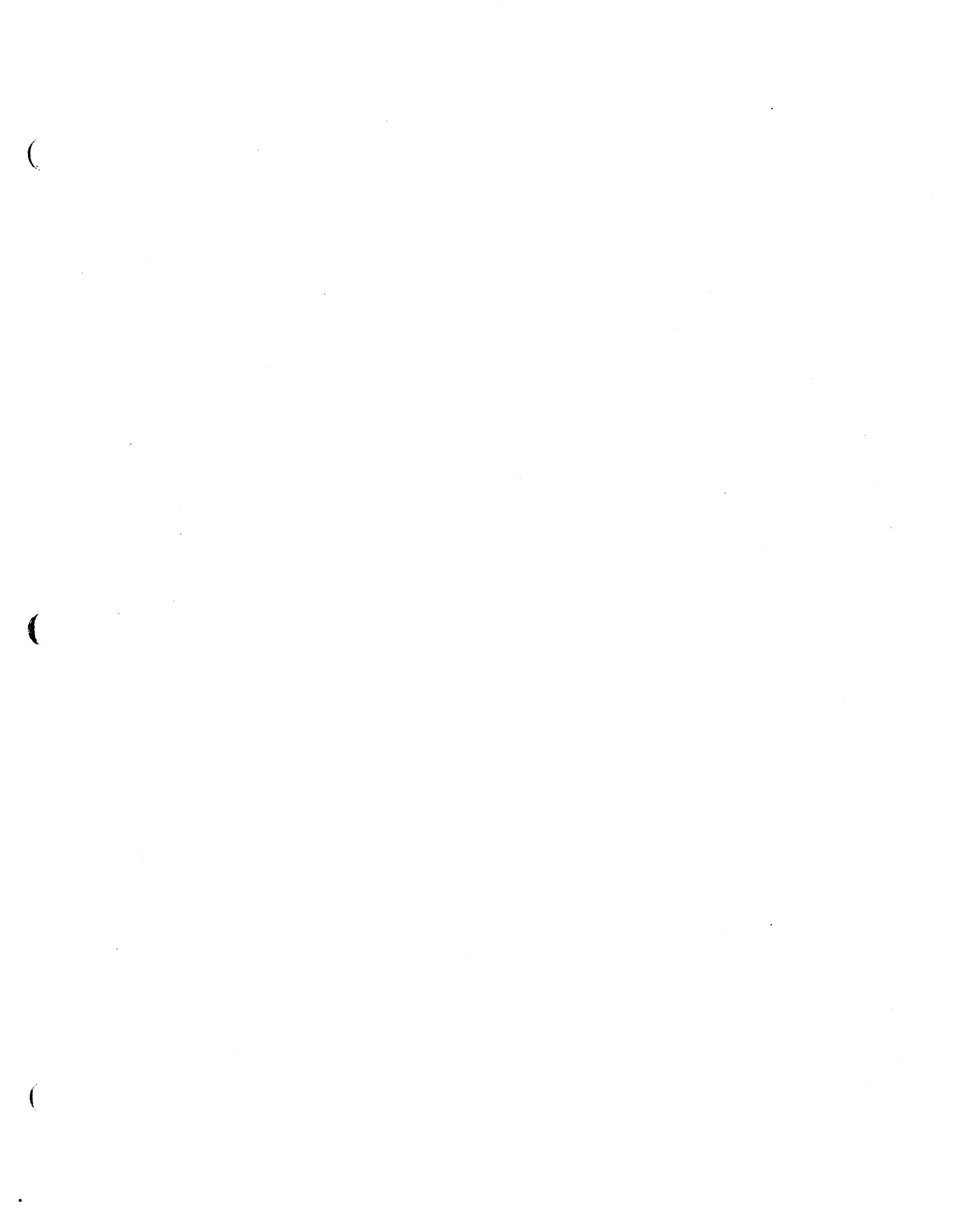
**CONCLUSION:** This federally funded grant project is an ideal clearinghouse for relating information about New England fish hydrolysate fertilizers to the NOSB rule-making process. Had I not been notified by the Maine Organic Farmers and Gardeners Association of these proposed rules, I would have missed the opportunity to comment. I have conveyed these proposed rules to two New England producers for them to comment separately, from their own proprietary perspective. Please ensure that we all receive succeeding drafts of these proposed rules directly as they are made public. Please continue to preface your proposed rules with some indication of your comment deadlines and regulatory timetable. Also, please indicate the correct person to receive future comments from entities such as me and the commercial producers.

Sincerely,



Michael D. Moser  
Project Co-ordinator

cc: Nancy Taylor, Chair  
NOSB Materials Committee  
USDA/AMS/TMD  
Room 2510-South  
P.O Box 96456  
Washington, D.C. 20090-6456



## **Fish Emulsion References**

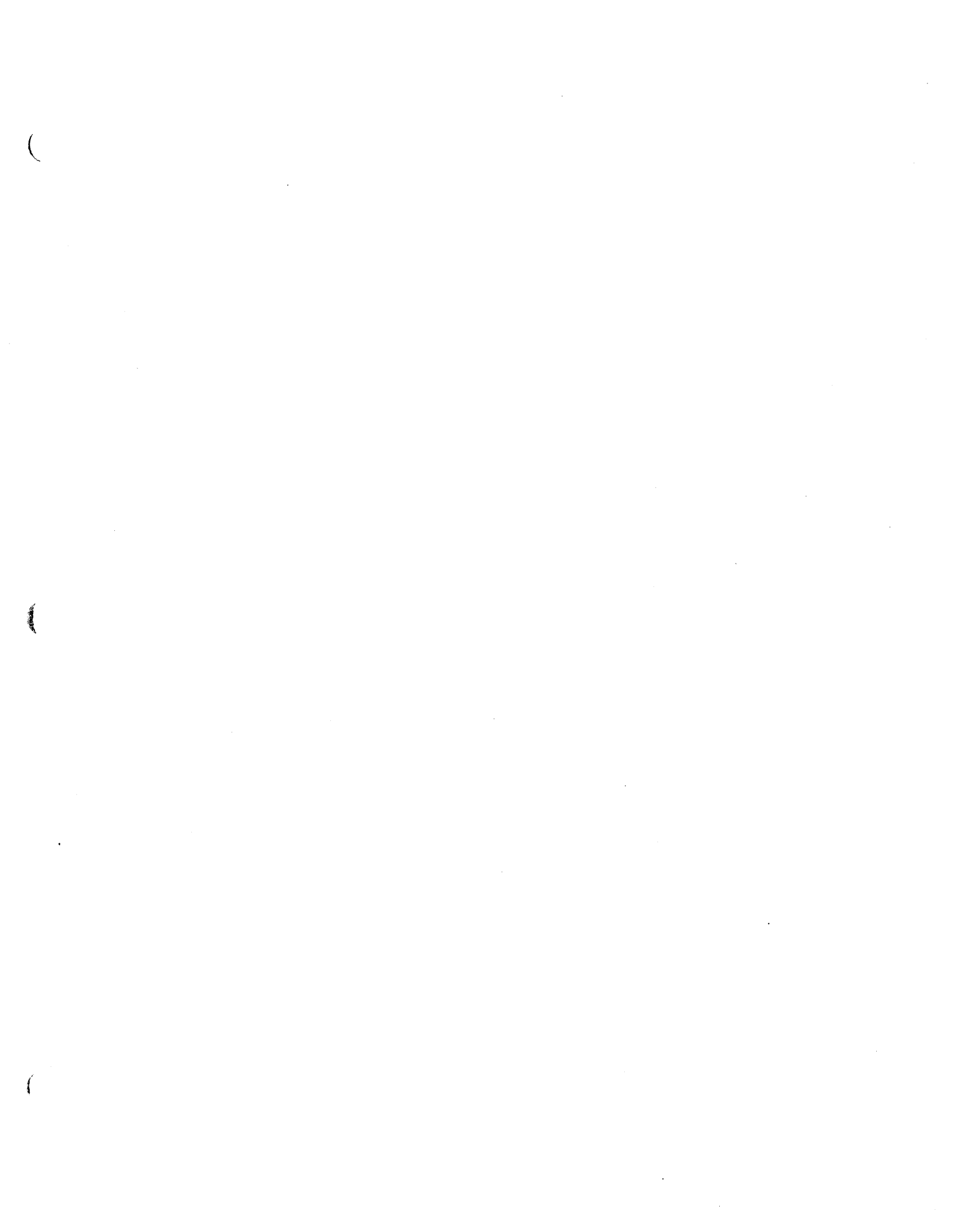
AU: Lafavore,-M.

TI: Hooked on fish emulsion [Fertilizer].

SO: Org-Gard. Emmaus, Pa. : Rodale Press. Oct 1984. v. 31 (10) p. 52-54.

CN: DNAL 57.8-OR32

PY: 1984







**MATERIAL SAFETY DATA SHEET  
ORTHO FISH EMULSION FERTILIZER 5-1-1**

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**SECTION I - Product Identification**

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PRODUCT NAME: ORTHO FISH EMULSION FERTILIZER 5-1-1  
COMPANY NAME: CHEVRON  
DATE: 10/07/86  
EMERGENCY TELEPHONE: (415) 233-3737

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**SECTION II - Hazardous Components**

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NONE

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**SECTION III - Physical Data**

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SOLUBILITY: NDA  
APPEARANCE: THICK BROWN LIQUID WITH FISH ODOR  
BOILING POINT: NDA  
MELTING POINT: N/A  
SPECIFIC GRAVITY: NDA  
VAPOR PRESSURE: NDA  
VAPOR DENSITY (VOLUME %): NDA  
PERCENT VOLATILE (VOLUME %): NDA  
EVAPORATION: NDA  
PH: APPROX. 7

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**SECTION IV - Fire and Explosion Hazard Data**

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FLASH POINT: N/A  
EXTINGUISHING MEDIA: MATERIAL WILL NOT BURN.  
SPECIAL FIRE FIGHTING PROCEDURES: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

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**SECTION V - Health Hazard Data**

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EFFECTS OF OVEREXPOSURE:  
EYES: IRRITATING  
SKIN: NONE  
INHALATION: NONE  
INGESTION: NONE  
EMERGENCY FIRST AID:  
SKIN: WASH SKIN THOROUGHLY WITH SOAP AND WATER.  
EYES: FLUSH EYES IMMEDIATELY WITH FRESH WATER FOR AT LEAST 15 MIN. WHILE HOLDING THE EYELIDS OPEN. IF IRRITATION PERSISTS, SEE A DOCTOR.  
INHALATION: NO FIRST AID NEEDED.

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**SECTION VI - Reactivity Data**

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STABILITY: STABLE  
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR  
INCOMPATIBILITY: NONE

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**SECTION VII - Spill and Disposal Procedures**

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**SPILLS:**

CLEAN UP SPILLS IMMEDIATELY, OBSERVE PRECAUTIONS.

**DISPOSAL:**

IF SAFE AND PRACTICABLE, RELAIM MATERIAL.

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**SECTION VIII - Protective Equipment**

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RESPIRATORY: NONE NEEDED

EYES PROTECTION: CHEMICAL SAFTELY GOGGLES

SKIN PROTECTION: NONE NEEDED

VENTILATION: NONE NEEDED

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**SECTION IX - Storage and Handling Precautions**

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NONE

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**SECTION X - Transportation Data and Additional Information**

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NONE

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(TM) and (R) : Registered Trademarks

N/A = Not Applicable OR Not Available

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.

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by OREGON STATE UNIVERSITY





**- KEEP OUT OF REACH OF CHILDREN**

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**POTENTIAL HEALTH EFFECTS**

**EYE:**

This substance is slightly irritating to the eyes and could cause prolonged (days) impairment of your vision. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment.

**SKIN:**

This substance is not expected to cause prolonged or significant skin irritation. If absorbed through the skin, this substance is considered practically non-toxic to internal organs.

**INGESTION:**

If swallowed, this substance is considered practically non-toxic to internal organs.

**INHALATION:**

If inhaled, this substance is considered practically non-toxic to internal organs.

**SIGNS AND SYMPTOMS OF EXPOSURE:**

**EYE:** May include pain, tears, swelling, redness, and blurred vision.

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**4. FIRST AID MEASURES**

**EMERGENCY NUMBER (24 hr): (800)457-2022 or (510)233-3737 (International)**

**EYE:**

Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. If irritation persists, see a doctor.

**SKIN:**

No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

**INGESTION:**

If swallowed, give water or milk to drink and telephone for medical advice. Consult medical personnel before inducing vomiting. If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

**INHALATION:**

Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required.

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**5. FIRE FIGHTING MEASURES**

**FLAMMABLE PROPERTIES**

**FLASH POINT:** NA

**AUTOIGNITION:** NA

**FLAMMABILITY LIMITS (% by volume in air):** Lower: NDA Upper: NDA

**EXTINGUISHING MEDIA:**

**ORTHO-GRO(R) Natural Fish Fertilizer 5-1-1**

Page 3 of 6

CO2, Dry Chemical, Foam, Alcohol-type Foam, Water Fog.

**NFPA RATINGS:** Health 1; Flammability 0; Reactivity 0.

**FIRE FIGHTING INSTRUCTIONS:**

For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Read the entire document.

**COMBUSTION PRODUCTS:**

This material will not burn.

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## 6. ACCIDENTAL RELEASE MEASURES

**CHEMTREC EMERGENCY NUMBER (24 hr):** (800)424-9300 or (202)483-7616

**ACCIDENTAL RELEASE MEASURES:**

Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section.

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## 7. HANDLING AND STORAGE

**HANDLING AND STORAGE:**

READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**PERSONAL PROTECTIVE EQUIPMENT**

**EYE/FACE PROTECTION:**

Do not get this material in your eyes. Eye contact can be avoided by wearing chemical goggles.

**SKIN PROTECTION:**

No special skin protection is necessary.

**RESPIRATORY PROTECTION:**

No special respiratory protection is normally required.

**ENGINEERING CONTROLS:**

No special ventilation is necessary.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL DESCRIPTION:**

Brown, thick liquid with strong fish odor

**pH:** 5-6

**VAPOR PRESSURE:** NDA (same as water)

**VAPOR DENSITY**

(AIR=1): NDA (same as water)

**BOILING POINT:** 212F

**FREEZING POINT:** 30F

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**Revision Number:** 1

**Revision Date:** 12/16/93

**MSDS Number:** 005288

NDA - No Data Available

NA - Not Applicable

**ORTHO-GRO(R) Natural Fish Fertilizer 5-1-1**

Page 4 of 6

MELTING POINT: 30F  
SOLUBILITY: Dispersible in water  
SPECIFIC GRAVITY: 1.15  
DENSITY: 9.58 lb/gal

**10. STABILITY AND REACTIVITY**

**HAZARDOUS DECOMPOSITION PRODUCTS:**

Ammonia will be released upon boiling.

**CHEMICAL STABILITY:**

Stable.

**CONDITIONS TO AVOID:**

No data available.

**INCOMPATIBILITY WITH OTHER MATERIALS:**

May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**HAZARDOUS POLYMERIZATION:**

Polymerization will not occur.

**11. TOXICOLOGICAL INFORMATION**

**EYE EFFECTS:**

Eye irritation clearing in 48 hours.

**SKIN EFFECTS:**

No product toxicology data available. The hazard evaluation was based on data on the components.

**ACUTE ORAL EFFECTS:**

No product toxicology data available. The hazard evaluation was based on data on the components.

**ACUTE INHALATION EFFECTS:**

No product toxicology data available. The hazard evaluation was based on data on the components.

**12. ECOLOGICAL INFORMATION**

**ECOTOXICITY:**

No data available.

**ENVIRONMENTAL FATE:**

This material is not expected to present an environmental problem.

**13. DISPOSAL CONSIDERATIONS**

**DISPOSAL CONSIDERATIONS:**

Partially filled container may be disposed of by securely wrapping original container in several layers of newspaper and discard in trash. Do not reuse empty container.

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#### 14. TRANSPORT INFORMATION

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The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT SHIPPING NAME: NDA  
DOT HAZARD CLASS: NDA  
DOT IDENTIFICATION NUMBER: NDA  
DOT PACKING GROUP: NDA

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#### 15. REGULATORY INFORMATION

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SARA 311 CATEGORIES:

1. Immediate (Acute) Health Effects:	YES
2. Delayed (Chronic) Health Effects:	NO
3. Fire Hazard:	NO
4. Sudden Release of Pressure Hazard:	NO
5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01=SARA 313	11=NJ RTK	21=TSCA Sect 4(e)
02=MASS RTK	12=CERCLA 302.4	22=TSCA Sect 5(a)(2)
03=NTP Carcinogen	13=MN RTK	23=TSCA Sect 6
04=CA Prop 65-Carcin	14=ACGIH TWA	24=TSCA Sect 12(b)
05=CA Prop 65-Repro Tox	15=ACGIH STEL	25=TSCA Sect 8(a)
06=IARC Group 1	16=ACGIH Calc TLV	26=TSCA Sect 8(d)
07=IARC Group 2A	17=OSHA PEL	27=TSCA Sect 4(a)
08=IARC Group 2B	18=DOT Marine Pollutant	28=Canadian WHMIS
09=SARA 302/304	19=Chevron TWA	29=OSHA CEILING
10=PA RTK	20=EPA Carcinogen	30=Chevron STEL

None of the components of this material are found on the regulatory lists indicated.

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#### 16. OTHER INFORMATION

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NFPA RATINGS: Health 1; Flammability 0; Reactivity 0;  
HMIS RATINGS: Health 1; Flammability 0; Reactivity 0;  
(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT:

PRODUCT DISCONTINUED. This Material Safety Data Sheet will no longer

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Revision Number: 1      Revision Date: 12/14/93      MSDS Number: 005288  
NDA - No Data Available      NA - Not Applicable

**ORTHO-GRO(R) Natural Fish Fertilizer 5-1-1**

**Page 6 of 6**

be updated.

\*\*\*\*\*:

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.