

a division of National Starch and Chemical Company

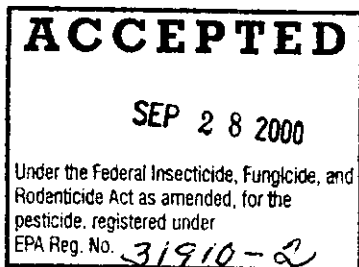
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PO Box 5401  
Chattanooga, TN 37406  
Phone: 423-629-1405  
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**AQUATREAT®**

Polymers and Microbiocides for  
Industrial Water Treating

**Technical Information**

TB 5066  
7/21/00



**AQUATREAT® DNM-30**

EPA REG. NO. 31910-2

ADDITIONAL USE PATTERN #1:

**SEAWATER COOLING TREATMENT**  
(for marine use only)

AQUATREAT® DNM-30 is a highly effective antifoulant and seawater biocide designed to control the growth of microorganisms (bacteria and fungi) and barnacle larvae on shipboard seawater heat exchangers.

**DIRECTIONS FOR USE**

*It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. This product must not be used on any food or field crop or to formulate any product for use on any food or field crop.*

To achieve best control of **Fouling**, **AQUATREAT DNM-30** or seawater cooling treatment should be applied to a clean system. If fouling is present, it is recommended that the system be thoroughly cleaned prior to its use.

For best results, treat the system with 10 ppm of **AQUATREAT DNM-30** for 100 minutes every 3-4 days. To treat at 10 ppm, feed at the rate of 3.88 pounds per 100 tons/hr. (50.72 fl. oz. or 1.5 liters per 100 tons/hr.) of system flow rate. The frequency of dosing may be less, depending on the degree of fouling.

**AQUATREAT DNM-30** is completely soluble in seawater and can be conveniently fed directly from the drum or from a dosing tank. The best point of feed is as early as possible in the system, preferably before any strainer or heat transfer surfaces. The most common point is to dose the sea chest.

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guaranty of their accuracy is made. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operating conditions. THE PRODUCTS DISCUSSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a



AQUATREAT DNM-30 should not be fed to a system while the seawater is being drawn as make-up for an evaporator or water maker. Either isolate the evaporator or shut it down while AQUATREAT DNM-30 is being dosed and for at least 30 minutes afterwards.

**TYPICAL PROPERTIES**

**ACTIVE INGREDIENTS:**

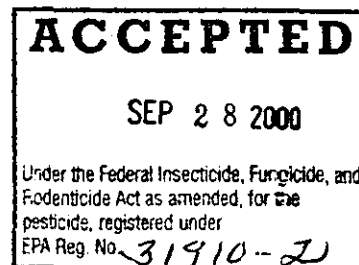
Sodium Dimethyldithiocarbamate 15%  
Nabam (Disodium ethylene bis-dithiocarbamate) 15%

**INERT INGREDIENTS**

70%

**TOTAL**

100%



**APPEARANCE**

AQUATREAT DNM-30 is a clear, yellow-green liquid with a density of 1.175 grams/cc at 20°C (9.8 lbs./gal.) and has a characteristic sulfur odor.

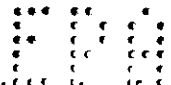
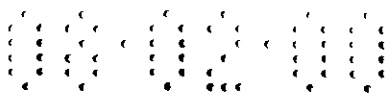
pH is 10.5-12.4, and the product is completely soluble in all proportions in both fresh and seawater.

**PRECAUTIONARY STATEMENTS**

*Hazards to Humans and Domestic Animals*

**WARNING:** Causes eye and skin irritation. Do not get in eyes, on skin or on clothing. All industrial workers applying this product must wear coveralls over a long-sleeved shirt and long pants, shoes, socks, and chemical-resistant gloves. During dilution, a chemical-resistant apron and goggles or face shield must also be worn. Harmful if swallowed. Avoid contamination of food and feedstuffs.

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to fish. Do not apply (or use) in estuarine oil fields where drilling fluids (muds) are discharged in the surface water. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.



**STORAGE AND DISPOSAL**

1. **PROHIBITIONS:** Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.
2. **PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.
3. **CONTAINER DISPOSAL:**
  - (a) Reseal container and offer for reconditioning, or
  - (b) Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other approved state and local procedures.  
  
Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed, by state and local authorities, by burning. If burned, stay out of smoke.
4. **GENERAL:** Consult federal, state, or local disposal authorities for approved alternative procedures.

**FIRST AID**  
**IF IN EYES**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

**IF ON SKIN OR CLOTHING**

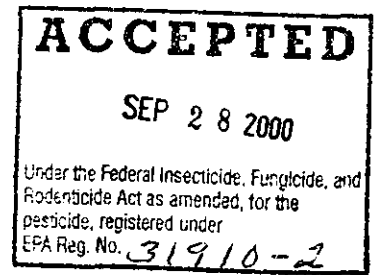
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**IF SWALLOWED**

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

**IF INHALED**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.



4 3 6

**PRECAUTIONARY STATEMENTS**  
**Hazards to Humans and Domestic Animals**  
**WARNING**

Causes eye and skin irritation. Do not get in eyes, on skin or on clothing. All industrial workers applying this product must wear coveralls over a long-sleeved shirt and long pants, shoes, socks, and chemical-resistant gloves. During dilution, a chemical-resistant apron and goggles or face shield must also be worn. Harmful if swallowed. Avoid contamination of food and feedstuffs.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish. Do not apply (or use) in estuarine oil fields where drilling fluids (muds) are discharged in the surface water. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

AQUATREAT DNM-30 is a highly effective bactericide and fungicide for use in controlling the growth of bacteria and fungi found in paper mills, drilling fluids, secondary and tertiary petroleum recovery, fracturing fluids, workover and completion fluids, flue gas desulfurization thickeners, hydrocarbon fluids storage, beet sugar mills, and cane sugar mills.

AQUATREAT DNM-30, in addition to being a bactericide and fungicide, is a highly effective algaecide for use in controlling the growth of algae, as well as bacteria and fungi found in industrial recirculating water cooling towers, evaporative condensers, and air washers.

**STORAGE AND DISPOSAL**

1. **PROHIBITIONS**  
Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.
2. **PESTICIDE DISPOSAL**  
Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.
3. **CONTAINER DISPOSAL**
  - (a) Reseal container and offer for reconditioning, or
  - (b) **Metal Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved state and local procedures.  
**Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
4. **GENERAL**  
Consult federal, state or local disposal authorities for approved alternative procedures.

# AQUATREAT® DNM-30

**ACTIVE INGREDIENTS**

Godium Dimethyldithiocarbamate . . . . .	15%
Nabam (Disodium Ethylene Bis-dithiocarbamate) . . . . .	15%
<b>INERT INGREDIENTS . . . . .</b>	<b>70%</b>
<b>TOTAL . . . . .</b>	<b>100%</b>

**KEEP OUT OF REACH OF CHILDREN**  
**WARNING**

**FIRST AID**

<b>IF IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF SWALLOWED</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF INHALED</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call 1-888-456-6218 day or night for emergency medical treatment information

See Side Panel For  
Additional Precautionary Statements.

**ACCEPTED**

SEP 28 2000

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 21910-2

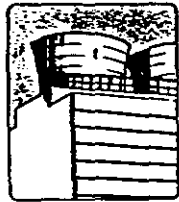


Manufactured by:

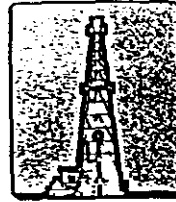
**ALCO CHEMICAL DIVISION**  
National Starch and Chemical Company  
909 Mueller Dr. • P.O. Box 5401 • Chattanooga, TN 37406  
423-629-1405  
FAX 423-698-8723

E.P.A. Establishment No. 31910-TN-1  
E.P.A. Registration No. 31910-2  
Net Contents: Liquid  
See Markings on Top of Drum for Net Weight

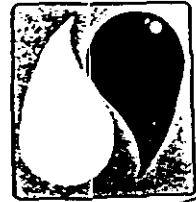
### Cooling Towers and Air Washers



### Drilling Fluids



### Secondary and Tertiary Oil Recovery



#### DIRECTIONS FOR USE

*It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.*

This product must not be used on any food or field crop or to formulate any product for use on any food or field crop.

See Technical Data Sheet(s) for additional use pattern(s).

#### INDUSTRIAL RECIRCULATING WATER COOLING TOWER AND EVAPORATIVE CONDENSERS

Dosage for industrial recirculating water cooling tower or evaporative condensers will depend on the condition of the system prior to treatment initiation. Systems which are heavily contaminated should be cleaned first. Apply AQUATREAT DNM-30 to the cleaned system or when growth is first noticed, according to the following schedule: INITIAL DOSE: Apply 13.06-43.60 ounces of product per each 1000 gallons of water in the system (120-400 ppm). This dose may be repeated once, twice or three times weekly or as required to control the growth of slime-forming organisms.

SUBSEQUENT DOSE: When microbial control is evident add 2.18-4.36 fluid ounces of AQUATREAT DNM-30 per 1000 gallons of water (20-40 ppm) in the system every three days or as needed.

#### AIR WASHERS

In treating air washer systems preclean by introducing a suitable detergent solution into the system and allow air washers to run with fan off for two hours. Check all nozzles and manually clean those that are plugged.

Feeding: AQUATREAT DNM-30 may be fed directly from the drum or diluted with water and fed by any suitable feed system. AQUATREAT DNM-30 should be dosed directly into the sump or basin or any other location where good distribution can be assured.

INITIAL DOSE: Apply 13.06-21.80 ounces of product per each 1000 gallons of water in the system (120-200 ppm). This dose may be repeated once, twice or three times weekly or as required to control the growth of slime-forming organisms.

SUBSEQUENT DOSE: When microbial control is evident add 2.18-4.36 fluid ounces of AQUATREAT DNM-30 per 1000 gallons of water (20-40 ppm) in the system every three days or as needed.

#### DRILLING FLUIDS

AQUATREAT DNM-30 is a highly effective microbicide for use in controlling growth of fungi and bacteria found in water based drilling muds. It is especially useful in muds containing starches, Xanthanate gums, and wood sugars. The uncontrolled growth of these fungi and bacteria can cause increased corrosion, undesirable odors, and degradation of the drilling mud, especially fluid loss properties.

AQUATREAT DNM-30 is used at the rate of 1 to 5 gallons per 100 bbl. of mud. (0.02% to 0.1%). It can be used directly from the shipping container or pre-diluted with water. It can be put in through the mud hopper or added to the pump suction.

#### SECONDARY AND TERTIARY PETROLEUM RECOVERY

AQUATREAT DNM-30 is a highly effective microbicide for use in controlling the growth of fungi and bacteria found in secondary and tertiary petroleum recovery waterflood systems.

AQUATREAT DNM-30 can be injected directly from the shipping container. It should be thoroughly mixed into the produced water, fresh or salt water or commingled water or the secondary or tertiary oil recovery waterflood systems for effective micro-organism control. It may also be diluted with water for injection.

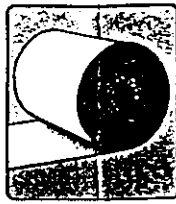
AQUATREAT DNM-30 is used at the rate of 1 pint per 100 bbl. of water for growth inhibition of *Bacillus Cereus* and *Desulfovibrio desulfuricans* and 1.1 to 1.8 gallons per 100 bbl. of water for heterotropic bacteria including *Pseudomonas*. It is also effective against many fungi such as *Aspergillus*, *Penicillium* and *Trichoderma* at the 1 pint per 100 bbl. of water.

#### FRACTURING FLUIDS

AQUATREAT DNM-30 is a highly effective microbicide for controlling the growth of bacteria in fracturing fluids. The application rates are 0.81 to 4.3 lbs. per 1000 gallons of fracturing fluids. AQUATREAT DNM-30 may be added and premixed prior to the fracturing operation or may be added directly from the drum to the blender during the operation.

#### WORKOVER & COMPLETION FLUIDS

AQUATREAT DNM-30 is a highly effective microbicide for use in controlling the growth of fungi and bacteria found in water based workover and completion fluids. AQUATREAT DNM-30 is used at the rate of 1-4 quarts per 1000 gallons (0.025%-0.100%) of workover or completion fluids.



## FLUE GAS DESULFURIZATION (FGD) THICKENERS

(NOT APPLICABLE IN CALIFORNIA)

AQUATREAT DNM-30 is effective in controlling anaerobic bacteria (SRB's) in flue gas desulfurization (FGD) thickeners.

AQUATREAT DNM-30 is metered directly to the thickener center well. It is fed at the rate of 50 to 500 ppm of product on a frequency of at least once per week or as required.

## HYDROCARBON FLUIDS

AQUATREAT DNM-30 is a highly effective fungicide and bactericide for use in fuel oil (No. 2 oil, intermediate fuel oil and No. 6 oil), lubricating oil and hydraulic fluids in marine environments.

AQUATREAT DNM-30 is applied initially at a level of 2.3 pints per 1000 gallons of contaminated liquid (300 ppm by weight). Subsequent dosages may be decreased once the contaminants have been brought under control.

## PAPER MILLS

Dosage will vary from 0.1 to 2.0 pounds (0.04 to 0.81 quarts) of AQUATREAT DNM-30 per ton of finished paper depending on the type of stock, complexity of the system, quality of raw water, and type and degree of contamination.

**FEEDING:** AQUATREAT DNM-30 may be drip fed continuously from the drum or fed by suitable chemical pumps such as adjustable proportioning types; variable speed, positive displacement types; or by the reciprocating type. This product should be fed as early as possible in the system at such points including the hydropulper, machine chest or broke system.

AQUATREAT DNM-30 can be used to control slime on machines which can make paper and paperboard for use in food packaging.

## BET SUGAR MILLS

AQUATREAT DNM-30 should be fed directly into the pulp press water during sugar extraction of beets to keep equipment free of bacterial slime deposits. It is to be used at the rate of 10-20 ppm of raw beets sliced, and fed continuously with a metering pump. A portion of the AQUATREAT DNM-30 may be fed into other streams entering the diffuser each at a minimum rate of 4 ppm. The maximum total rate of all streams to be fed is 20 ppm. Refer to Composite Table 1 for the proper dosage in milliliters and ounces of AQUATREAT DNM-30 to be used per minute.

## CANE SUGAR MILLS

AQUATREAT DNM-30 is a liquid which should be fed directly into the cane juice so that the treated juice circulates to all parts of the mill tandem. The point or points of addition will depend on mill design. Frequently the dosage will be split between

the crusher juice and juice from the last mill. The best addition point is to the juice which is circulated back to the crusher from the first mill. Do not add this product to the maceration water.

AQUATREAT DNM-30 should be fed continuously at the rate of 10-20 parts of product per million parts of cane ground per day. 10 ppm of product is the standard dosage. This may be raised up to a maximum of 20 ppm, if necessary. Conditions warranting, some increase would be warranted when grinding cane damaged through freezing, poor weather or delays between cutting and grinding. See feeding directions which follow.

Proper feed of AQUATREAT DNM-30 is best obtained through the use of a chemical feed pump such as the adjustable proportioning type; the variable speed, positive displacement type; or the reciprocating type. The required dosage will depend on the average daily rate of cane ground. Refer to composite table I for the proper dosage in milliliters and ounces of AQUATREAT DNM-30 to be used per minute.

Do not exceed feed rate of 4 gallons (39.2 pounds) of product per 1000 short tons of cane ground per twenty-four hours.

The use of AQUATREAT DNM-30 does not replace good housekeeping. This should include regular cleaning at least once per shift. Regular hosing with hot water and steam of mills, bagacillo conveyors, and screens is essential for maintaining efficient control of microbiological slime and sucrose losses.

## COMPOSITE TABLE I

SHORT TONS OF CANE GROUND OR RAW BEETS SLICED PER DAY	Rate of Feed of AQUATREAT DNM-30			
	10 ppm		20 ppm	
	ml/min	oz/min	ml/min	oz/min
1,000	5.5	0.186	11	0.372
2,000	11.0	0.372	22	0.744
3,000	16.5	0.558	33	1.115
4,000	22.0	0.744	44	1.487
5,000	27.5	0.930	55	1.859
6,000	33.0	1.115	66	2.231
7,000	38.5	1.301	77	2.603
8,000	44.0	1.487	88	2.974
9,000	49.5	1.673	99	3.347
10,000	55.0	1.859	110	3.718

For Chemical Emergency  
Spill, Leak, Fire, Explosive, or Accident  
Call CHEMTREC — Day or Night  
1-800-424-9300

*Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material, when such use and/or handling is contrary to label instructions.*