



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

MAR 26 1999

Mr. Lloyd H. Shanks
Manager, Transportation Regulations
and Safety
Angus Chemical Company
1500 East Lake Cook Road
Buffalo Grove, IL 60069

Ref. No. 99-0029

Dear Mr. Shanks:

This is in response to your letter dated January 26, 1999, requesting clarification on the proper shipping names for two solutions used as biocides containing 2-Bromo-2-nitropropane-1,3 diol. You supplied a material safety data sheet which describes the components of each solution and their concentration as follows:

MYACIDE S-30

30 % 2-Bromo-2-nitropropane-1,3 diol
60 % Propylene glycol
10 % Water

MYACIDE S-15

10.53 % 2-Bromo-2-nitropropane-1,3 diol
10 % Propylene glycol
79.47% Water

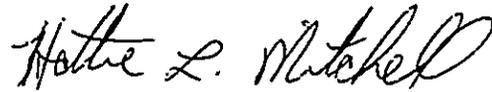
You stated the manufacturer of the chemical "2-Bromo-2-nitropropane-1,3 diol" prefers your company use the proper shipping name "Corrosive liquid, acidic, organic, n.o.s." whereas your company prefers using the name "Disinfectant, liquid, corrosive, n.o.s." You asked which name is most appropriate under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180).

Based on the information you provided, it is our determination that either proper shipping name would be correct for the mixture. However, as the shipper, you have the option of renaming the material "Disinfectant, liquid, corrosive, n.o.s." Under § 173.22, it is the shipper's responsibility to properly classify and describe a hazardous material. Section 172.101 (c)(12)(ii) requires that when a material is not specifically listed by name in the Hazardous Materials Table (§ 172.101), selection of a proper shipping name must be made from the general description entries corresponding to the specific hazard class, packing group, and subsidiary hazards of the material. This section also requires that the name that most

appropriately describes the material shall be used, but permits the option of naming some mixtures according to their application if this proper shipping name is more appropriate. Also, please note that in either situation, the "n.o.s." description must meet the requirements § 172.203(k).

I hope this satisfies your request.

Sincerely,

A handwritten signature in black ink that reads "Hattie L. Mitchell". The signature is written in a cursive style with a large, looped initial "H".

Hattie L. Mitchell, Chief
Regulatory Review and Reinvention
Office of Hazardous Materials Standards



MACK
172.101
2-Bromo
99-0029

January 26, 1999

Mr. Edward Mazzullo, Director
Office of Hazardous Materials Standards
U.S Department of Transportation
DHM-10 Room 8102
400 Seventh Street
Washington, DC 20590

Re: Request for Interpretation: Proper shipping name for solutions containing 2-bromo-2-nitropropane-1,3 diol

Dear Mr. Mazullo:

We are seeking an interpretation from RSPA concerning a difference of opinion regarding the selection of a proper shipping name for 2-bromo-2-nitropropane-1,3 diol in a liquid solution.

ANGUS Chemical Company is the sole U.S. distributor for a manufacturer of 2-bromo-2-nitropropane-1,3 diol located in the European community. The manufacturer ships this material to us in dry form using the technical name of the chemical as the proper shipping name, and it is classified as a Division 4.1. However, when this dry chemical is formulated into a liquid solution it no longer meets the criteria of Division 4.1, but it is corrosive to aluminum and meets the criteria of a Class 8, packing group III material.

In 1993, ANGUS furnished technical data for the subject product and other "anti-microbial" agents manufactured and/or marketed by our company and solicited the opinion of a renowned transportation attorney. His opinion concurred with ours. That is, the end use description "disinfectants" was appropriate for these solutions which are used for:

- **Control of slime-forming bacteria**
- **Control of organisms responsible for microbially-induced corrosion**
- **Control of *Legionella pneumophila*.**

I was recently contacted by an employee of the manufacturer and advised that, following the acquisition of their company by a larger international chemical company, they were advised that it was the interpretation of the new owners that the proper shipping name "corrosive liquid, acidic, organic, n.o.s." was the correct description rather than the description "disinfectant, liquid, corrosive, n.o.s." which our company has been using for some time. They raised this issue because they do not consider the product to be a "disinfectant". This could be a "language difference" issue.



Letter to Mr. Edward Mazullo – Page 2

The tenth edition of Merriam Webster's Collegiate Dictionary defines disinfectant as "*a chemical that destroys vegetative forms of microorganisms*". One of the documented primary uses of this solution is to control slime forming bacterial growth in paper and pulpboard manufacturing and inhibit the growth of spoilage bacteria in mineral slurries and water based additives such as starch solutions, rosin sizes and dyestuffs.

ANGUS Chemical Company understands the position of the manufacturer of this product is that they are the most qualified party to determine its proper shipping name. However, we also recognize our responsibility to confirm that the proper shipping name selected is the most appropriate one, when that product is offered for transportation within the United States.

Your assistance in this regard will be greatly appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Lloyd H. Shanks".

Lloyd H. Shanks, Manager
Transportation Regulations and Safety

FAX

ANGUS Chemical Company
1500 E. Lake Cook Road
Buffalo Grove, IL 60089

Date February 2, 1999

Number of pages including cover sheet 14

To: **Eileen Edmonson**

U.S. DOT

Facsimile 202-366-3012

Phone No. _____

ANGUS[®]

From: **Lloyd Shanks**

Facsimile (847) 808-3709

Phone No. (847) 808-3748

REMARKS:

- Urgent For your review Reply ASAP Please comment

Attached are the MSDSs and Technical Data Sheet we discussed by phone.

MATERIAL SAFETY DATA SHEET

ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 1
DATE APPROVED: 09/01/1998
MSDS No: AT78
MYACIDE® S30

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

HMIS Rating

HEALTH:		3
FIRE:		1
REACTIVITY:		1
PROTECTION:		

PRODUCT NAME: MYACIDE® S30

Customer Service Number: 800-362-2580

24 HR. EMERGENCY TELEPHONE
NUMBERS
CHEMTREC

(800) 424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS#
2-Bromo-2-nitro-1,3-propanediol	30	52-51-7
Propylene glycol	60	57-55-8
Water	10	7732-18-5

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS:
SEVERELY IRRITATING TO THE EYES AND SKIN. HARMFUL IF INGESTED.
AEROSOL MISTS IRRITATING IF INHALED.

POTENTIAL HEALTH EFFECTS

EYES:

Severely irritating to the eyes.

SKIN:

Causes severe skin irritation.

INGESTION:

Harmful if swallowed.



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 2
DATE APPROVED: 09/01/1998
MSDS No: AT78
MYACIDE® S30

INHALATION:

Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract.

ROUTES OF ENTRY:

Primary route of exposure is skin or eye contact.

CANCER STATEMENT:

Not a listed carcinogen.

SENSITIZATION:

May cause allergic skin reaction.

4. FIRST AID MEASURES

EYES:

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids wide apart. See a physician.

SKIN:

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

INGESTION:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

INHALATION:

Remove to fresh air.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 122°C

EXTINGUISHING MEDIA:

Water, carbon dioxide, dry chemical, foam.

HAZARDOUS COMBUSTION PRODUCTS:

Formaldehyde, hydrogen bromide, oxides of carbon and nitrogen.

EXPLOSION HAZARDS:

If product is heated above 140 °C, the solid or the solid residue from solutions decomposes exothermically, liberating toxic hydrogen bromide fumes and oxides of nitrogen and wells up to give a sticky tarry mass which burns readily.



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 3
DATE APPROVED: 09/01/1998
MSDS No: AT78
MYACIDE® S30

FIRE FIGHTING PROCEDURES:

Wear self-contained breathing apparatus to fight fires in contained spaces. Cool fire-exposed containers with water spray to prevent rupture.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL:

Small spills may be flushed to sewer.

LARGE SPILL:

Absorb unrecoverable spills with an inert solid, such as sand or earth. Flush area with water.

COMMENTS:

Bury in an approved sanitary landfill. When in solution, decomposition can be effected by treatment with caustic and heating (to be attempted only by skilled personnel).

7. HANDLING AND STORAGE

GENERAL PROCEDURES:

Avoid contact with skin, eyes and clothing. Store away from oxidizing agents, heat and sources of ignition, food, drink and animal feed stuffs. Protect from frost.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at source of mists.

PERSONAL PROTECTION

EYES AND FACE:

Chemical splash goggles.

SKIN:

Impervious rubber gloves and apron.

RESPIRATORY:

If mists or vapors are generated, use NIOSH approved respirator.



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 4
DATE APPROVED: 09/01/1998
MSDS No: AT78
MYACIDE® S30

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid
APPEARANCE: Colorless to pale yellow.
pH: Not Determined
PERCENT VOLATILE: 70
VAPOR PRESSURE: Not Determined
BOILING POINT: 129.8°C
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY: 1.19 at 25°C

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

CONDITIONS TO AVOID:
Temperatures greater than 100 °C

HAZARDOUS DECOMPOSITION:
Formaldehyde, hydrogen bromide, oxides of carbon and nitrogen.

INCOMPATIBLE MATERIALS:
Oxidizing agents. Mildly corrosive to iron, mild steel and aluminum on prolonged contact.

MATERIAL SAFETY DATA SHEET

ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 1
DATE APPROVED: 08/27/1998
MSDS No: AT45
MYACIDE® S-15

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MYACIDE® S-15
PRODUCT DESCRIPTION: MYACIDE® S-15
PRODUCT FORMULATION NAME: MYACIDE® S-15
GENERIC NAME: Antimicrobial Agent

Customer Service Number: 800-362-2580

24 HR. EMERGENCY TELEPHONE
NUMBERS
CHEMTREC (800) 424-9300

EPA REG. NO.: 48301-35

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS#
2-Bromo-2-nitro-1,3-propanediol	10.53	52-51-7
Propylene glycol	10	57-55-6
Water	79.47	7732-18-5

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS:

Causes eye irritation. Harmful if inhaled. Harmful if swallowed. May be absorbed through the skin.

POTENTIAL HEALTH EFFECTS

EYES:

Irritating to the eyes.

SKIN:

Causes skin irritation.

INGESTION:

Harmful if swallowed; will cause gastrointestinal discomfort.

INHALATION:

Mists likely to be harmful if inhaled; produces discomfort and light-headedness.

ROUTES OF ENTRY:

Primary route of exposure is skin or eye contact.



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 2
DATE APPROVED: 08/27/1998
MSDS No: AT45
MYACIDE® S-15

CANCER STATEMENT:
Not a listed carcinogen.

4. FIRST AID MEASURES

EYES:

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids wide apart. See a physician.

SKIN:

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

INGESTION:

If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

INHALATION:

Remove to fresh air.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: Not Applicable

EXTINGUISHING MEDIA:

Water, carbon dioxide, dry chemical, foam.

HAZARDOUS COMBUSTION PRODUCTS:

Oxides of carbon and nitrogen; formaldehyde; bromine.

EXPLOSION HAZARDS:

If product is heated above 140 °C, the solid or the solid residue from solutions decomposes exothermically, liberating toxic hydrogen bromide fumes and oxides of nitrogen and wells up to give a sticky tarry mass which burns readily.

FIRE FIGHTING PROCEDURES:

Wear self-contained breathing apparatus to fight fires in contained spaces. Cool fire-exposed containers with water spray to prevent rupture.

6. ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES:

Absorb onto sand, earth, or inert material. Sweep up and remove spillage. Clean area with water. Small spills may be flushed to sewer.



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 3
DATE APPROVED: 08/27/1998
MSDS No: AT45
MYACIDE® S-15

COMMENTS:

Bury in an approved sanitary landfill. When in solution, decomposition can be effected by treatment with caustic and heating (to be attempted only by skilled personnel).

7. HANDLING AND STORAGE

GENERAL PROCEDURES:

Avoid contact with skin, eyes and clothing. Store away from oxidizing agents, heat and sources of ignition, food, drink and animal feed stuffs. Protect from frost.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at source of mists.

PERSONAL PROTECTION

EYES AND FACE:

Chemical splash goggles.

SKIN:

Impervious rubber gloves and apron.

RESPIRATORY:

Not generally required except in areas of high vapor concentration.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: "Clean" astringent odor.

APPEARANCE: Colorless to pale yellow.

pH: <4.5

PERCENT VOLATILE: 80

SOLUBILITY IN WATER: Miscible

SPECIFIC GRAVITY: 1.06 at 20°C

COMMENTS:

pH: @20 C

10. STABILITY AND REACTIVITY

STABLE: YES



ANGUS Chemical Company
1500 E. Lake Cook Rd.
Buffalo Grove, IL 60089

Page: 4
DATE APPROVED: 08/27/1998
MSDS No: AT45
MYACIDE® S-15

HAZARDOUS POLYMERIZATION: NO

CONDITIONS TO AVOID:

Prolonged storage at temperatures above 97°C may cause the active ingredient to decompose.

HAZARDOUS DECOMPOSITION:

Formaldehyde; bromine; oxides of carbon and nitrogen.

INCOMPATIBLE MATERIALS:

Oxidizers.

ANGUS Chemical Company Technical Data Sheet

MYACIDE® S15/S30 PRESERVATIVES

EPA-REGISTERED BIOCIDES FOR TREATMENT OF INDUSTRIAL
PROCESS SYSTEMS AND PRODUCT PRESERVATION APPLICATIONS

MYACIDE S15/S30 Preservatives contain the active ingredient 2-bromo-2-nitro-1,3-propanediol (bronopol) and are used for controlling bacterial growth in industrial process systems such as industrial process waters, recirculating water cooling towers and evaporative condensers, oil production and transport, and pulp and paper production. In addition, MYACIDE Preservatives are also effective in preservation of adhesives, starch pigment slurries, paints, latex and antifoam emulsion systems.

Liquid MYACIDE Preservatives are available in either 10% (MYACIDE S15) or 30% (MYACIDE S30) active solutions of water and propylene glycol.

MYACIDE S15/S30 Preservatives provide the following benefits when used in industrial process systems:

- Broad-spectrum bactericide
- Efficacy against *Pseudomonas* sp.
- Control of slime-forming bacteria
- Control of anaerobic bacteria responsible for microbiologically-influenced corrosion
- Broad FDA clearances
- Low toxicity profile
- Negligible environmental impact
- Excellent in combination with other biocides

Typical Properties

The following are typical properties of MYACIDE Preservatives. They are not to be considered product specifications.

MYACIDE S15
EPA Registration No. 48301-35
CAS Registry No. 52-51-7
EINECS No. 2001430

AppearancePale yellow to colorless liquid
Active, % by wt.9.5-10.5
Propylene Glycol Content, % by wt.10
Water Content, % by wt.80
pH (as is)2.5-4.5
Specific Gravity @ 20°C1.04-1.07
Flash Point (Tag Closed Cup)>100°C/212°F
Solubility in waterMiscible

MYACIDE S30
EPA Registration No. 33753-20-48301
CAS Registry No. 52-51-7
EINECS No. 2001430

AppearancePale yellow to colorless liquid
Active, % by wt.27.7-32.3
Propylene Glycol, % by wt.60
Water Content, % by wt.10
pH (as is)2.5-4.5
Specific Gravity @ 20°C1.19-1.21
Flash Point122°C/252°F
Solubility in waterMiscible

FDA Clearances

21CFR175.105 Adhesives
21CFR176.170 Components of paper in contact with
aqueous and fatty foods
21CFR176.180 Components of paper in contact with
dry food
21CFR176.300 Paper Slimeicide

ANGUS®

ANGUS Chemical Company
1500 E. Lake Cook Road
Buffalo Grove, IL 60089

Phone: 847-215-8600
Fax: 847-215-8628

Antimicrobial Activity

MYACIDE effectiveness against a representative group of bacteria is illustrated by the minimum inhibitory concentrations (MIC) listed below. These data are intended only as an indication of the broad spectrum of activity of MYACIDE and should not be interpreted as having relevance to the effectiveness or dosage against specific bacteria in formulated products or process systems. The MIC are given as ppm active ingredient.

Organism	No. Strains Tested	MIC (ppm)
<i>Escherichia coli</i>	15	12.5-50
<i>Pseudomonas aeruginosa</i>	50	12.5-50
<i>Pseudomonas putida</i>	1	25
<i>Pseudomonas cepacia</i>	1	25
<i>Pseudomonas stutzeri</i>	1	25
<i>Pseudomonas fluorescens</i>	1	25
<i>Klebsiella pneumoniae</i>	2	25
<i>Enterobacter aerogenes</i>	1	25
<i>Desulfouibrio</i> sp.	9	0.39-12.5
<i>Staphylococcus aureus</i>	30	12.5-30
<i>Staphylococcus epidermidis</i>	2	50
<i>Legionella pneumophila serotype</i>	1	25-50

MYACIDE, in contrast to many other industrial biocides, is particularly effective in controlling *Pseudomonas*. In addition, MYACIDE is also very effective at controlling the anaerobic sulfate-reducing bacteria (SRB) that are responsible for causing microbiologically-influenced corrosion as well as for generating gases such as H₂S. MYACIDE exhibits limited fungal efficacy at typical use concentrations.

Formulating and Process Considerations

The active ingredient in MYACIDE S15 and S30 Preservatives, bronopol, is compatible with a range of materials used in water treatment, pulp and paper and other process applications. The materials include compounds such as scale inhibitors, pitch stabilizers, sizing agents, retention aids, flocculants and other biocides. However, strong reducing agents such as bisulfite (> 50 ppm) and oxidizing agents such as free residual chlorine (> 5 ppm) should be avoided. MYACIDE S15 and S30 maintain their antimicrobial activity over a wide pH range despite some decrease in chemical stability as conditions become more alkaline (pH < 8.5).

MYACIDE S15 and S30 Preservatives can be used alone or in combination with other biocides. The use of multiple preservatives provides additional protection against bacterial and fungal spoilage. In addition, combination systems can be more cost effective. Multiple biocide combinations help prevent the establishment of populations of organisms resistant to a single biocide.

MYACIDE S15 and S30 Preservatives can be used with a wide variety of biocides. The most popular combinations being with 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (CMIT/MIT) or 1,2-benzisothiazolin-3-one (BIT). The dosage levels of CMIT/MIT, typically 25-30 ppm active ingredient for preservation applications, can be reduced to 7.5 to 15 ppm active ingredient when combined with 100-200 ppm (active ingredient) MYACIDE S15 and S30.

The benefits of the combination of these two actives are as follows:

- Synergistic activity has been reported between bronopol and isothiazolinones in both the USA and Japan.
- *Pseudomonas* efficacy - MYACIDE S15 and S30 have extremely good efficacy against *Pseudomonas*, a weakness of isothiazolinone chemistry.
- MYACIDE S15 and S30 are more effective in the presence of reducing agents as compared to isothiazolinones. In addition, MYACIDE S15 and S30 can improve the stability of CMIT/MIT in the presence of reducing agents.

Uses

MYACIDE S15 and S30 Preservatives are registered for the following end-use applications:

Water Treatment

Industrial Recirculating Water Cooling Towers and Evaporative Condensers

For control of slime-forming bacteria and algae in recirculating water cooling towers and evaporative condensers, dose MYACIDE S15 or S30 directly into the sump or basin at any point where there is adequate agitation to ensure rapid dispersal throughout the system. MYACIDE S15 or S30 should be shock dosed once or twice weekly and should be added to the systems as rapidly as possible to attain the required dose. MYACIDE S15 or S30 should be shock dosed at 25-100 ppm active ingredient depending on the condition of the tower, the quality of the raw water input, and the amount of bleed off.

Industrial Process Water

MYACIDE S15 and S30 may be used to effectively control bacterial and algal growth in industrial process water, including closed-circuit machine cooling and stored water (non-potable) as well as to reduce the biofouling of pipework, heat exchangers, condenser tubes, and to minimize microbiologically-influenced corrosion. Dosing should be carried out in the sump/tank of the process water system where a slug-dose is preferred. MYACIDE S15 and S30 can also be used as an intermittent flush treatment during regular maintenance cleaning of water tanks (non-potable) or equipment. In open systems, slug-dosing of MYACIDE S15 or S30 should be carried out on a once-a-week to once-a-month basis, depending on the degree of contamination. In closed-circuit systems, with minimal loss of MYACIDE S15 or S30, less frequent dosing (1-2 times/month) should be adequate. Dosing should be carried out to give an initial concentration of 50 ppm active MYACIDE S15 or S30. When microbiological control has been established using the above treatment regimen, dosage can be reduced to 10 ppm active MYACIDE S15 or S30. For intermittent treatment of industrial process waters during routine maintenance, MYACIDE S15 or S30 should be dosed at 100 ppm active and have a contact time with the system of at least one hour.

Pulp and Paper Applications

MYACIDE S15 and S30 can be used to control microbiological growth in paper and paperboard manufacturing processes such as paper mill process water, bulk pulp, and starch, pigment and extender slurries used in paper coating applications. MYACIDE S15 and S30 have FDA clearances for use as a paper slimicide (21 CFR 176.300), as a component of paper and paperboard in contact with aqueous and fatty foods (21 CFR 176.170), and as a component of paper and paperboard in contact with dry foods (21 CFR 176.180).

Paper Process Waters

For control of slime-forming bacteria in paper or paperboard process water systems, MYACIDE S15 or S30 should be dosed at a convenient point early in the process system. Dosing points may include machine chest, headbox or white water loop. MYACIDE S15 or S30 should be slug-dosed several times daily in quantities sufficient to meet the required dose based on the daily production of finished product. Dose between 0.2 and 5 pints MYACIDE S15 or 0.06 and 1.5 pints MYACIDE S30 per ton of finished product depending on the complexity of the system, quality of the raw materials, and the type and degree of contamination (10-250 ppm active).

Bulk Pulp

To preserve bulk quantities of pulp in paper and paperboard manufacturing systems or to prevent foul odors and deterioration of pulp stock when stored for significant periods of time, add MYACIDE S15 or S30 directly into the hydropulper, machine chest, or stock chest. A single slug dose will provide microbiological control for up to 3 days or longer depending on the degree of contamination of the stock. In highly contaminated pulps, repeat dosing may be required every 1-7 days. MYACIDE S15 or S30 should be dosed at 50-200 ppm active.

Starch, Pigment and Extender Slurries

MYACIDE S15 and S30 can be used to inhibit the growth of spoilage bacteria during the manufacture, storage and distribution of water-based suspension concentrates including mineral slurries and water-based mill additives such as starch solutions, sizing agents and dyestuffs. MYACIDE S15 and S30 may be dosed at, or close to, the end of the manufacturing process. If the manufacturing process involves a heating stage, the MYACIDE S15 and S30 Preservatives should be added after the product has cooled below 40°C/104°F. MYACIDE S15 or S30 should be dosed at 100-500 ppm active, based on the final formulation volume.

Paints, Latex and Antifoam Emulsion Systems

MYACIDE S15 and S30 may be used to provide in-can preservation and prevent bacterial spoilage during manufacture and bulk storage of acrylic, styrene-acrylic polyvinyl acetate and other latex emulsion concentrates and latex emulsion-based paints. In addition, MYACIDE S15 and S30 may be used for the preservation of silicone and other antifoam emulsion systems. MYACIDE S15 and S30 Preservatives may be added as a final step just prior to packing the product into bulk or sales packs. If a heating stage is involved in the manufacture, add MYACIDE S15 or S30 after this stage when the product has cooled below 40°C/104°F. MYACIDE S15 or S30 should be dosed at 100-500 ppm active, based on the final formulation volume.

Adhesives

MYACIDE S15 and S30 can be used for the control of microbial contamination of water-based adhesives. MYACIDE S15 or S30 should be added at 100-500 ppm active based on total formulation. MYACIDE S15 and S30 are best added to any water incorporated into the formula. MYACIDE S15 and S30 have FDA approval (21 CFR 175.105) for indirect food contact use in adhesives.

Oil Field and Fuel Applications

Oil and Gas Fluids

MYACIDE S15 and S30 can be used to control microbiological contamination and degradation of a variety of gels and fluids caused by cellulolytic, slime-forming and sulfate-reducing bacteria. The types of fluids to be preserved include fracturing, enhanced oil recovery, injection, well squeeze, drilling, workover and completion. MYACIDE S15 and S30 may be pre-mixed or added directly to the fluids during each industrial procedure. MYACIDE S15 or S30 should be added at a dosage rate of 50-100 ppm active depending on the quality of the makeup water. Well squeeze fluids should be treated with MYACIDE S15 or S30 at a rate of 25-200 ppm active.

Oil Process Water

MYACIDE S15 and S30 can be used to inhibit the growth of slime-forming bacteria or corrosion inducing sulfate-reducing bacteria in oil and gas well injection and formation waters. MYACIDE S15 or S30 should be injected as a slug dose at any point, at a rate of 25-200 ppm active once a week to once a month depending on the severity of contamination.

Oil and Gas Pipeline and Tank Maintenance

MYACIDE S15 and S30 can be used to control bacterial contamination in water bottoms in crude and refined hydrocarbon storage tanks, piping and transportation systems. Add MYACIDE S15 or S30 directly into the water bottom or pipeline or it may be added to the hydrocarbon phase. Treatment rates can vary from once daily for pipeline maintenance to once every 1-2 months for storage and transportation systems. Addition to the hydrocarbon phase will result in longer-term protection by gradual diffusion of the active ingredient into the water phase. MYACIDE S15 or S30 should be applied to reach a target dosage of 25-200 ppm active in the aqueous phase (higher concentrations may be applied to the hydrocarbon phase).

Toxicology

The oral LD₅₀ of 40% bronopol is 540 mg/kg in the rat. Similarly, the oral toxicity at 20% is ~1240 mg/kg. Therefore, the oral toxicity of MYACIDE S30 and MYACIDE S15 can be estimated as 800 mg/kg and about 2400 mg/kg respectively. All four concentrations are toxicity category III under current EPA regulations, i.e., harmful if swallowed. In animal tests, this toxicity is evidenced by gastrointestinal irritation with ulceration at high concentrations.

Dermally, limit tests with rabbits (2000 mg/kg) did not result in deaths or signs of systemic toxicity. However, even MYACIDE S15 which contains 10% of bronopol is moderately irritating to the skin, as are solutions up to 40%. Based on eye irritation studies all liquid solutions of bronopol should be considered to be corrosive to the eye. Because literature references on bronopol indicate some instances of positive reactions, MYACIDE S15 and MYACIDE S30 may cause dermal sensitization in certain individuals.

A detailed discussion of the toxicological properties of MYACIDE AS-PLUS is presented in ANGUS Technical Bulletin TB 76. Those data are applicable to MYACIDE S15 and MYACIDE S30 in that the inert ingredients in them are essentially nontoxic. The major effect seen in long-term tests with MYACIDE AS-PLUS was gastric ulceration.

Environmental Effects

No direct testing of either MYACIDE S15 or MYACIDE S30 was conducted. Based on data in ANGUS Technical Bulletin TB 76 (page 14), the active ingredient is toxic to aquatic species. Neither product should be allowed to enter lakes, ponds, stream, estuaries, oceans or other public waters.

First Aid

IF SWALLOWED: Drink large quantities of water. Call a physician.

IF INHALED: Remove person to fresh air.

IF ON SKIN: Immediately flush skin with plenty of water for 15 minutes.

IF ON EYES: Immediately flush eyes with plenty of water for 15 minutes. Call a physician.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

Precautionary Labeling

DANGER!

KEEP OUT OF REACH OF CHILDREN!

CORROSIVE: CAUSES EYE DAMAGE AND SKIN IRRITATION

Do not get in eyes, on skin, or on clothing.

Wear goggles or face shield and rubber gloves when handling.

Harmful if swallowed.

Avoid contamination of food.

This product is a dermal sensitizer.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

Handling and Storage

Persons handling MYACIDE S15 or MYACIDE S30 should wear rubber gloves and apron and safety glasses or chemical goggles to prevent contact with eyes or skin. Because of their very low vapor pressure, these products do not present an inhalation hazard. Wash thoroughly after handling.

Store MYACIDE S15 and MYACIDE S30 in their original containers in cool locations away from food or feed. They can be corrosive to metals on prolonged contact, so wash away any spills from metal surfaces.

Spills should be contained and/or absorbed in suitable inert materials such as sawdust. Small spills or residues may be flushed to sewers, which lead to treatment systems.

Shipping and Packaging

MYACIDE S15 and S30 are classified as Class 8 Packing Group III corrosive liquids in the U.S. Department of Transportation regulations and in the international regulations for air and ocean transport because of their corrosive effects on aluminum.

The bill of lading description used by ANGUS is:

DISINFECTANT, LIQUID, CORROSIVE, N.O.S. (2-BROMO-2-NITROPROPANE-1,3-DIOL SOLUTION) 8, UN1903, III. IN CASE OF EMERGENCY USE ANGUS GUIDE 5 ATTACHED. DISINFECTANT NO1, OTHER THAN MEDICINAL OR TOILET PREPARATIONS. NMFC ITEM 57100 SUB 3 CLASS 60. TRADE NAME = MYACIDE (S15 AND S30)

Shipping Containers	Net Wt.	Gross Wt.
55-gallon HDPE drum	500 lb	520 lb
1000 liter IBC*	2,204 lb	2,354 lb

*Intermediate bulk container (tote tank) with HDPE bottle and steel cage and pallet.

Requester Lloyd H. Shanks

Date Received: 2/1/99

Company Angus Chemical Company

Tracking Number: 99-0029

Phone 847-215-8600

Revision Date: 2/1/99

Date Assigned 2/1/99

Date of Letter 1/26/99

Staff Mack

First Draft Due: 2/22/99

Section 172.101

First Draft Date:

Subject Classification

Concurrence

Status

Status Date

Sign Date

Signor

HBP

Copy to Docket

Copy to DHM-60

Comment



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S W
Washington, D.C. 20590

MAY 23 1996

Ms. Linda Whitton
Transportation Manager
AAPER Alcohol
P.O. Box 339
Shelbyville, KY 40066-0339

Dear Ms. Whitton:

This is in response to your letter dated February 22, 1996, requesting clarification on the proper shipping names for 190 and 200 Proof Pure Ethyl Alcohol and several Ethanol Solution products under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you asked whether both of your products can be shipped under the DOT proper shipping name of "Ethanol Solutions"?

When selecting a proper shipping name, the name that most appropriately describes the material must be chosen. If the material is specifically listed by its technical name, and it meets the hazard class, Packing Group, etc., assigned in the Hazardous Materials Table, then that name must be chosen. However, the technical grade of a material may contain some impurities and additives that are themselves hazardous materials. If these impurities and additives are of such a low percentage that they do not significantly alter the hazard characteristics of the entire product, then the presence of these impurities will not affect the selection of the proper shipping name. Therefore, this office believes that ethanol, which may contain up to 5% of other hazardous materials (i.e., methanol or tert-butyl alcohol as denaturants), may be transported under the shipping name "Ethanol", "Ethyl alcohol", "Ethanol solutions", or "Ethyl alcohol solutions". However, shipments of pure ethanol should be described as either "Ethanol" or "Ethyl alcohol".

I hope this answers your inquiry. If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Delmer F. Billings
Chief, Regulations Development
Office of Hazardous Materials
Standards

172.101



US Department
of Transportation

Research and
Special Programs
Administration

MAR 11 1994

400 Seventh Street, N.W.
Washington, D.C. 20590

Mr. Dave Bartholomaus
Purchasing Agent
HYDROMAT INC.
11600 Adie Road
St. Louis, MO 63043

Dear Mr. Bartholomaus:

This is in response to your letter dated December 14, 1993, requesting that this office review material safety data sheets for numerous products handled by HYDROMAT and advise whether we agree with the classification of each product.

The Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) govern the transportation of hazardous materials in commerce. Material safety data sheets are not required by the HMR. They often are not of use in determining the classification of a hazardous material under the HMR. Under 49 CFR 173.22, it is the shipper's responsibility to properly classify a hazardous material. This office does not perform that function. If you have any questions regarding the classification of a material, we recommend that you contact the manufacturer of that material. Accordingly, the material safety data sheets which you submitted have not been reviewed and are returned for your use.

The Hazardous Materials Table, in 49 CFR 172.101, lists the proper shipping name, hazard class, and the identification number that must be used to describe a hazardous material in transportation. If a material is not specifically listed by name in the Table, selection of a proper shipping name must be made from the general description entries corresponding to the specific hazard class, packing group, and subsidiary hazards of the material. The categories of materials that are considered hazardous materials (i.e., hazard classes) are defined in Part 173 of 49 CFR. Part 173 specifies packaging requirements for hazardous materials. Specific regulations dealing with hazard communication (e.g., shipping papers, labeling, and training) are found in Part 172. Parts 174-177 of 49 CFR contain modal specific requirements, with Part 177 applicable to the highway mode of transport.

I trust this information will be of assistance to you.

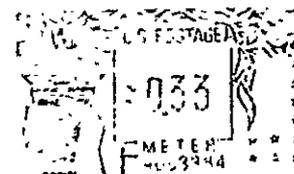
Sincerely,

Edward T. Mazzullo
Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards

181/177-101
172-101
Enclosure

ANGUS[®]

ANGUS Chemical Company
1500 East Lake Cook Road
Buffalo Grove, IL 60089-6556



Mr. Edward Mazzullo, Director
Office of Hazardous Materials Standards
U.S Department of Transportation
DHM-10 Room 8102
400 Seventh Street
Washington, DC 20590

