

FENOC

FirstEnergy Nuclear Operating Company

50-334/412

Beaver Valley Power Station
Route 168
P.O. Box 4
Shippingport, PA 15077-0004

May 7, 2001

Mr. Ron Schwartz, PE
Chief Permitting
Commonwealth of Pennsylvania
Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222-4745

Dear Mr. Schwartz:

NPDES Permit PA0025615
Beaver Valley Power Station
Shippingport Borough, Beaver County

In accordance with Part C of the above referenced NPDES permit, approval is requested for use of Pyricil SB I Scale Conditioning Agent for steam generator scale removal at FENOC's Beaver Valley Power Station. We are presently planning to perform a treatment to clean steam generators late in 2001 at Unit 1 during a refueling outage. After the cleaning the estimated remaining 57,000 gallons of final rinse liquid will be demineralized to remove treatment chemicals prior to being pumped to the nearby Unit 2 plant cooling tower basin. The expected concentration will be less than 2ppm and the effluent concentration at the plant Main Outfall 001 will be less than detectable. We have used this process successfully in the past with one of our other facilities over the past several years and have experienced no environmental problems associated with it. Attached to this request is the required information associated with the products under consideration.

Please contact Joe Venzon at (724) 682-5113 or me at (724) 682-5140 if you have any more questions.

Sincerely,



William M. Cress
Associate Nuclear Technologist

WMC/lar

Cc: S. Brown
G. Hengge
D. Petro
J.W. Venzon
Tiffany Shepard
Licensing File
Central File
U.S. EPA
U.S. NRC

COOL

Trade Name

Pyrcil SB 1 Scale Conditioning Agent, product information attached.

Manufacturer

Avecia, Inc.
1405 Foulk Rd., P.O. Box 15457
Wilmington, Delaware 19850-5457
Phone: (800) 435-8679
Medical Emergency: (800) 286-7850

Ingredients

% Composition

Water	92
N-Methyl-2-Pyrrolidone	6
Scale Conditioning Agent	1
Dimethylamine	1

Usage Rate

750 gallons of SCA is to be consumed in the steam generator cleaning process. During this phase there will be no discharge to the cooling tower basin. Only the final rinse water, after demineralization is which ~57,000gallons will be discharged to the coolong tower basin.

Discharge Rate

Approximately 0.057MGD is expected to be discharged to the cooling tower basin. The during normal plant operation blowdown rate from the Unit 2 Cooling Tower is estimated to be 16.3 MGD average and 25.2 MGD maximum.

In-System Concentration

0.007mg/l as 2,2-bipyridyl
0.007mg/l as dimethylamine
0.042mg/l as N-Methyl-2-Pyrrolidone

Expected Outfall Concentration

Calculation indicates concentrations will not exceed in system values.

Test Method

Not analyzed in the past at the point of discharge based on the expected effluent concentrations based on process knowledge.

Flow Diagram

Flow diagram is attached.

Bioassay Data

Dimethylamine (DMA)

For 10% solutions of DMA, aquatic toxicity data is as follows :

48 hr LC50 (Daphnia magna): 675ppm
96 hr LC50 (Fathead Minnow):>1000ppm
96 hr LC50 (Bluegill sunfish): >1000ppm

The Pyrcil SB 1 formulation contains only 1% DMA.

Bioassay Data

Scale Conditioning Agent (SCA)

For 100% solutions of SCA product:

96 hr LC50 (fish species not specified) 11ppm

The BCF is <100; log BCF=0.7.

The concentration of the SCA in Pyricil SB 1 is 1%.

N-Methyl-2-Pyrrolidone (NMP)

The concentration of NMP product in the Pyricil SB 1 product is 6%.

This ecotoxicity is excerpted from MNP Toxicity information provided from the supplier.

NMP demonstrated low in all the aquatic species tested.

The species tested are as follows:

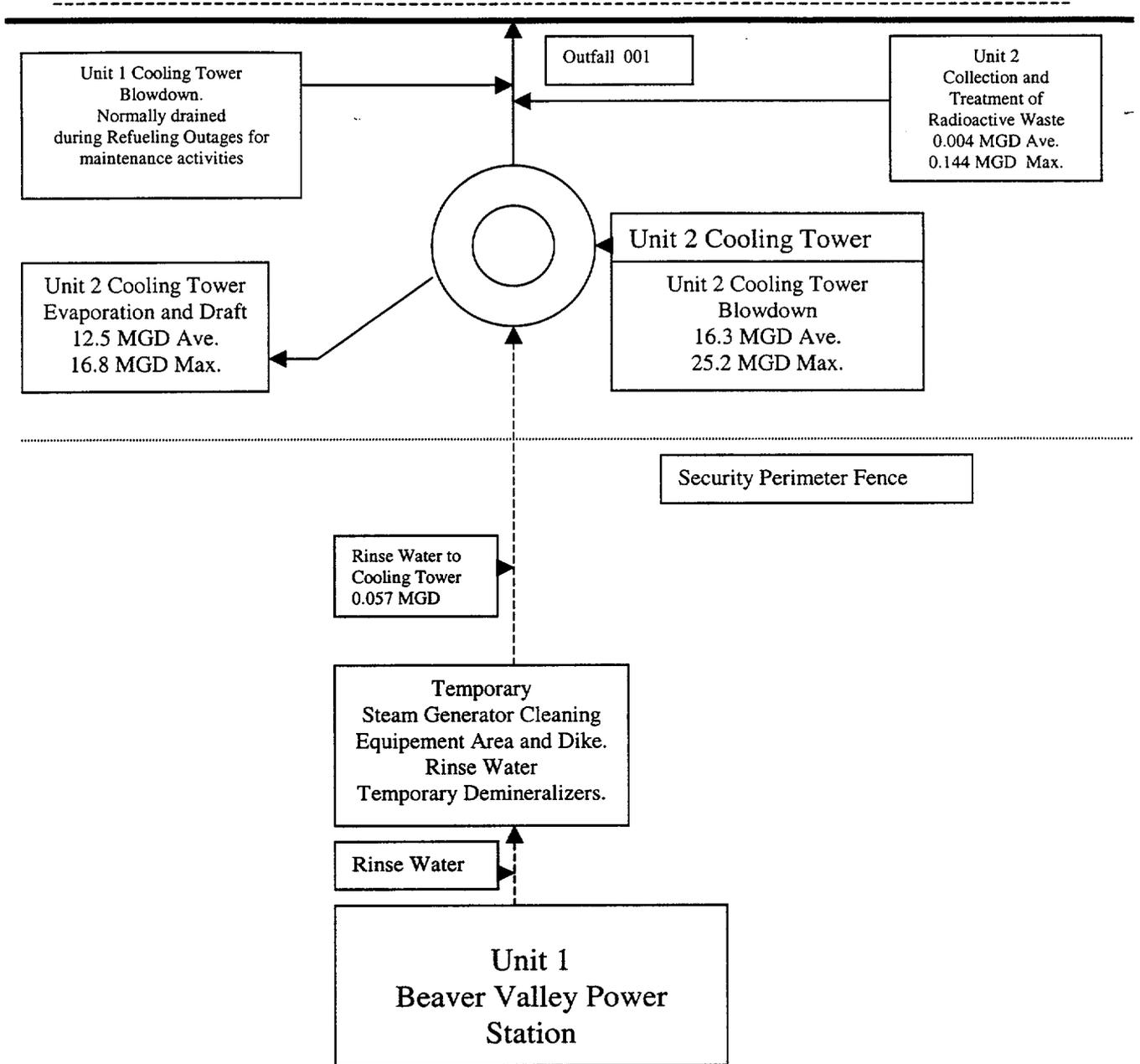
<u>Species</u>	<u>LC50</u>
Sunfish	800mg/l
Flathead Minnow	1100mg/l
Trout	3000mg/l
Daphnia	4900mg/l
Scud	4700mg/l
Mud Crab	1600mg/l
Grass Shrimp	1100mg/l
Guppy	1300mg/l

NMP is rapidly biodegraded in soils and waste treatment plants.

MSDS

The MSDS is attached, as well as the MSDS for 2,2'-Dipyridil and DMA.

← Ohio River



MATERIAL SAFETY DATA SHEET

1 5 5 8

Avecia Inc.

1405 Foulk Rd., P.O. Box 15457
Wilmington, Delaware 19850-5457
Phone: (800) 435-8679
Medical Emergency: (800) 286-7850

Issue Date: 10/25/93

Rev: C
PROD CODE: 29305

For a transport accident or leak, fire or major spill, call
CHEMICAL EMERGENCY RESPONSE CENTER, (800) 424-2466

SECTION 1 NAME & HAZARD SUMMARY

Material name: 2,2'-BIPYRIDYL

Hazard summary (as defined by OSHA Hazard Comm. Std., 29 CFR 1910.1200):

Physical hazards: None

Health hazards: Irritant (skin, eye, respiratory passages), toxic (oral),
harmful (dermal)

Read the entire MSDS for a more thorough evaluation of the hazards.

SECTION 2 INGREDIENTS

	%	OSHA PEL
2,2'-Bipyridyl (CAS 366-18-7)		Not listed

Ingredients not precisely identified are proprietary or nonhazardous.
Values are not product specifications.

SECTION 3 PHYSICAL DATA

*** Appearance and odor: Yellow to fawn brown granular solid

Melting point: 156.2°F, 69°C

Vapor pressure (mm Hg at 20°C): No data

Vapor density (air = 1): No data

Solubility in water: About 0.5%

*** pH: 8 (5 g/l water)

Specific gravity: No data

% Volatile by volume: Negligible

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

*** Flash point: 121°C, 249.8°F

Autoignition temperature: No data

Flammable limits (STP): Not applicable

Extinguishing media:

Water fog, foam, carbon dioxide, dry chemical, halogenated agents.

Special fire fighting protective equipment:

Self-contained breathing apparatus with full facepiece and protective clothing.

Unusual fire and explosion hazards:

This product may form explosive dust clouds in air. Possible toxic smoke, vapors, fallout and runoff water can result from fires depending on extent of combustion and presence of other combustible materials. Contaminated buildings, areas, and equipment must be properly decontaminated before reuse.

SECTION 5 REACTIVITY DATA

Stability:

Stable under normal conditions.

Incompatibility:

Oxidizing agents.

Hazardous decomposition products:

Combustion products: Carbon dioxide, carbon monoxide. Nitrogen oxides, ammonia.

Hazardous polymerization:

Not known to occur.

SECTION 6 HEALTH HAZARD ASSESSMENT

General:

Limited toxicity data are available on this specific product; this health hazard assessment is based on the results of screening tests and information from the scientific literature.

Ingestion:

The acute oral LD50 in rat is 100 mg/kg. Relative to other materials, this material is classified as "moderately toxic" by ingestion. The animals which survived the single oral doses had slight tremors which persisted for up to 48 hours. If swallowed, symptoms of exposure may include tremors and muscular incoordination. The appearance of orange-colored urine may indicate significant absorption regardless of route of exposure.

Eye contact:

This material is mildly irritating in rabbit eye irritation studies. A similar degree of irritation will probably occur after human eye contact.

Skin contact:

This material is slightly irritating in rabbit dermal irritation studies. Short contact periods with human skin will probably not produce irritation. Irritation can develop following repeated and/or prolonged contact with human skin. This material was not a skin sensitizer in animal testing. The potential is low for developing sensitization following contact with human skin.

Skin absorption:

This material is absorbed through skin. The dermal LD50 in animals is reported to be between 625 and 1,250 mg/kg. Relative to other materials, this material is classified as "slightly toxic" by skin absorption.

Inhalation:

Particulates of this material can irritate respiratory passages.

Other effects of overexposure:

Rats orally administered this material at 50 mg/kg for 14 consecutive days developed anemia; no other adverse effects occurred. Intraperitoneal injections to pregnant rats induced birth defects, primarily affecting the limbs. This indicates this material has some teratogenic potential. However, this route of administration has little relevance to potential industrial exposures.

---continued---

SECTION 6 HEALTH HAZARD ASSESSMENT (continued)

Other effects of overexposure (continued):

Because exposure potential is a critical element in the expression of a potential health hazard, this product, if handled in accordance with good industrial hygiene practice, will not present an actual hazard in the workplace.

First aid procedures:

Skin: Wash material off of the skin with plenty of soap and water. If redness, itching, or a burning sensation develops, get medical attention. Wash contaminated clothing and decontaminate footwear before reuse.

Eyes: Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develops, have eyes examined and treated by medical personnel.

Ingestion: Give 1 or 2 glasses of water to drink and induce vomiting by sticking finger down throat. Repeat until vomitus is clear. Refer person to medical personnel. (Never give anything by mouth to an unconscious person.)

Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is labored, give oxygen. Consult medical personnel.

SECTION 7 SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled:

Wear skin, eye, and respiratory protection during cleanup. Sweep up and recover or mix material with a moist absorbent and shovel into a chemical waste container. Cover container and remove from work area. Wash residue from spill area with water containing detergent and flush to a sewer serviced by a wastewater treatment facility.

Disposal method:

This product is toxic by inhalation and skin absorption and must be handled with caution. Discarded product is not a hazardous waste under RCRA, 40 CFR 261.

Container disposal:

Empty container retains product residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Remove all product residue from container and puncture or otherwise destroy empty container before disposal.

SECTION 8 SPECIAL PROTECTION INFORMATION

TLV® or suggested control value:

No ACGIH TLV or OSHA PEL assigned. Minimize exposure in accordance with good hygiene practice. Avecia INC. operates its facility such that exposures to 4,4'-bipyridyl are kept below 0.028 mg/m³. A similar exposure limit is appropriate for 2,2'-bipyridyl.

Ventilation:

Use ventilation adequate to maintain safe levels.

Respiratory protection:

Use MSHA-NIOSH approved respirator for organic vapors, dusts and mists whose TLV is greater than 0.05 mg/m³.

SECTION 8 SPECIAL PROTECTION INFORMATION (continued)

Protective clothing:

Gloves determined to be impervious under the conditions of use. Depending on conditions of use, additional protection may be required such as apron, arm covers, or full body suit. Wash contaminated clothing before rewearing. Use adequate clothing to prevent skin contact. Clean clothing on a routine basis.

Eye protection:

Chemical tight goggles.

Other protective equipment:

Eyewash station and safety shower in work area.

SECTION 9 SPECIAL PRECAUTIONS OR OTHER COMMENTS

Special precautions or other comments:

Follow procedures specified in the National Fire Protection Association Codes and Standards for handling combustible dusts. Maintain good housekeeping to avoid dust buildup. Prevent skin and eye contact. Avoid breathing particulates. Thorough showering at the end of the work shift is strongly recommended. Work clothes should be disposable or be laundered daily.

SECTION 10 REGULATORY INFORMATION

TSCA (Toxic Substances Control Act) Regulations, 40 CFR 710:

All ingredients are on the TSCA Chemical Substance Inventory.

CERCLA and SARA Regulations (40 CFR 355, 370, and 372):

This product does not contain any chemicals subject to the reporting requirements of SARA Section 313.

The information herein is given in good faith
but no warranty, expressed or implied, is made.

Prepared/Reviewed: 10/25/93

CCDB: C11419

***This line or section contains revisions or new statements since
the last issue date.

Pre-Tect 9002HP



P.O. Box 1346
Pittsburgh, PA 15230-1346
Phone--(412)494-8000

MATERIAL SAFETY DATA SHEET

Section 1. PRODUCT IDENTIFICATION

PRODUCT NAME: Pre-Tect 9002HP
CHEMICAL DESCRIPTION: Aqueous amine solution
PRODUCT CLASS: Boiler water treatment
MSDS CODE: 0F64-01-11-95

Section 2. INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>CAS Number</u>	<u>% by Weight</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Dimethylamine (DMA)	124-40-3	2	TWA 10 ppm, 18 mg/m ³	TWA 5 ppm, 9.2 mg/m ³ ; STEL 15 ppm, 27.6 mg/m ³

Section 3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW *****

DANGER!
May cause severe eye and skin damage.
May be harmful if swallowed.
May cause allergic skin reaction.
May cause respiratory tract irritation.
Flammable/Combustible liquid and vapor.
Flash point: 127 °F.
May form suspected cancer-causing nitrosamines if mixed with nitrites.

PRIMARY ROUTES OF ENTRY: Eye and skin contact, inhalation, skin absorption, ingestion

TARGET ORGANS: Eye, skin, lung, mucous membranes, liver

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

- * Asthma
- * Skin disorders and allergies
- * Chronic respiratory disease, e.g., bronchitis, emphysema
- * Eye disease

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POTENTIAL HEALTH EFFECTS:

EYE CONTACT: This product may cause irreversible eye damage upon contact depending on the length of exposure, solution concentration and first aid measures. Product vapor in low concentrations can cause tearing, conjunctivitis and corneal edema when absorbed into the tissue of the eye from the atmosphere. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The condition is transient and has no known residual effect.

SKIN CONTACT: This product may produce burns upon contact with the skin. The severity of the burn is generally determined by the concentration of the solution and the duration of the exposure. The vapors may also be irritating to the skin. DMA may cause an allergic skin reaction and may be absorbed through the skin causing nausea, headache, and general discomfort.

INGESTION: Ingestion of this product may cause severe irritation or burns of the mucous membranes of the mouth, throat, esophagus and stomach.

INHALATION: DMA vapors are irritating to the respiratory tract. Inhalation of vapors may produce chemical pneumonitis, pulmonary edema, and delayed scarring of the airway and other affected organs. Repeated and/or prolonged exposure to vapors may cause chronic irritation of the respiratory tract, bronchopneumonia, and other adverse respiratory effects such as cough, tightness of chest, or shortness of breath.

SUBCHRONIC, CHRONIC:

DMA added to the diet of rats at 150 mg/kg for 3.5 months increased liver demethylase activity even in the presence of the enzyme inducer casein. In a subchronic study, 15 rats, 15 guinea pigs, 3 rabbits, 2 dogs, and 3 monkeys were exposed continuously by inhalation at approximately 5 ppm of DMA for 90 days. There were no deaths or signs of toxicity and all hematologic values were normal. On histopathologic examination, interstitial inflammatory changes were noted in the lungs of each species. Further, the 3 rabbits and 2 monkeys showed dilatation of the bronchi.

In a 2-year inhalation study, groups of 95 male and 95 female rats and mice were exposed 6 hours/day, 5 days/week at 10, 50, or 175 ppm of DMA. Concentration-dependent toxicity was characterized by decreased body weight (175 ppm only) and progressive inflammatory, degenerative, and hyperplastic lesions of the nasal passages. Nasal toxicity was similar in both rats and mice (no sex differences) affecting respiratory and olfactory epithelia. Lesions were severe at 175 ppm, moderate at 50 ppm, and focal and mild at 10 ppm.

CARCINOGENICITY:

NTP:

No ingredients listed in this section

IARC:

No ingredients listed in this section

OSHA:

No ingredients listed in this section

Section 4. FIRST AID MEASURES

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical aid immediately.

Pre-Tect 9002HP

SKIN CONTACT: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical aid immediately. Wash clothing before reuse. Destroy contaminated leather apparel. Victims with major skin contact should be maintained under medical observation for at least 24 hours due to the possibility of delayed reaction.

INGESTION: If swallowed, do NOT induce vomiting. Give large quantities of water. Seek medical aid immediately. Never give anything by mouth to an unconscious person.

Note to Physicians: This product is highly injurious to all tissues, similar to that of ammonia or ammonia gas. Chemical pneumonitis, pulmonary edema, laryngeal edema and delayed scarring of the airway or other affected tissues may occur following exposure. There is no specific treatment. Clinical management is based on supportive treatment, which is similar to that for thermal burns.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical aid. Prevent aspiration of vomit. Turn victim's head to the side. Assure mucous does not obstruct airway.

Section 5. FIRE-FIGHTING MEASURES

FLASH POINT: 127°F (COC)
This product is a fire hazard.

LOWER FLAMMABLE LIMIT: Not available **UPPER FLAMMABLE LIMIT:** Not available

AUTO-IGNITION TEMPERATURE: Not available

EXTINGUISHING MEDIA: Use CO₂, dry chemical, alcohol foam.

FIRE-FIGHTING INSTRUCTIONS: Exercise caution when fighting any chemical fire. A self-contained breathing apparatus and protective clothing are essential. Use water to keep fire-exposed containers cool.

FIRE & EXPLOSION HAZARDS: Product emits toxic gases under fire conditions. Product vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapors may collect in closed spaces such as sewers, caves or closed structures.

DECOMPOSITION PRODUCTS: Upon decomposition, ammonia vapors are liberated. Upon combustion in the presence of sufficient oxygen, product generates harmful carbon monoxide, carbon dioxide, and nitrogen oxide gases. Nitrogen oxide can react with water vapor to yield nitric acid. Combustion of product under oxygen-starved conditions can be expected to produce numerous toxic products including: nitriles, cyanic acid, isocyanates, cyanogens, nitrosamines, amides, carbamates.

NFPA RATINGS: Health = 3 Flammability = 2 Reactivity = 0 Special Hazard = None

Hazard rating scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

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Section 6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Ventilate area of spill. Eliminate all ignition sources. Approach release from upwind. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures. Five percent sulfuric acid may be used to neutralize diluted pools. Wearing appropriate personal protective equipment, contain spill, collect onto noncombustible absorbent like sand or earth and place into suitable container. Vapors tend to remain close to the ground and collect in out-of-the-way places. Use non-sparking blowers or ventilation facilities to remove potential explosive or toxic accumulations.

Section 7. HANDLING AND STORAGE

HANDLING: Do not get in eyes, on skin or clothing.
Avoid breathing vapor or mist.
Keep away from heat and flame.
Use with adequate ventilation.
Wash thoroughly after handling.
Keep container closed when not in use.
Remove all equipment which may be a source of ignition from vicinity while handling. Empty containers may contain explosive vapors. Flush empty containers with water to remove residual flammable liquid and vapors.

STORAGE: Keep away from oxidizers, heat or flames. Store away from ignition sources. Ground all containers during transfer. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Electrical installations should be in accordance with Article 501 of the National Electrical Code for Class I Division 2 locations.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Chemical splash goggles and face shield

SKIN PROTECTION: Chemical resistant gloves and protective clothing

RESPIRATORY PROTECTION: If airborne concentrations exceed published exposure limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements (29 CFR 1910.134).

ENGINEERING CONTROLS: Local exhaust ventilation may be required in addition to general room ventilation to maintain airborne concentrations below exposure limits.

WORK PRACTICES: Eye wash station and safety shower should be accessible in the immediate area of use.

UNSATISFACTORY MATERIALS OF CONSTRUCTION: DMA corrodes copper, aluminum, zinc, and galvanized surfaces.

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Section 9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: Not available
SOLUBILITY IN WATER: Complete
VAPOR PRESSURE: 2 torr @ 10°C (for DMA)
SPECIFIC GRAVITY: 0.988 - 0.994 @ 25 °C
VAPOR DENSITY (air=1): 1.55 (for DMA)
pH: 11.5 - 12.0 @ 25 °C
%VOLATILE BY WEIGHT: 100
FREEZING POINT: Not available
APPEARANCE AND ODOR: Clear, colorless liquid with ammoniacal/fishy odor.

Section 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: Keep away from heat and flame.
INCOMPATIBILITY: Strong oxidizers, acids, copper, aluminum, zinc and galvanized surfaces.
DECOMPOSITION PRODUCTS: Upon decomposition, ammonia vapors are liberated. Upon combustion in the presence of sufficient oxygen, product generates harmful carbon monoxide, carbon dioxide, and nitrogen oxide gases. Nitrogen oxide can react with water vapor to yield nitric acid. Combustion of product under oxygen-starved conditions can be expected to produce numerous toxic products including: nitriles, cyanic acid, isocyanates, cyanogens, nitrosamines, amides, carbamates.

Section 11. TOXICOLOGICAL INFORMATION

ON PRODUCT:
See the following information on active ingredient.

ON INGREDIENTS:

<u>Chemical Name</u>	<u>Oral LD₅₀ (rat)</u>	<u>Dermal LD₅₀ (rabbit)</u>	<u>Inhalation LC₅₀ (rat)</u>
Dimethylamine (DMA)	698 mg/kg	Not available	4540 ppm/6H

Section 12. ECOLOGICAL INFORMATION

ON PRODUCT:

Aquatic toxicity data on a 10% solution of DMA:

48 hr LC₅₀ (Daphnia magna): 675 ppm
96 hr LC₅₀ (fathead minnow): > 1000 ppm
96 hr LC₅₀ (bluegill sunfish): > 1000 ppm

Aquatic toxicity data on a 2% solution of DMA:

7-day NOEC (Ceriodaphnia dubia): 1000 ppm (for survival and reproduction)

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Section 13. DISPOSAL CONSIDERATIONS

RCRA STATUS: The EPA Hazardous Waste Number is U092.

DISPOSAL: Dispose of in accordance with local, state and federal regulations. Incineration is acceptable and the preferred method of disposal. However, nitrogen oxide emission controls may be required to meet specifications. Chemical and/or biological degradation is feasible. A suitable industrial or municipal waste treatment system can be used depending on the quality and quantity of waste to be treated, the treatment plant capability, and discharge water quality standards. Incinerate in an open container. Do not dump into municipal sewers or enclosed drains that present a fire or explosion hazard.

Section 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:

Class/Division: 3

Proper Shipping Name: Amines, flammable, corrosive, n.o.s. (contains Dimethylamine)

Label: Flammable liquid, Corrosive

Packing Group: III

ID Number: UN 2733

Section 15. REGULATORY INFORMATION

OSHA Hazard Communication Status: Hazardous

TSCA: The ingredients of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CERCLA reportable quantity of EPA hazardous substances in product:

<u>Chemical Name</u>	<u>RQ</u>
Dimethylamine (DMA)	1000 lb

Product RQ: 50,000 lb (Notify EPA of product spills exceeding this amount.)

SARA TITLE III:

Section 302 Extremely Hazardous Substances:

<u>Chemical Name</u>	<u>CAS #</u>	<u>RQ</u>	<u>TPQ</u>
There are no SARA 302 Extremely Hazardous Substances in this product.			

Section 311 and 312 Health and Physical Hazards:

Immediate [yes]	Delayed [yes]	Fire [yes]	Pressure [no]	Reactivity [no]
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Section 313 Toxic Chemicals:

<u>Chemical Name</u>	<u>CAS #</u>	<u>% by Weight</u>
Dimethylamine (DMA)	124-40-3	2

Pre-Tect 9002HP

Section 16. OTHER INFORMATION

HMIS RATINGS: Health = 3* Flammability = 2 Reactivity = 0
Personal Protective Equipment = X (to be specified by user depending on use conditions)

*There are potential chronic health effects to consider.

Hazard rating scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

MSDS REVISION SUMMARY: Supersedes MSDS issued on 07/26/95. The MSDS has been changed in Section 14.

While this information and recommendations set forth herein are believed to be accurate as of the date hereof, CALGON CORPORATION MAKES NO WARRANTY WITH RESPECT HERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

PREPARED BY: P.J. Maloney

To: Bill Chess

1 pages

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT and COMPANY IDENTIFICATION

Avecia Inc.
1405 Foulk Rd., P.O. Box 15457
Wilmington, Delaware 19850-5457
Phone: (800) 435-8679
Medical Emergency: (800) 286-7850

Issue Date: 11/01/00
MSDS No.: 029503
Rev:
PC: 29503

For a transport accident or leak, fire or major spill, call **CHEMICAL EMERGENCY RESPONSE CENTER**, (800) 424-2466

Material Name: **Pyricil SB1**

Read the entire MSDS for a complete hazard assessment.

SECTION 2: COMPOSITION/INFORMATION on INGREDIENTS*

CAS Number	% Conc [†]	Ingredient Name
000872-50-4	~ 6.0	N-Methyl-2-Pyrrolidone
Proprietary	~ 1.0	Scale Conditioning Agent
000124-40-3	~ 1.0	Dimethylamine

*Ingredients not precisely identified are either proprietary or nonhazardous.
Values are not product specifications. † Percent concentration by weight.

SECTION 3: HAZARDS IDENTIFICATION*

*As defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
See Section 8 for exposure guidelines & Section 11 for toxicology and ingredient specific information.

***** EMERGENCY OVERVIEW *****

CLEAR PALE YELLOW LIQUID. AMINE ODOR.
GASTROINTESTINAL IRRITATION. SEVERE EYE
IRRITANT. SEVERE SKIN IRRITANT.
CORROSIVE TO THE RESPIRATORY TRACT.

***** POTENTIAL HEALTH HAZARDS *****

Eye: This product contains a component(s) which is severe eye irritant.

Skin: This product contains a component(s) which is severe skin irritant based on animal studies. This product may induce skin sensitization after repeated/prolonged contact with human skin.

MSDS (continued) Pyzicil SB1

Inhalation: This product contains a component(s) which is toxic by inhalation. Vapors and aerosols are probably corrosive to respiratory passages, and may cause ulcerations of nose, throat and larynx. May lead to pulmonary edema, chemical pneumonia and death.

Ingestion: In humans, irritation of the mouth, pharynx, esophagus, and stomach can develop following ingestion of this material.

Medical Conditions Aggravated by Exposure: Respiratory conditions.

SECTION 4: FIRST AID MEASURES

General First Aid Procedures

Eyes:
Immediately flush the eyes with large quantities of running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used at this time. Continue the flushing for an additional 15 minutes if a physician is not immediately available.

Skin:
Remove contaminated clothing and footwear while under a safety shower. Wash off of skin with plenty of soap and water. Get medical attention. Wash contaminated clothing and decontaminate footwear before reuse.

Ingestion:
DO NOT INDUCE VOMITING. Give one or two glasses of water to drink and refer to medical personnel or take direction from either a physician or a poison control center. Never give anything by mouth to an unconscious person.

Inhalation:
Remove victim to fresh air. If a cough or other respiratory symptoms develop, consult medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties
Flash Point: > 200°F, 93°C Method: Closed Cup
Upper Flammability Limit (UFL): No Data
Lower Flammability Limit (LFL): No Data
Autoignition Temperature: No Data

Products of combustion:
Combustion products: Carbon oxides, ammonia, nitrogen oxides. NOx can react with water vapor to yield nitric acid; under oxygen-starved conditions can produce nitriles, cyanic acid, isocyanates, cyanogens, nitrosamines, amides, carbamates.

MSDS (continued) Pyricil SB1

Extinguishing media:

Water fog, foam, carbon dioxide, dry chemical, halogenated agents.

Fire fighting instructions:

Wear self-contained breathing apparatus with full facepiece and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill procedures:

Wear skin, eye, and respiratory protection during cleanup.

Contain spill.

Soak up material with absorbent and shovel into a chemical waste container.

This material is harmful to aquatic organisms. Releases to natural waters should be reported to appropriate water pollution control authorities.

Releases of untreated effluent to the sewer should be immediately reported to the public treatment works.

SECTION 7: HANDLING and STORAGE

Handling:

Avoid breathing vapors or aerosols.

Prevent skin and eye contact.

Observe recommended exposure limits.

Workers should shower and change to fresh clothing after each shift.

Storage:

Keep container tightly sealed. Store in a cool, well ventilated area away from heat, sources of ignition, direct sunlight, and strong oxidizing agents, reducing agents, acids, copper, aluminum, zinc and galvanized surfaces. Incompatible with alkaline materials. Attacks mild steel.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines:

No ACGIH TLV or OSHA PEL is assigned to this mixture. Control of exposure to below the PEL for the ingredients may not be sufficient. Minimize exposure in accordance with good hygiene practice.

N-Methyl-2-Pyrrolidone: The American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL) for n-Methyl-2-pyrrolidone (NMP) is 10 ppm, 8-hour TWA, with a skin notation.

Dimethylamine: The ACGIH TLV TWA for dimethylamine is 5 ppm (9.2 mg/m³), 8-hour TWA; the STEL is 15 ppm (27.6 mg/m³); the OSHA PEL is 10 ppm (18 mg/m³), 8-hour TWA.

Engineering controls:

Use permitted ventilation adequate to maintain safe levels.

MSDS (continued) Pyricil SBI

PROTECTIVE EQUIPMENT

Respiratory protection:

If needed, use NIOSH certified respirator for organic vapors, mists and fumes.

Protective clothing:

Take all precautions to prevent skin contact. Use gloves, arm covers and apron determined to be impervious under the conditions of use. Additional protection, such as full body suit and boots, may be required depending on conditions.

Remove contaminated clothing and wash before rewearing.

Wash separately from other laundry.

Eye protection:

Chemical tight goggles and full faceshield.

Other:

Eyewash station and safety shower in work area.

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

Physical State: Liquid
Appearance: clear pale yellow
Odor: Amine
Odor Threshold: No Data
Boiling Point: No Data
Decomposition Temperature: No Data
Melting Point: No Data
Vapor Pressure (mm Hg at 20°C): No Data
Vapor Density (air = 1): No Data
Solubility in Water: Soluble
Solubility in Other: No Data
Octanol/Water Partition Coefficient: No Data
pH: ~ 11.70
Specific Gravity: 1.00
Bulk Density: No Data
& Volatile by Volume: No Data
VOC (%): No Data
Viscosity: No Data

SECTION 10: STABILITY and REACTIVITY

Chemical Stability

Stable under normal conditions.

Conditions to avoid:

None known.

MSDS (continued) Pyricil SB1

Incompatibility:

Alkaline materials. Attacks mild steel.
Strong oxidizing agents, reducing agents, acids, copper, aluminum, zinc and galvanized surfaces.

Hazardous polymerization:

Not known to occur.

Hazardous decomposition products:

Carbon oxides, ammonia, nitrogen oxides. NOx can react with water vapor to yield nitric acid; under oxygen-starved conditions can produce nitriles, cyanic acid, isocyanates, cyanogens, nitrosamines, amides, carbamates.

SECTION 11: TOXICOLOGICAL INFORMATION

Other effects of overexposure:

N-Methyl-2-Pyrrolidone: In a two-year rat feeding study, males showed signs of chronic progressive nephropathy; no treatment related tumors were seen. At very high repeated inhalation doses (1.0 mg/L), NMP caused focal pneumonia, bone marrow hypoplasia and atrophy of lymphoid tissue, 0.5 mg/L was the no effect level.

Scale Conditioning Agent: Rats orally administered 50 mg/kg for 14 consecutive days developed anemia; no other adverse effects occurred.

Dimethylamine: In a 2-year inhalation study (6 hours/day for 5 days a week) exposing male and female rats to 10, 50 and 175 ppm of dimethylamine, nasal toxicity was similar in both sexes. Lesions were severe at 175 ppm, moderate at 50 ppm and focal and mild at 10 ppm.

Regulated carcinogen(s):

This product contains no components present at concentrations equal to or greater than 0.1% listed by IARC, OSHA, NTP or ACGIH as a carcinogen.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

No Data

Environmental fate:

No Data

Other:

No Data

MSDS (continued) Pyricil SB1

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal method:

This material is toxic to aquatic life. Do not contaminate waterways by cleaning of equipment or by disposal of wastes. Untreated effluent should not be discharged where it will drain into waterways.

Discarded product may be a hazardous waste under RCRA. TCLP should be completed prior to disposal.

This product, or a component of this product, is readily absorbed by the skin and should be handled with caution.

Container disposal:

Empty container retains product residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Remove all product residue from container and puncture or otherwise destroy empty container before disposal.

SECTION 14: TRANSPORT INFORMATION

Not regulated by the US DOT.

SECTION 15: REGULATORY INFORMATION

TSCA (Toxic Substances Control Act):

All ingredients are on the TSCA Chemical Substances Inventory.

N-Methyl-2-Pyrrolidone is subject to TSCA Section 12(b) notification requirements (40 CFR 707.60).

SARA Title III (Emergency Planning and Community Right-To-Know Act):**313 Reportable ingredients:**

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372: ~ 6.0 %
N-Methyl-2-Pyrrolidone ~ 1.1 % Dimethylamine

California Proposition 65:

This product is not known to contain any chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

Canadian Regulations:

CEPA (Canadian Environmental Protection Act): All ingredients are on the DSL (Domestic Substances List).

WHMIS Classifications:

Class D, Division 2B, Toxic.

The New Jersey Right To Know Trade Secret Number(s) is:

Inert ingredient 510390490-3015P Scale Conditioning Agent 510390490-8282P

MSDS (continued) Pyricil SBI

SECTION 16: OTHER INFORMATION

We assigned NFPA and HMIS ratings to this product based on the hazards of its ingredient(s). Because the customer is most aware of the application of the product, he must ensure that the proper personal protective equipment (PPE) is provided consistent with information contained in the product MSDS.*

NFPA Rating:
Health: 3
Fire: 1
Reactivity: 0
Special: No Data

HMIS Rating:
Health: 3
Fire: 1
Reactivity: 0
**Personal Protection: No Data

*This information is intended solely for the use of individuals trained in the particular hazard rating system.

**See appropriate MSDS section.

Revision status:
Version number: 0014
MSDS Version date: 10/27/00
Revision: No Data

Issue date: 11/01/00
Revision:

The information herein is given in good faith but no warranty, expressed or implied, is made.

Prepared by: PJR/IW/EL
Approved by: PJR/IW/KRB/CJW/MC
Approval date: 10/24/00

This MSDS was prepared by the Safety, Health and Environment Group of Avecia Inc. in Wilmington, DE. For further questions, call during regular business hours (800) 435-8679.