



**Boston Edison**

Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, Massachusetts 02360

**E. T. Boulette, PhD**

Senior Vice President — Nuclear

May 22, 1995  
BEC0 95-035

Mr. Edward K. McSweeney  
Branch Chief  
U. S. Environmental Protection Agency  
Waste Water Compliance Section  
JFK Federal Bldg  
Boston, MA 02203

Dear Mr. McSweeney:

In response to an Institute of Nuclear Power Operations (INPO) recommendation for corrosion control of copper alloys, the Pilgrim Nuclear Power Station (PNPS) is requesting approval to add the corrosion inhibitor Tolytriazole to the reactor building and turbine building closed cooling water systems, station heating and the emergency diesel generator cooling water systems. During system maintenance activities requiring full and/or partial system drain downs, the cooling water from these systems would be directed to our neutralizing sump, (NPDES Permit Discharge Point #011).

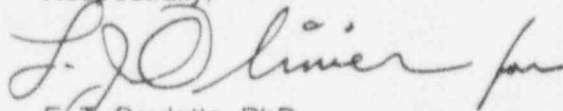
Tolytriazole would be discharged from PNPS Discharge Point #011 only during scheduled plant outages, and during any unplanned system maintenance evolutions. The maximum concentration of Tolytriazole in the neutralizing sump prior to dilution would be 20 mg/L (PPM). The concentration after dilution, prior to discharge to Cape Cod Bay, would be approximately 2.35 PPM with one Salt Service Water pump to just 0.03 PPM with one Circulating Water pump in operation. These concentrations are below the acute and chronic toxicities reported for this chemical.

Attached are the technical bulletin and material safety data sheets for Cobrattec TT-50-S the brand of tolytriazole that would be used. Initial conditioning requires levels of 20 PPM in the treated systems, but after this concentrations would be maintained at 2 PPM. Tolytriazole is commonly used in these concentrations for copper alloy corrosion control by many industries.

We would appreciate your written approval for the use of this chemical at PNPS as described above, as soon as possible. Please contact Mr. Robert D. Anderson at (508) 830-7935 should you need further information regarding this matter.

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PDR ADOCK 05000293  
P PDR

Respectfully,

  
E. T. Boulette, PhD

ETB/RDA/nas/Rap95/PATC

cc: See next page

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cc: Mr. Paul Hogan  
Mass. Department of Environmental Protection  
Division of Water Pollution Control  
Regulatory Branch - 7th Floor  
One Winter Street  
Boston, Mass 02108

U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Senior Resident Inspector  
Pilgrim Nuclear Power Station



# COBRATEC® TT-50-S

## SODIUM TOLYLTRIAZOLE SOLUTION

### CORROSION INHIBITOR

### FOR COPPER AND COPPER ALLOYS

IMPROVES PERFORMANCE OF OTHER INHIBITORS FOR OTHER METALS

TECHNICAL BULLETIN 3210

#### GENERAL DESCRIPTION

COBRATEC® TT-50-S is a corrosion inhibitor for copper and copper-base alloys. It is very similar to COBRATEC® TT-100 in performance and mechanism of protection. It differs only in that it is an aqueous solution of the sodium salt of tolyltriazole. This permits faster make-up of treating solutions through simple dilution to the desired concentration.

COBRATEC® TT-50-S functions by reacting with copper oxide on the surface of copper or copper alloys forming a strong insoluble polymeric complex. This complex formation results in a protective layer or film on the copper surface a few molecules thick, that provides both a mechanical and electrochemical barrier against corrosive attack. This protective layer has a high degree of thermal and oxidative stability and cannot be easily removed. COBRATEC® TT-50-S complexes copper in solution, thereby preventing galvanic corrosion of other metals.

#### SUGGESTED USES

COBRATEC® TT-50-S can be used in most applications where COBRATEC® 99 and COBRATEC® TT-100 are effective. Due to a slightly higher color and odor, compared to COBRATEC® 99, it should be tested by the customer before use in any application where product acceptance may be effected. Otherwise functional substitution is possible. Some specific uses are:

**Circulating Cooling Systems** such as cooling towers, air conditioning systems, cutting and grinding fluids.

**Functional Fluids** such as hydraulic fluids, specialty lubricants and automotive coolants.

**Corrosion Preventive Coatings** such as water base lacquers and waxes.

**Cleaners** such as soaps, detergents and strong alkali or acid cleaners.

#### METHODS OF APPLICATION

COBRATEC® TT-50-S is incorporated in aqueous solutions at concentrations between 0.23% and 4.6%. Where COBRATEC® TT-50-S replaces COBRATEC® TT-100, the amount used should be increased by a factor of 2.3.

#### DESCRIPTION

Chemical Name	Tolyltriazole, sodium salt
Molecular Wt.	155.14
Formula	$C_7H_6N_3Na$
Code	CO-TT-50-S
Order Entry No.	X-8WT7440
CAS Registry No.	64665-57-2

#### PROPERTIES

Appearance	Clear, red brown solution
Solution Density, lb./gal (24°C)	9.85 - 9.95
Crystal Point, °C	-8.0
pH (10% solution)	12
Assay	50%

#### TOXICITY

The acute toxicity data for TT-50-S are as follows:

LD <sub>50</sub> Oral (rats)	920 mg/Kg (Male)
	640 mg/Kg (Female)
Eye and Skin Irritant	Can cause severe irritation**

\*\*Due to free caustic content

The acute aquatic toxicity data for TT-50-S are:

96 Hr. LC <sub>50</sub>	
Bluegill sunfish	191.2 mg/L
Rainbow trout	23.7 mg/L

Chronic Toxicity of TT-50-S to Daphnia Magna

14 day LC <sub>50</sub>	13.2 mg/L
21 day LC <sub>50</sub>	5.8 mg/L

#### SAFE HANDLING

Corrosive solution. Store only in containers resistant to caustic solutions. Wear proper protective equipment for eye and skin protection. Avoid contact with skin, eyes and clothing. Adequate ventilation and other engineering controls should be used to reduce employee exposure where necessary.

#### AVAILABILITY

Readily available from stock in 5 gal. pails and 55 gal. drums. Bulk quantities are also available.

This information is for informational purposes only. It is not intended to be used as a substitute for professional advice. The user assumes all responsibility for the use of this product. The user should consult the Safety Data Sheet for this product for more information. The user should also consult the applicable regulations and standards for the use of this product. The user should also consult the applicable regulations and standards for the use of this product.



# COBRATEC® CORROSION INHIBITORS

## COBRATEC® TT-50S

### TOLYLTRIAZOLE

COBRATEC® TT-50S is an aqueous solution of the sodium salt of Tolyltriazole, a corrosion inhibitor for copper and copper base alloys. COBRATEC® TT-50S forms a barrier film on the surface of copper, and precipitates copper from solution, thereby providing galvanic corrosion protection of other metals. COBRATEC® TT-50S can be used in most applications where COBRATEC® 99 and COBRATEC® TT-100 are effective.

#### FIELDS OF APPLICATION:

- ◆ Circulating Cooling Systems  
Such as cooling towers, air conditioning systems, cutting and grinding fluids.
- ◆ Functional Fluids  
Such as hydraulic fluids, specialty lubricants and automotive coolants.
- ◆ Corrosion Preventive Coatings  
Such as water base lacquers and waxes.
- ◆ Cleaners  
Such as soaps, detergents and strong alkali or acid cleaners.

#### METHOD OF APPLICATIONS:

COBRATEC® TT-50S is incorporated in aqueous solutions at concentrations between 0.23% and 4.6%. Where COBRATEC® TT-50S replaces COBRATEC® TT-100, the amount used should be increased by a factor of 2.3.

#### GENERAL DESCRIPTION:

Chemical Name:	Tolyltriazole, sodium salt
Synonyms:	Sodium Tolyltriazole
	50% Water Solution
CAS #:	54665-57-2
Molecular Wt.:	155.14
Formula:	$C_7H_4N_3Na$
Appearance:	Clear yellow to amber solution
Crystal Point, °C:	-8.0

#### SPECIFICATIONS:

Solution Density,	
lb./gal (24°C):	9.85 - 9.95
pH:	11.5 - 12.0
Assay:	49.5 - 51.0%
Color, Gardner:	10 max
Chloride:	100 ppm max
NaOH:	0.5% max
Specific Gravity:	1.186 - 1.196 (24°C)

#### AVAILABILITY:

COBRATEC® TT-50S is readily available from stock in 5 gallon pails and 55 gallon drums. Alternate package sizes can be provided if required. Call Customer Service for more product information.

Order Entry #: XLSWT7440

Technical Bulletin #: COR4318

#### INFORMATION WINDOW

TOXICITY/REGULATORY TB #: CORTR4318  
ANALYTICAL PROCEDURES APP #: 3001  
AIDS TO FORMULATION APP #: 3005  
INDUSTRIAL USE GUIDE APP #: 3010  
DIRECT TREATMENT APP #: 3033

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#### CUSTOMER SERVICE/ORDER ENTRY:

800/228-3673; 800/227-2442; 800/543-2466 OR FAX 216/358-2787  
20525 Center Ridge Road • Rocky River, OH 44118 • 216-358-0700

This information is believed to be reliable; however, all recommendations are made without guarantee, since the conditions of use are beyond our control. All products are sold without warranty, expressed or implied, and on the condition that purchasers shall make their own tests to determine the suitability of such products for their purpose and that all risks are assumed by the user. Statements contained herein shall not be construed to be a recommendation to infringe any patent.



## MATERIAL SAFETY DATA SHEET

COBRATEC® TT-50S

## SECTION I

MANUFACTURER: PMC SPECIALTIES GROUP, INC.  
ADDRESS: 501 Murray Road  
Cincinnati, OH 45217  
EMERGENCY TELEPHONE: (513) 242-3300  
FOR TRANSPORTATION EMERGENCY: (800) 424-9300  
CHEMICAL NAME AND SYNONYMS: Sodium Tolyltriazole,  
50% Water Solution  
COBRATEC® TT-50S  
TRADE NAMES AND SYNONYMS: Triazole  
CHEMICAL FAMILY:  $C_7H_6N_3Na$   
FORMULA: Caustic alkali liquids, n.o.s.  
DOT SHIPPING DESCRIPTION: (sodium hydroxide), 8, UN1719, PGH  
X18WT7440  
PRODUCT NUMBER:  
NFPA BASED RATING: Health: 3, Flammability: 0, Reactivity: 0  
HMIS RATINGS: Health: 3, Flammability: 0, Reactivity: 0, PPE: F

## SECTION II INGREDIENTS

<u>Material</u>	<u>CAS No.</u>	<u>Wt. %</u>	<u>Exposure Limits</u>
Sodium Tolyltriazole	64665-57-2	49.5-51.0	None Established
Water	7732-18-5	48.5-50.0	None Established
Sodium Hydroxide	1310-73-2	<0.5	TWA=2mg/m <sup>3</sup>

## SECTION III PHYSICAL DATA

BOILING POINT: 100° C  
FREEZING POINT: -8° C  
SPECIFIC GRAVITY: 1.19 @ 25° C  
VAPOR PRESSURE AT 20° C: 0.04 mm Hg  
VAPOR DENSITY: Not Applicable  
SOLUBILITY IN WATER: Miscible in all proportions  
% VOLATILES BY VOLUME: 50% as water  
EVAPORATION RATE: Not Applicable  
(Butyl Acetate = 1)  
APPEARANCE AND ODOR: Clear yellow to amber solution,  
characteristic odor, pH=13.5



## MSDS COBRATEC® TT-50S

1/23/95

Page 2

**SECTION IV FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT:	Not Applicable
AUTOIGNITION TEMPERATURE:	Not Applicable
FLAMMABLE LIMITS IN AIR:	Not Applicable
EXTINGUISHING MEDIA:	Not Applicable

**SPECIAL FIRE FIGHTING PROCEDURES:** Full protective equipment including self-contained breathing apparatus should be used when COBRATEC® TT-50S is present during a fire. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Get medical attention.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Closed containers may rupture or explode due to steam pressure build-up when exposed to extreme heat. Water may be used to cool closed containers.

**SECTION V HEALTH HAZARD DATA**

**EFFECTS OF OVEREXPOSURE:** Corrosive. Prolonged contact can be destructive to tissue. Contact with the eyes may severely damage delicate eye tissue.

**EMERGENCY AND FIRST AID PROCEDURES:** IF ON SKIN: Wash affected area thoroughly with soap and water. Remove contaminated clothing, rings, etc. IF IN EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention. IF SWALLOWED: Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING. Give large amounts of water. Get medical attention. IF INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet. Get medical attention.

**TOXICITY DATA:**

Oral LD <sub>50</sub> (rat)	920 mg/kg (Male) 640 mg/kg (Female)
Eye and Skin Irritant	Can cause severe irritation (due to free caustic content).

**SECTION VI REACTIVITY DATA**

**STABILITY:** Stable

**INCOMPATIBILITY:** Strong Oxidizing Agents, Strong Acids.

**HAZARDOUS DECOMPOSITION PRODUCTS:** BY FIRE: Carbon Dioxide, Carbon Monoxide, Nitrogen oxides, HCN possible in reducing atmospheres.

**HAZARDOUS POLYMERIZATION:** Will Not occur

## SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED:** Pick up sp<sup>m</sup> on suitable absorbent material. Flush spill area with water.

**WASTE DISPOSAL METHOD:** Sanitary landfill or incinerate in approved facilities in accordance with local, state, and federal regulations. Do not heat or incinerate in closed containers.

## SECTION VIII SPECIAL PROTECTIVE INFORMATION

**RESPIRATORY PROTECTION:** If personal exposure cannot be controlled below applicable exposure limits by ventilation, wear respiratory devices approved by NIOSH/MSHA for protection against organic vapors, dust, fumes and mists.

**VENTILATION:** Local exhaust is recommended.

**PROTECTIVE GLOVES:** Necessary to avoid skin contact.

**EYE PROTECTION:** Use safety glasses with unperforated side shields, or full face shield when danger of splashing is great.

**OTHER PROTECTIVE EQUIPMENT:** Rubber apron or similar protective clothing to prevent contact with skin or clothes.

## SECTION IX SPECIAL PRECAUTIONS

**CORROSIVE MATERIAL.** Avoid contact with skin, eyes, and clothing. **DO NOT TAKE INTERNALLY.** Clean up spills immediately.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep containers tightly closed when not in use. Store only in containers which are resistant to caustic solutions.

MSDS COBRATEC® TT-505

2/23/95

Page 4

**SECTION X REGULATORY STATUS**

Tolyltriazole (CAS #29385-43-1) is contained on the following chemical lists:

1. TSCA Section 8(a)/40CFR 712 Preliminary Assessment Information Rule;
2. TSCA Section 8(d) Health and Safety Data Rule.

Sodium Hydroxide (CAS No. 1310-73-2) is contained on the following chemical lists:

1. Clean Water Act Section 311 Hazardous Substances;
2. NIOSH Recommendation Substances;
3. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances;
4. OSHA Air Contaminants;
5. American Council of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value Chemicals;
6. DOT Hazardous Materials;
7. DOT Hazardous Substances Other Than Radionuclides; and Radionuclides;
8. Massachusetts Substance List;
9. New Jersey Right To Know Hazardous Substance List;
10. Pennsylvania Hazardous Substance List;
11. WHMIS Ingredient Disclosure List.

PREPARED: February 23, 1995

SUPERSEDES: July 14, 1994

The information contained herein is based on the data available to us and is believed to be correct as of the date prepared; however, PMC SPECIALTIES GROUP, INC. makes no warranty, expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.