

WHY YOUR RAILROAD SHOULD BE USING DUAL TREATMENT IN YOUR TIE PROGRAM



**Using Cellutreat[®] Liquid Borate DOT
and QNAP[®] Copper Naphthenate**



CuNap TRACK



As reported in CROSSTIES MAGAZINE March/April 2010: After 23 years in track in a high hazard decay zone, dual-treated ties are still going strong.

Comparison Of Tie Conditions



Premature failure, such as the middle tie shown here, is what borate pre-treatments prevent.

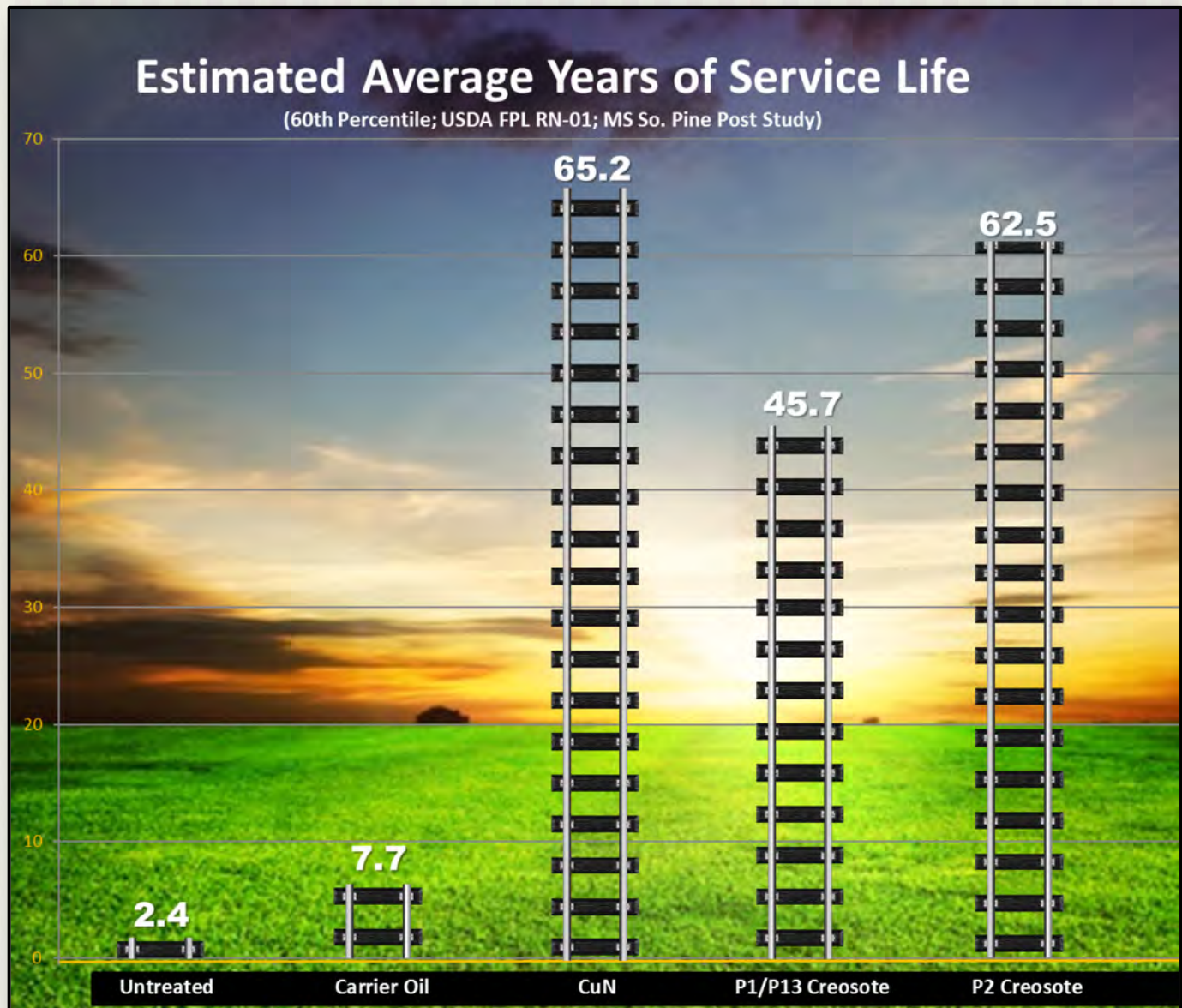


An example of a creosote-only white oak tie failing after nine years of service.



In comparison, this center tie is a dual-treated test tie that remains in near perfect condition after 23 years of service.

QNAP TIES LAST LONGER





ENVIRONMENTAL COMPARISON

CATEGORY	CREOSOTE	QNAP	COMMENTS
HAZARDOUS AIR POLLUTANTS (HAPs) – PERCENT IN RTU SOLUTION	> 80% *	< 10%	* as Polycyclic Organic Matter comprising the majority of creosote
HAPs IN TREATED WOOD, PPM	11,086	111	Total SVOCs (PAHs) and HAP metals (Treated Wood Council, 2015).
TREATED WOOD LIFE EXPECTANCY, YEARS, ESTIMATED 60 TH PERCENTILE SERVICE LIFE.	46	60	Straight run, low residue "clean creosote". USDA FPL RN-01 fence post study, in Freeman et al. 2005. Proc. AWWA. 101:136-143.
PESTICIDE CLASSIFICATION	RESTRICTED USE	GENERAL USE	Restricted use requires that product is used by state-certified applicators or persons under their direct supervision.
TOXICITY CATEGORY	I	II	A rating system where Category I is more toxic than II.
SIGNAL WORD ON EPA LABEL	DANGER	WARNING	Danger is more restrictive than Warning
RCRA LISTED HAZARDOUS WASTE	F034, K001, K035, U051	NOT LISTED	QNAP is not listed as a hazardous waste
SELECT CARCINOGEN	PROBABLE CARCINOGEN	NOT LISTED	QNAP is not listed as a carcinogen or possible carcinogen



ENVIRONMENTAL COMPARISON CONT.

CATEGORY	CREOSOTE	QNAP	COMMENTS
CERCLA REPORTABLE QUANTITY (RQ), LBS.	1	NONE	No reportable quantity requirement under CERCLA if QNAP is spilled.
GHS HAZARD STATEMENTS FROM SUPPLIER SDS	HARMFUL IF SWALLOWED OR IN CONTACT WITH SKIN. MAY CAUSE CANCER. IRRITATING TO SKIN, EYES, AND RESPIRATORY SYSTEM. VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.	COMBUSTIBLE LIQUID. TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.	
GAFF PENETRATION, LBS. FORCE REQUIRED FOR 0.475" PENETRATION OF GAFF (UNTREATED POLE = 422 LBS.)	270 (SP) 305 (DF)	232 (SP) 260 (DF)	Southern pine (SP) and Douglas-fir (DF) were tested. Shupe et al. 2011. Proc. AWWA. 107:150-152.
CONDUCTIVITY, SIEMENS/METER. MEASURED IN LONGITUDINAL (L) AND CROSS-SECTIONAL (X) DIRECTIONS. Lower value = less conductive.	5.0×10^{-7} (L) 9.1×10^{-8} (X)	6.3×10^{-7} (L) 4.64×10^{-8} (X)	Southern pine at 20% moisture content. Ragon et al. 2010. Proc. AWWA. 106:153-167. QNAP is generally less conductive than creosote-treated wood.
ABILITY TO INCREASE ACTIVE INGREDIENT CONTENT IN WOOD WITHOUT INCREASING DRIPPAGE	NO	YES	

WHY US RAILROADS SHOULD BE BORATE-TREATING TIES PRIOR TO AIR DRYING

1. Ties will experience more uniform drying with more uniform checking, less splitting
2. Ties going into track will be much stronger
3. Better Quality Control with easier verification of penetration of preservative and analysis
4. Ties can stay stacked longer without down fall
5. Less down fall of raw ties at the treating plant
6. Can double tie life in some hazard zones
7. Helps prevent internal decay, which is how most ties fail
8. Helps prevent spike kill
9. More efficient use of cylinder time
10. Superior inventory control
 - a. RR and Treating Plants can keep ties in the air longer; use when needed
 - b. Allow for strategic procurement opportunities when market conditions change, buy more ties when hardwood costs are down, and buy less when costs are high
11. Sterilization is done with the 2-step borate treatment
 - a. Eliminate the need to run a 5-hour sterilization cycle on air dried ties
 - b. Lower energy consumption
12. Allows the use of lower-cost pine ties, as they can be safely air-dried without decay



German stacked ties are dip treated in Cellutreat Liquid Borate DOT



Brash failure during installation. Good preservative penetration, but internal decay caused failure.



With 2-Step Dual Treatment, internal decay during air drying is virtually eliminated.



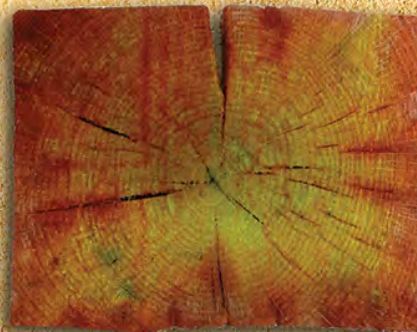
Clean, shiny spikes after 23 years of service illustrate boron corrosion-inhibiting properties.

REDUCE STACK BURN, REDUCE SPIKE KILL & EXTEND TIE LIFE

with dual treatments using Cellutreat® borate before air seasoning followed by QNAP® copper naphthenate.



Untreated gum tie after one-year air seasoning.



*Oak tie dip treated green with Cellutreat then air-seasoned 6 months.**



Gum tie air-seasoned and then pressure treated with QNAP copper naphthenate.



*Gum tie dip treated with Cellutreat and then pressure treated with QNAP.**

**Red color shows borate using a curcumin reagent.*

Contact Ken Laughlin or Kevin Kirkland.

QNAP
COPPER NAPHTHENATE

Nisus
INDUSTRIAL

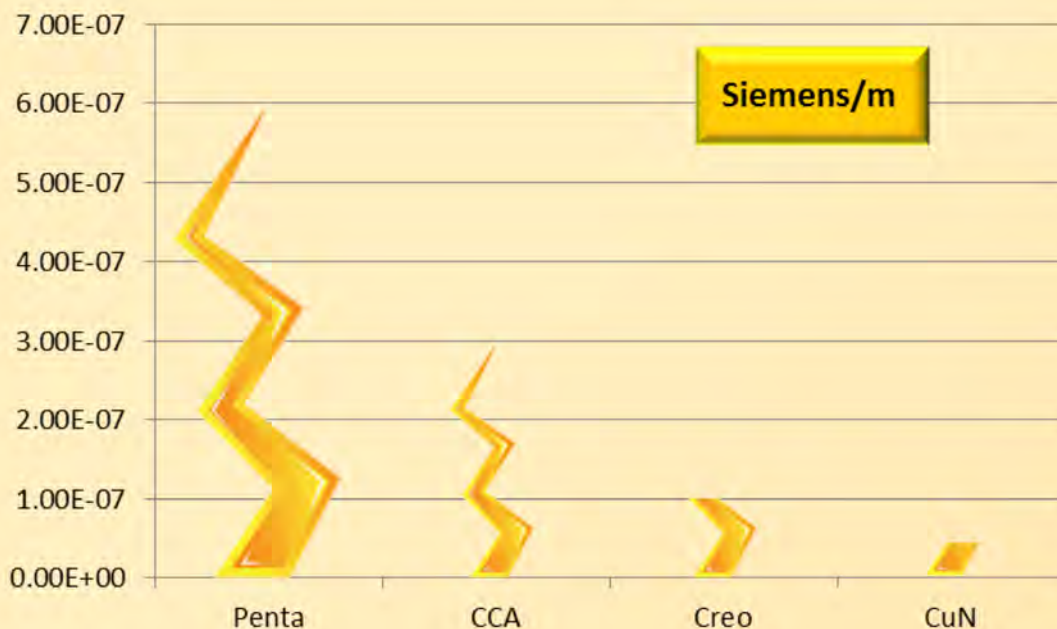
100 Nisus Drive • Rockford, TN 37853

800.264.0870

CELLUTREAT
DOT BORATE WOOD PRESERVATIVE

QNAP COPPER NAPHTHENATE IS LESS CONDUCTIVE THAN CREOSOTE

Treated Wood Resistivity
Copper Naphthenate is Least-Conductive





Nisus
CORPORATION

INTRODUCING
QNAP²
COPPER NAPHTHENATE RTU

**Meets AWPA M-4 End Cut and
Field Cut Requirements for
Above & Below Ground use with
All Wood Preservatives**

Now there is a copper naphthenate 2% oil-borne preservative that can be used in the field as a brush-on applications for end-cuts, dap cuts, drill holes and other applications where treated wood needs protection.

QNAP2 can be used for:

- | | |
|-----------------|-----------------|
| ▪ Bridges | ▪ Crossarms |
| ▪ Pilings | ▪ Railroad Ties |
| ▪ Utility Poles | ▪ Lumber |



For More
Information
Contact:
Ken Laughlin
kenl@nisuscorp.com
520-631-1084



Smart Preservatives

800-264-0870 • www.nisuscorp.com



Note: Will have a slight green tint



End cut treatment needed



Smart Preservatives

800-264-0870 • www.nisuscorp.com

QNAP COPPER NAPHTHENATE AND CELLUTREAT BORATE DOT ARE AVAILABLE FROM

Cellutreat Borate DOT

Amerities South
359 Hwy 278 Hope, AR 71801
John McGinley
jmcginley@amerities.com
(405) 359 3235

Action Tie Company
11460 Hwy 69
Savannah, TN 38372

Dalton Wicker
731-438-5630 cell
731 925 9050 office

Amerities
359 HWY 278
Hope, AR 71801

Gross & Janes Company
157 West Argonne Ave.
Kirkwood, MO 63122

Bill Behan
President
PH: (636) 343-8484
CELL: (314) 686-6081

Missouri Tie and Timber
8324 Highway 72
Bunker MO, 63629

Matt Seal
PH: (573) 689-2040
matt@missouritie.com

Superior Tie & Treating (KCS)
14800 Highway 1 South
Vivian, LA 71082

Scoot Sowell
Plant Manager
rsowell@kcsouthem.com
PH: (318) 375-4956
CELL: (318) 347-9230
FAX: (318) 375-5473

QNAP Copper Naphthenate

Amerities West
100 Tie Plant Road
PO Box 1608
The Dalles, OR 97058
John McGinley
jmcginley@amerities.com
(405) 359-3235

**Conrad Forest Products/
Cox Wood Preserving**
Arbuckle Plant
7085 Eddy Rd
Arbuckle, CA 95912-9789

John Tomlin
PH:: (541) 756-2595
Mitch Seitzinger
PH: (503) 504-1496
<http://www.conradfp.com/>
<https://coxwood.com/>

Hoover Treated Wood Products Inc.
2901 Dixie Wood Drive
PO Box 7807 (71611)
Pine Bluff, AR 71602
Tim Borris
VP of Sales
tborris@frtw.com
800 531 5558
<http://www.frtw.com/>

McFarland Cascade-Stella Jones
22125 Rock Creek Rd.
PO Box 40
Sheridan OR 97378
Kevin Comerford
VP of Sales
kcomerford@stella-jones.com
PH: (800) 430-2371

Mixon Brothers Wood Preserving
P.O. Box 327
Idabel, OK 74745
Bob Mixon
PH: (580) 286-9494
<http://www.mixonbros.com/>

Ozark Timber Treating Corporation
14445 N. Highway 65
St. Joe, AR 72675
Eddie Martin
ozarktimber.net
PH: (870) 439-2212
<http://ozarktimber.net/>

QNAP Copper Naphthenate cont.

Permapost Products Co.
4066 SE Tualatin Valley Hwy.
P.O. BOX 100,
Hillsboro, OR 97123
David Bond
david@permapost.com
PH: (503) 648-4156
<http://www.permapost.com/>

Stella-Jones
1000 Cliff Mine Rd.
Pittsburg, PA 15275
Jim Raines
VP of Sales
jraines@stella-jones.com
PH: (304) 532 3932
FAX: 205-665-2545

Wheeler Lumber
P.O. Box 8
Whitewood, SD 57793
Dave Koch
Sales Manager
dakoch@wheeler-con.com
PH: (800) 843-8304
FAX: (605) 269-2497
<http://www.wheeler-con.com/>

2-Step Cellutreat and QNAP

**Cahaba Pressure Treated
Forest Products**
12755 Montevallo Rd.
Brierfield, AL 35035
Alan Cox
Tie & Timber Sales
acox@cahabatimber.com
PH: (205) 725-3725
FAX: (205) 926-7625

**Mellott Wood Preserving
Company Inc.**
PO Box 209
1398 Sawmill Rd
Needmore, PA 17238
Howard Tomlinson
VP Manufacturing & Sales
howardtomlinson@frontiernet.net
PH: (717) 573-2519
FAX: (717) 573-4534



Nisus Corporation's manufacturing facility is located in the foothills of the Great Smoky Mountains in Rockford, Tennessee.



For More
Information
Contact:
Ken Laughlin
kenl@nisuscorp.com
520-631-1084



**Sustainable Preservatives
For Railroad Ties & Timbers**

800-264-0870 • www.nisuscorp.com